25

KLE Technological University
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KLE TECH

Earlier known as
B. V. B. College of Engineering & Technology

Research and Development

Application for presenting paper at conference by Faculty

(Tick mark against the relevant information)

1244218000 4967

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Satish G J**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **2021 Global Conference on Recent Advancements in Sustainable Materials (GC-RASM 2021)**

Title of the paper: **Optimization of cutting forces and tool-tip temperature in turning of nickel-based superalloy using FE simulation**

Paper Category: **IREF**

Conference serial number: **GC-RASM2021**

Area of Conference: **Materials and Manufacturing**

Conference is in the top % in Scopus/Web of Science: **38**

Name of the host Institute/Organization: **Mangalore**

Date & Timings: **30-07-2021**

Mode of Travel: **Bus**

Registration Amount: **8000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **8000**

...OLOGICAL UNIVERSITY, HUBBALLI
PAID ON
By Cash/Axis Pay Pro/Cheque No:........................
Rs: 8000/-
Date: 06-07-2021
REGISTRAR
BATCH No.
0106072111727

R&D
Pay s/x paper presentation - mech

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**
11th International Conference on Materials Processing and Characterization, Traditional and non-traditional machining of nickel-based superalloys: A brief review	
11th International Conference on Materials Processing and Characterization, Traditional and non-traditional machining of nickel-based superalloys: A brief review	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign 30/06/2021 | Forwarded by HoD | Approved by Dean R&D

HEAD
School of Mechanical Engineering
KLE Technological University, HUBBALLI-31.

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Satish Jangali <jangalisatish@gmail.com>

Your paper RASM 4049 has been ACCEPTED

RASM Conference <gc-rasm@ajiet.edu.in>
To: Satish Jangali <jangalisatish@gmail.com>

25 June 2021 at 19:58

Dear author,

Congratulations!!!

The review and selection process for your paper ID RASM 4049 entitled "Optimization of cutting forces and tool-tip temperature in turning of nickel-based superalloy using FE simulation" has been complete. **Based on the recommendations from the reviewer(s) assigned for your paper, I am pleased to inform you that your paper has been ACCEPTED by the Technical Program Committee (TPC) for** the Global Conference on Recent Advancements in Sustainable Materials(GC-RASM 2021) to be held at AJ Institute of Engineering and Technology, Mangalore, Karnataka, India during 29 - 30, July 2021. Your submission will be accepted for Materials Today Proceedings also.

Registration Process

The registration for GC-RASM 2021 is already open, hence you are requested to complete the registration process as soon as possible. Due date for the registration is 05, July 2021. Please note that registrations beyond the deadline would not be accepted. You may also directly transfer the registration fees to the account given below. Registration form for GC-RASM 2021 shall be found in the conference website under Downloads link. Filled in registration forms along with the payment proof shall be sent to this e-mail id.

The following documents shall also be submitted along with the camera ready paper. All the below documents are available in the website at http://gc-rasm.com/sample-page/downloads/

1. Camera ready paper in strictly in Elsevier publication template (in Microsoft office word file)

2. Proof for registration fee paid through internet banking (Scanned copy)

Please send the soft copies of all the above documents to gc-rasm@ajiet.edu.in before 05, July 2021.

Banking details for registration (only for Indian authors)

Through Google Pay (GPay) :

(+91) 78259 62363

Through PhonePe :

(+91) 78680 02762

B[redacted].ccount details

Account Number: 919020069775258

Account Name: Diligentec Solutions

Type of account: Current account

Name of the Bank: Axis Bank, Peelamedu, Coimbatore

IFSC: UTIB0001748

MICR Code: 641211012

Click here to pay the registration fee using debit/credit cards (Foreign authors should pay through this link only, please do not wire transfer)

Click here to pay using Credit Cards / Debit Cards

Camera Ready Paper (CRP) guidelines

Guidelines for submitting full length papers shall be available at our conference web-link under downloads section (http://gc-rasm.com/sample-page/downloads). I suggest you, to carefully format your paper according to Elsevier Materials Today Proceedings standards.

Please check the following before submitting final camera paper:

1. Title should be clear and reflect the content of the paper precisely.

2. Author(s) name and affiliations are in order (Do not include the designation of authors such as Lecturer, Professor, Research scholar, student and so on..)

3. Do not include prefix to any authors such as Dr., Mr and so on..

4. Please pay attention and ensure that the language of the paper is good.

5. At-least five keywords must be provided

6. Citations of the references in the body of the paper is in line with the Elsevier template.

7. Proposed method has been clearly explained.

8. The organization of the paper is good.

9. All the figures and graphs given in the paper are in good resolution.

10. All the equations are typed using equation editor software.

11. Reference list is in accordance with Elsevier format. This is most important since we found a wrong format lot of papers.

12. Do not include the author(s) biography at the end of the paper.

13. Please do not use first person pronouns such as I, we, us and extra throughout the paper.

14. In the acknowledgement section, do not acknowledge the co-authors and also the affiliated Institute/center.

Papers, not strictly following Elsevier formats or having plagiarism, may be declined to be published in Elsevier's Materials Today Proceedings. The camera ready papers in Microsoft office word document shall be submitted to the same mail Id (gc-rasm@ajiet.edu.in) as soon as possible. Other formats of the camera ready paper such as Latex, pdf WILL NOT BE accepted by the GC-RASM publication office. However, the pdf formats will be accepted if the paper had been written in Latex provided that the pdf version of the camera ready paper strictly follows the Elsevier template.

Submitting the Camera Ready Paper (CRP) to gc-rasm@ajiet.edu.in (will be used for the print proceedings which will be distributed during the conference) and uploading the manuscript in EES (will be published online in Materials Today Proceedings) are different submissions. But both should be done with the same up-to-date manuscript.

Submission to Elsevier's Materials Today Proceedings (MTPR)

All the papers which have been accepted for GC-RASM 2021 should be submitted to Elsevier's Materials Today Proceedings (MTPR) through *Elsevier's Editorial Manager Submission System* for Materials Today Proceedings. Please follow the procedure as detailed below while submitting the manuscript. **If you have not uploaded your paper already in (MTPR), please submit immediately.**

STEP 1. The submission website for Materials Today: Proceedings journal is located at : https://www.editorialmanager.com/matpr/default.aspx
STEP 2. Authors must select "GC-RASM 2021" when they reach the "Article Type" step in the submission process.
STEP 3. Authors may use the template uploaded here to create their article.

Please visit here for author guidelines to prepare and submit your final camera ready paper to Materials Today: Proceedings

Technical support and contact

Please contact Mr. Sivakumar K @ (+91) 97894 89103 either by call or WhatsApp for queries and support related to your submission and GC-RASM 2021.

Please do not hesitate to contact us for further queries (if any). Visit our website for the updates of GC-RASM 2021.

We look forward to your participation in GC-RASM 2021. Many thanks for your support to GC-RASM 2021.

With Best Regards,

With Best Regards,

Dr. Sangeetha D M

Organizing Chair, GC-RASM 2021,

AJ Institute of Engineering and Technology

Mangalore I Karnataka I India

Contact: (+91) 78680 02762

Website: www.gc-rasm.com

B - 2, Sri MS Residency, Anna Nagar East
Peelamedu, Coimbatore - 641 004
Tamil Nadu, INDIA
GSTIN: 33AVIPR9866L1ZN

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Fee Receipt

No.: 935

Date: 11-12-2021

Cash received from JANGALI SATISH G. [RASM4049]

the sum of Rs. EIGHT THOUSAND ONLY

towards Registration fee for GC-RASM 2021

Rs. 8000/-

✓ Cash / Cheque / On-line transfer

DILIGENTEC INDIA COIMBATORE - 641 004

Received by

KLE Technological University

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Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International [✓] **within India** [ ] **outside India**

Name of the Faculty: **Madhusudhana H K**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **Third International Conference on Materials Science and Manufacturing Technology 2021 (IC MSMT 2021)**

Title of the paper: **A REVIEW ON LIGHTWEIGHT METAL COMPONENT FORMING AND ITS APPLICATION**

Category: **IREE**

Conference serial number:

Area of Conference: **Materials**

Conference is in the top % in Scopus Web of Science: **22**

Name of the host Institute/Organization: **Coimbatore, India**

Date & Timings: **16-04-2021**

Mode of Travel: --

Registration Amount: **12500**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **12500**

TECHNOLOGICAL UNIVERSITY, HUBBALLI.
PAID ON
By Cash/Axis Pay Pro/Cheque No:.....
Rs: 12500/-
Date: 08-04-2021
REGISTRAR
BATCH No.
0108042122013

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

R&D
Paper Presented - Madh

Please pay my Account
Name: Madhusudhana. H.K
A/C No: 194421800050 57
Mob: 9164518139

Gmail

Madhusudhana HK <hkmadhu30@gmail.com>

Your paper has been accepted for presentation and publication

1 message

ICMSMT 2021 <icmsmt2021@gmail.com>
To: Madhusudhana HK <hkmadhu30@gmail.com>

Wed, Apr 7, 2021 at 11:53 AM

Dear author,

Greetings!!!!

The review and selection process for your paper ID MS 7089 entitled "**A REVIEW ON LIGHTWEIGHT METAL COMPONENT FORMING AND ITS APPLICATION**" has been complete. **Based on the recommendations from the reviewer(s) assigned for your paper, I am pleased to inform you that your paper has been ACCEPTED by the Technical Program Committee (TPC) for** the 2021 Third International Conference on Materials Science and Manufacturing Technology (ICMSMT 2021) during 15 - 16, April 2021 at The Hotel Aloft, Coimbatore, Tamil Nadu, India.

Publication

I would like to bring to your notice that there are two publication options for ICMSMT 2021 submissions as detailed below.
1. IOP: Materials Science and Engineering - https://iopscience.iop.org/journal/1757-899X
2. Materials Science Forum (MSF) Journal - https://www.scientific.net/MSF/Details

If you prefer to submit your paper for Materials Science Forum (MSF), I would like to request you to fill the below link and upload your paper in pdf format ASAP.

https://forms.gle/RDPt49xmQDQRbKst7

The submission link is also available on the conference website.

Upon the successful submission of the form, you will receive the submission link from MSF. If you have more than one paper to submit, please fill the forms separately for each paper and use different email ids. Thai is important since the MSF submission system accepts only one paper per email. Please note that papers falling under Materials Science and Engineering scope only will be considered for MSF.

The registration fee for IOP and MSF are different. Please visit the registration page of the ICMSMT 2021 http://icmsmt.com/registration/ for the details.

For IOP:Materials Science and Engineering publication option, you need not to fill the document. Only email submission (to icmsmt2021@gmail.com) is enough for processing and publication in IOP: Materials Science and Engineering.

Publication links of previous editions of ICMSMT (2020/2019)
Click https://www.scientific.net/MSF.1019 to access the special issue of ICMSMT 2020 in Materials Science Forum (indexed as journal special issue not as conference proceedings).

Click https://iopscience.iop.org/issue/1757-899X/872/1 to access the proceedings of ICMSMT 2020 in IOP:Materials Science and Engineering.

Click https://iopscience.iop.org/issue/1757-899X/561/1 to access the proceedings of ICMSMT 2019 in IOP:Materials Science and Engineering.

Please contact us at (+91)7868002762 (WhatsApp also) if you have any questions,

Registration

The registration for ICMSMT 2021 is already open, hence you are requested to complete the registra... before 09, April 2021. Since the registration fee for IOP:MSE and MSF journal are different, please check the ... details of ICMSMT 2021 here and proceed your registration accordingly. The registration form is available here for ... reference. The templates of the IOP:MSE are available here.

You may pay the registration fee in any one of the methods below

You can transfer the registration fee by UPI from any of the following methods

Google pay (GPay)

+91 97894 89103 (Sivakumar)

Phone Pe

+91 97894 89103 (Sivakumar)

UPI ID

9789489103@kotak (Sivakumar)

Alternatively you can directly transfer through NEFT and IMPS

Account Number: 919020069775258
Account Name: Diligentec Solutions
Type of account: Current account
Name of the Bank: Axis Bank, Peelamedu, Coimbatore
IFSC: UTIB0001748

MICR Code: 641211012

Alternatively you may pay the registration fee from debit/credit cards through the following link (Foreign authors should pay through this link only). Authors may request for invoice, if required.

Click here to pay using Credit Card/ Debit Card

The following documents shall also be submitted along with the camera ready paper. The registration form is available in the conference website

1. Camera ready paper in your preferred publication template (in Microsoft office word and pdf files)
2. Proof for registration fee paid
3. Filled in "Registration" form
4. Plagiarism report(Please make sure the plagiarism score is below 25%)

Please send the soft copies of all the above documents to icmsmt2021@gmail.com once you paid the registration fee.

Third International Conference on

Materials Science and Manufacturing Technology 2021 (ICMSMT 2021)

15 - 16, April 2021 | Coimbatore, India | www.icmsmt.com

CERTIFICATE

MS 7089

Peer Reviewed

This certificate is presented to

H K Madhusudhana

Asst. Professor, School of Mechanical Engineering,
KLE Technological University,
Hubballi, Karnataka, India.

for presenting the research paper entitled "**A Review on Lightweight Metal Component Forming and its Application**" in the Third International Conference on Materials Science and Manufacturing Technology 2021 (ICMSMT 2021) held at Hotel Aloft, Coimbatore, Tamil Nadu, India during 15 - 16, April 2021. Due to the ongoing Covid-19 pandemic around the world, the conference has been conducted in FULL VIRTUAL MODE.

Dr. Ramya Muthusamy
Chair - TPC & Editor

Industry Partner

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Publication Partners

IOPscience

Scientific.Net

Academic Partner

AKSHAYA

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Research and Development

Application for presenting paper at conference in/of Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: **Nagaraj Ekabote**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **International Conference on Advances in Physical Sciences and Materials**

Title of the paper: **Effect of Loading Rate on Tensile and Fracture behavior of AA2050-T84 alloy at High Temperature**

Paper Category: **Others**

Conference serial number:

Area of Conference: **Physical Sciences and Materials**

Confe[illegible] is in the top % in Scopus/Web of Science: Q4 & 23% percentile

Name of the host Institute/Organization: **SNS College of Technology, Coimbotore**

Date & Timings: **12-08-2021**

Mode of Travel: **NA (online mode)**

Registration Amount: **9000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **9000**

TECHNOLOGICAL UNIVERSITY, HUBBALLI.
PAID ON
By Cash/Axis Pay Pro/Cheque No:.....
Rs: 9000/-
Date: 18-09-2021
REGISTRAR
BATCH No.
0118092118 15

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
International Conference on Design, Automation and Control (ICDAC), Suitability of Fracture Test Specimens for Low Constraint Conditions	
International Conference on Advances in Physical Sciences and Materials, Effect of Loading Rate on Tensile and Fracture behavior of AA2[illegible]T84 alloy at High Temperature	
International Conference on Advances in Physical Sciences and Materials, Effect of Loading Rate on Tensile and Fracture behavior of AA2050-T84 alloy at High Temperature	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science : Both Scopus & WoS.

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

A/c Number: 124421800035 17
A/c name : Nagaraj Ekabote
[IFSC: CNRB0011244]

R&D
Paper Pub - men.

Registration form

Date: 12/06/2021

Name of the author	Nagaraj Ekabote
Paper ID	PSM 3012
Title of the paper	Effect of loading rate on tensile and fracture behavior of AA2050-T84 alloy at high temperature
Qualification	M.Tech
Designation	Assistant Professor
Name of the Institute	K.L.E Technological University
Address	Vidya nagar, HUBBALLI - 580031. KARNATAKA, INDIA.
Phone Number:	+91 9591017854
WhatsApp Number:	+91 9591017854

Registration details

Fee paid	9000/-	Reference number	4542052614
Date	12/06/2021	Bank Name	Canara Bank

Special request to the committee* (if any)

Nothing.

Nagaraj Ekabote

SIGNATURE

17-9-21

2021 Second International Conference on

Advances in Physical Sciences and Materials (ICAPSM 2021)

12 - 13, August 2021 | Coimbatore, India | www.icapsm.com

CERTIFICATE

Publication Partner
IOPscience

PSM 3012
Peer Reviewed

This certificate is presented to

Nagaraj Ekabote
School of Mechanical Engineering
KLE Technological University.
Hubballi -580031
Karnataka, India. .

for presenting the research paper entitled "**Effect of Loading Rate on Tensile and Fracture Behaviorof AA2050-T84 alloy at high temperature**" in the Second International Conference on Advances in Physical Sciences and Materials (ICAPSM 2021) held at Coimbatore, Tamil Nadu, India during 12 -13, August 2021. Proceedings of the ICAPSM 2021 will be published by the Institute of Physics, United Kingdom in the IOP: Journal of Physics Conference Series (JPCS), a conference proceedings journal.

Dr. Thangaprakash Sengodan
Chair - TPC

Academic Partner
SNS COLLEGE OF TECHNOLOGY

CMS Partner
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ICAPSM 2021

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Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Santosh Billur**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **PRIME-2021(International Conference on Progressive Research in Industrial & Mechanical Engineering)**

Title of the paper: **Design and process optimization of Front Lower Control Arm based on dynamic behavior**

Paper Category: **IREF**

Conference serial number:

Area of Conference: **DESIGN ENGINEERING**

Conference is in the top % in Scopus/~~Web of Science~~: Q4 (Scopus indexed)

Name of the host Institute/Organization: **NIT-PATNA**

Date & Timings: **05-08-2021**

Mode of Travel: **ONLINE**

Registration Amount: 7000/-

Estimated Amount for TA:

Estimated Amount for DA:

Total Amount: **0**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**
PRIME-2021(International Conference on Progressive Research in Industrial & Mechanical Engineering), Design and process optimization of Front Lower Control Arm based on dynamic behavior	

Recommendations by Head: The paper is indexed by Scopus/ ~~Web of Science~~

Conferences within India:

SBillur
Faculty Sign

Forwarded by HoD

Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

CANARA BANK A/c No:1244218000685

KLE TECHNOLOGICAL UNIVERSITY, HUBBALLI.
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By Cash/Axis Pay Order/Cheque No:
Rs: 7000/- 06/09/2021
Date:
REGISTRAR
BATCH NO.
0106092122925

Paper Id; **160**

Paper Tittle; **Design and process optimization of Front Lower Control Arm based on dynamic behavior.**

Payment Details; 7000.00 Rs (Seven Thousand Rupees paid)

Transaction Id; 116711957080

Date ; 16 June 2021 from ICICI Bank, Gokul Rd Branch, Hubli

PRIVILEGE BANKING | ICICI Bank khayaal aapka

Dear Customer

You have made an online payment of INR 7000.0 towards NITPATNA from your Account XX797 on Jun 16, 2021 at 11:02 hours. The Transaction ID is 116711957080.

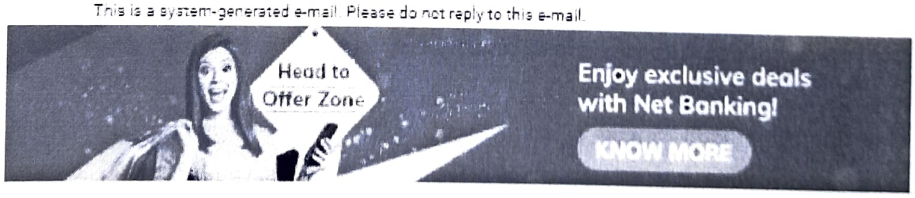
In case you have not done this transaction, to report it please call on 18002662 or SMS BLOCK 797 to 9215676766 from your registered mobile number.

Never share your OTP, URN, CVV or passwords with anyone even if the person claims to be a bank employee.

Sincerely,

ICICI Bank Privilege Banking

This is a system-generated e-mail. Please do not reply to this e-mail.



16/06/2021		MMT/IMPS/116711957080/Paper-160 amnt/NIT PATNA /ID	7000.0	0.0

Receipt No.: prime2021_071

Date: 07/August/2021

Paper ID: 160

राष्ट्रीय प्रौद्योगिकी संस्थान पटना

National Institute of Technology Patna

Department of Mechanical Engineering

International Conference on

Progressive Research in Industrial & Mechanical Engineering

(PRIME - 2021)

5th – 7th August, 2021

(Fee Receipt)

Received with thanks from **SANTOSH BILLUR** of **KLE TECHNOLOGICAL UNIVERSITY HUBBALLI** a sum of **Rs. 7000** *(In words)* ***Seven Thousands Only*** as a registration fees for the three-day International Conference on Progressive Research in *Industrial & Mechanical Engineering PRIME-2021* organised by the Department of Mechanical Engineering, NIT Patna.

Dr. Amit Kumar
Organizing Chairman
PRIME-2021

PRIME - 2021

International Conference

on

Progressive Research in Industrial & Mechanical Engineering

CERTIFICATE OF PARTICIPATION

This Certificate is presented to

SANTOSH BILLUR

from **"KLE TECHNOLOGICAL UNIVERSITY HUBBALLI"** for presenting a paper entitled **"Design and process optimization of Front Lower Control Arm based on dynamic behavior" (Paper ID: 160)** in the ***International Conference on Progressive Research in Industrial & Mechanical Engineering (PRIME-2021)*** organized by the ***Department of Mechanical Engineering, NIT Patna*** during ***5th to 7th August 2021*** in online mode.

Prof. Prakash Chandra — **Dr. Amit Kumar**

Organizing Chairman

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Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Shreeshail Mahesh Lalsangi**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **INTERNATIONAL CONFERENCE ON MATERIALS RESEARCH IN SCIENCE AND ENGINEERING - KMRSE'21**

Title of the paper: **Finite Element Analysis of Light Motor Vehicle Subframe for Mass Optimization**

Paper Category: **IREF**

Conference serial number: **1**

Area of Conference: **Theoretical simulations for engineering applications**

Conference is in the top % in Scopus/Web of Science: yes.

Name of the host Institute/Organization: **Virtual Online**

Date & Timings: **23-07-2021**

Mode of Travel: **Online Conference Virtual**

Registration Amount: 6,500 /-

Estimated Amount for TA: Online.

Estimated Amount for DA: Online.

Total Amount: :- Rs. 6,500 /-

for PUB page charges

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
8th International Conference on Transformations in Engineering Education, "An attempt to impart engineering drawing standards through problem based learning approach"	
International Conference on Transformations in Engineering Education, "An attempt to impart engineering drawing standards through problem based learning approach"	
INTERNATIONAL CONFERENCE ON MATERIALS RESEARCH IN SCIENCE AND ENGINEERING - KMRSE'21, Finite Element Analysis of Light Motor Vehicle Subframe for Mass Optimization	

KLE TECHNOLOGICAL UNIVERSITY, HUBBALLI.
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By Cash/Axis Pay
Rs: 6500/-
Date: 06/09/2021
010609212925
REGISTRAR

Recommendations by Head: The paper is indexed by Scopus/ Web of Science - Yes.

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

HEAD
School of Mechanical Engineering
KLE Technological University, HUBBALLI-31.

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

acc. no.- "124421800057 51"

KUMARAGURU
college of technology
character is life

International Conference on Materials Research in Science and Engineering
KMRSE'21

Registration Fee Receipt

Name of the Author	Mr. Shreeshail M. L
Affiliation	KLE Technological University
KMRSE'21 paper id	1
KMRSE'21 paper title	Finite Element Analysis of Light Motor Vehicle Subframe for Mass Optimization
Conference Delegate Category	Faculty
Amount Paid	Rs. 6,500
We acknowledge the receipt of the payment as detailed above, towards the registration fee for the International Conference on Materials Research in Science and Engineering KMRSE'21, scheduled during 23-25th July 2021 at Kumaraguru College of Technology, Coimbatore, Tamil Nadu, India	

Dr. Sundararaj K

For KMRSE'21 Organising Committee

AIP Publishing

Presents this

CERTIFICATE

This certificate is awarded to

MR.SHREESHAIL M. L., ASSISTANT PROFESSOR

School of Mechanical Engineering, KLE Technological University, Karnataka has presented a paper titled "Finite Element Analysis of Light Motor Vehicle Subframe for Mass Optimization" in the International Conference on Materials Research in Science and Engineering (KMRSE'21) organized by Kumaraguru College of Technology, Coimbatore, Tamil Nadu, India from 23 to 25 July 2021.

Professor& Head / Aero
Dr.K.Sundaraj
Kumaraguru College of Technology

Principal
Dr. Saravanan D
Kumaraguru College of Technology

Date: 23-12-2021

To,

The Registrar,

KLE Technological University,

Hubballi

Advance Settlement of Bill

Respected Sir,

Subject: Bill settlement towards the advance amount taken for REES 2021.

The Research in Engineering Education Symposium & Australasian Association for Engineering Education Conference will be held during Dec 5-8, 2021. As KLE Tech is the host for this conference during 2023. In this regards I have taken advance amount of Rupees 56,500/- towards the registration fee for 5 faculty.

Herewith I am attaching the registration details of all registrants along with the processing fee.

The following table contains the details of the registration.

Sl.No	Name of the Faculty	Registration Amount in Australian dollar	Amount in Rupees includes the processing fee
1	Dr. Prakash G.Tewari	$152.97	8475.01
2	Dr. B.B.Kotturshettar	$152.97	8475.01
3	Dr. Vijayalakshmi M.	$152.97	8475.01
4	Ms. Preeti Baligar	$101.98	5650.21
5	Mr. Prakash Hegade	$152.97	8475.01
		Total Amount in Rupees	39,550.34
		Advance Amount Taken	56,500.00
		Amount to return to Finance officer	16949.66

Thanking you,

Vijayalakshmi M

Director, CEER

Encl:

1. Registration Details
2. Axis bank Account statement
3. Phone pe transaction details

RAD settlement of Adv. w8c - CEER

23/12

Date: 23-11-2021

To,

The Registrar,

KLE Technological University,

Hubballi

...OLOGICAL UNIVERSITY, HUBBALLI.
PAID ON
By Cash/Axis Pay Pro/Cheque No:
Rs: 56500/-
25-11-2021
01251121431

Respected Sir,

Subject: Requesting for permission to virtually attend Research in Engineering Education Symposium & Australasian Association for Engineering Education Conference during Dec 5-8,2021

The Research in Engineering Education Symposium & Australasian Association for Engineering Education Conference will be held during Dec 5-8,2021. As KLE Tech is the host for this conference during 2023, I request your permission for 3 to 5 members to attend this conference. The cost of each virtual registration is $150 USD (for 5 members $750 and in Rupees 56500/- + processing charges).

So I request you to grant the permission to attend virtually and sanction the registration amount.

For your reference, the following documents are enclosed

i. Registration information

List of members who are attending conference

1. Prof. P.G. Tewari
2. Prof. B.B. Kotturshetti
3. Prof. Vijayalakshmi M
4. Mrs. Preeti Baligar
5. Mr. Prakash Hegde

Thanking you,

Vijayalakshmi M

Director, CEER

To Accounts to credit the sanctioned amount to Prof. Vijayalaxmi as advance. A copy my be given to R&D section

For R&D
24/11
Adm..

University of Western Australia
35 Stirling Hwy
Crawley WA 6009

Australia

REES AAEE 2021

Tax Invoice

Prof. Basavaraj B. Kottureshettar
KLE Technological University
Vidya nagar
Hubballi
Karnataka 580031
India

Invoice Number:	257
Invoice Date:	Nov 26, 2021
Reference:	292

Details		Qty	Net	Tax	Total (AUD)
Virtual Registration		1	136.36		150.00
	GST			13.64	
Mastercard fee - <292: Kottureshettar, Prof. Basavaraj B.>		1	2.70		2.97
	GST			0.27	
TOTAL:			**139.06**	**13.91**	**152.97**

Tax Breakdown:

GST	10.00%	13.91
Total Taxes:		**13.91**

Account Total Paid (AUD): **152.97**

Account Total Owing (AUD): **0.00**

Payment at time of registration is required by credit or debit card. Accepted credit/debit cards are Visa, MasterCard and AMEX. Please note credit card fees of 1.98% apply.

Please note that transactions will appear on your statement as 'Watermark Events', our registration technology provider.

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Advance Settled

Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: **Shivanand Prabhuswamimath**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **Second online International Conference on Advances in Management and Technology**

Title of the paper: **ICT adoption to Enhance SCM performance in manufacturing sector - A Systematic Literature Review**

Paper Category: **IREF**

Conference serial number:

Area of Conference: **Management**

Conference is in the top % in Scopus/Web of Science: Yes, 25/...

Name of the host Institute/Organization: **Nagpur,India**

Date & Timings: **11-12-2021**

Mode of Travel: **NIL**

Registration Amount: **750**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **750**

UNIVERSITY, HUBBALLI ... ON
By Cash/Axis Pay Pro/Cheque No:..........
Rs: 750/-
Date: 12-10-2021
01121021 25047 REGISTRAR

Pooja Delar 12/10.

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India —	**Attended Conference & Paper details outside** —

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India: Yes

Faculty Sign 07/10/2021 Shivanand P P | Forwarded by HoD | Approved by Dean R&D

HEAD
School of Mechanical Engineering
KLE Technological University, HUBBALLI-31.

Conferences Outside India:

Approved by:

HoD	Dean Academics	Dean P & D	Dean R&D

Account Details
Shivanand P Prabhuswamimath
A/c No: 1244 218 0000246
IFSC Code: CNRB 0011244
Canara Bank, BVB College Campus.

Ac 11/10

PAYMENT REQUEST

Mazedan International Research Academy

ICAMT 2021 Registration

₹ 750.00

Payment Completed

You have successfully paid ₹ 750.0

Paid On 7 Oct 2021

Payment ID: 14077716137

AMT-2021

ecember 11-12, 2021)

Sadabai Raisoni Women's College, Nagpur, India

Mazedan International Research Academy, New Delhi, India

CERTIFICATE OF PARTICIPATION

This certificate is awarded to

SHIVANAND P PRABHUSWAMIMATH

From KLE Technological University, Hubballi-580031, India.

for his/her participation in the Second International Conference on Advances in Management and Technology (ICAMT-2021) on December 11-12, 2021 at Nagpur India. In a online technical session, he/she has successfully presented a paper on ***ICT adoption to Enhance SCM performance in manufacturing sector - A Systematic Literature Review.***

PROF. AMINA VALI
ORG CHAIR, ICAMT- 2021
PRINCIPAL, S.R.W.C. NAGPUR

DR. SHAKTI SHARMA
CONVENER, ICAMT- 2021
S.R.W.C. NAGPUR

DR. VIVEK SRIVASTAVA
ORG. SEC., ICAMT- 2021
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www.mazedan.com

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Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty : **Nagaraj Ekabote**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **Third International Conference on Recent Advances in Materials and Manufacturing (IC RAMM 2021)**

Title of the paper: **Temperature and Test Specimen Thickness (TST) effect on tensile and fracture behavior of AA2050-T84 alloy**

Paper Category: **Others**

Conference serial number:

Area of Conference: **Development of novel materials, their characterisation techniques,**

Conference is in the top % in Scopus/Web of Science: **38** [Quartile 3]

Name of the host Institute/Organization: **Kolhapur, Maharashtra**

Date & Timings: **25-11-2021**

Mode of Travel: **May be online**

Registration Amount: **8000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **8000**

R&D 12/10 Advance

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Rs: 8000/-
Date: 12-10-2021
011210212504 REGISTRAR

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
International Conference on Design, Automation and Control (ICDAC), Suitability of Fracture Test Specimens for Low Constraint Conditions	
International Conference on Advances in Physical Sciences and Materials, Effect of Loading Rate on Tensile and Fracture behavior of AA2050-T84 alloy at High Temperature	
International Conference on Advances in Physical Sciences and Materials, Effect of Loading Rate on Tensile and Fracture behavior of AA2050-T84 alloy at High Temperature	
International Conference on Design, Automation and Control (ICDAC), Suitability of Fracture Test Specimens for Low Constraint Conditions	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science : Both

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India: A/c Number : 1244218000 3517 IFSC : CNRB0001244

Approved by: Name : Nagaraj Ekabote

HoD | Dean Academics | Dean P & D 11/10 | Dean R&D

Organized by

Department of Mechanical Engineering
D. Y. Patil College of Engineering & Technology
Kolhapur, Maharashtra, INDIA

Publications

The proceedings of ICRAMM 2021 will be published in the

materialstoday PROCEEDINGS

Registration

INDIAN AUTHORS	REGISTRATION FEES
Graduate Student	Rs. 8,000
Research Scholar / Academician	Rs. 8,000
Industry and Others	Rs. 10,000
Poster*	Rs. 4,000
Listener	Rs. 2,000
Extra page charge (if more than 12 pages)	Rs. 500 / Page
One day excursion	Nil

News & Updates

Registration of ICRAMM 2021 [illegible]
2021

2021 Third International Conference on

Recent Advances in Materials and Manufacturing (ICRAMM 2021)

25 - 26, November 2021 | Kolhapur, Maharashtra, India | www.icramm.com

CERTIFICATE

EMTP 4081

Peer Reviewed

Publication Partner

ELSEVIER

This certificate is presented to

Nagaraj Ekabote
School of Mechanical Engineering
KLE Technological University,
HUBBALLI-580031
KARNATAKA.

for presenting the research paper entitled "**Temperature and Test Specimen Thickness (TST) effect on tensile and fracture behavior of AA2050-T84 alloy**" in the 2021 Third International Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2021) held at the Department of Mechanical Engineering, D Y Patil College of Engineering and Technology, Kolhapur, Maharastra, India.

Dr. Sunil J Raykar
Convener, HoD, Mech. Engg.

Dr. S D Chede
Principal, DYPCET

Dr. A K Gupta
Executive Director, DYP Group

Organized by

Department of Mechanical Engineering
D Y Patil College of Engineering and Technology
Kolhapur, Maharastra, INDIA

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139

Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Vinayak Khatawate**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **Third International Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2021)**

Title of the paper: **EXPERIMENTAL AND NUMERICAL STUDIES ON THE HEAT TRANSFER CHARACTERISTICS OF SMALL SHELL AND TUBE HEAT EXCHANGER**

Paper Category: **IREF**

Confer[redacted]rial number:

Area of Conference: **Advances in Materials and Manufacturing**

Conference is in the top % in Scopus/Web of Science: **35** Q3

Name of the host Institute/Organization: **Kolhapur**

Date & Timings: **25-11-2021**

Mode of Travel: **NA**

Registration Amount: **8000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **8000**

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Rs: 8000/-
Date: 28/10/2021
REGISTRAR
BATCH No. 01281021 20172

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

HEAD
School of Mechanical Engineering
KLE Technological University, HUBBALLI-31.

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

A/c name : Vinayak P Khatawate
A/c number : 1244 2180003502
Bank : Canara Bank , BVB Campus
IFSC : CNRB0011244.

Accts
27/10
28/10
Paper Presentation

+91 78259 62363

₹8,000.00

ICRAMM2021 EMTP5019

Completed • 25 Oct, 17:13

State Bank of India
XXXXXX3387

UPI transaction ID
129817150498

To: RAMYA M
ramsthangam@okhdfcbank

From: KHATAWATE VINAYAK P (State Bank of India)
vinayak.khatawate@oksbi

Google Transaction ID
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2021 Third International Conference on

Recent Advances in Materials and Manufacturing (ICRAMM 2021)

25 - 26, November 2021 | Kolhapur, Maharashtra, India | www.icramm.com

CERTIFICATE

Publication Partner

ELSEVIER

EMTP 5019
Peer Reviewed

This certificate is presented to

Vinayak P. Khatawate
School of Mechanical Engineering,
BVB College of Engineering and Technology,
KLE Technological University, Hubballi, India.

for presenting the research paper entitled "**Experimental and Numerical Studies on the Heat Transfer Characteristics of Small Shell and Tube Heat Exchanger**" in the 2021 Third International Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2021) held at the Department of Mechanical Engineering, D Y Patil College of Engineering and Technology, Kolhapur, Maharastra, India.

Dr. Sunil J Raykar
Convener, HoD, Mech. Engg.

Dr. S D Chede
Principal, DYPCET

Dr. A K Gupta
Executive Director, DYP Group

Organized by
Department of Mechanical Engineering
D Y Patil College of Engineering and Technology
Kolhapur, Maharastra, INDIA

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Rs: 2500/-
Date: 29-01-2022
REGISTRAR
BATCH No.
0129012366

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Vinayak N Kulkarni**
School/Department/Center: **School of Mechanical Engineering**
Conference Name: **International Conference on Transformations in Engineering Education**
Title of the paper: **Managing the online classroom and academic activities through PLM platform in crisis context**
Paper Category: **Others**
Conference serial number:
Area of Conference: **Engineering Education**
Conference is in the top % in Scopus/Web of Science: **20** Q3 .
Name of the host Institute/Organization: **Virtual**
Date & Timings: **07-01-2022**
Mode of Travel:
Registration Amount: **2500**
Estimated Amount for TA:
Estimated Amount for DA:
Total Amount: **2500**

Account Details:-
Vinayak N. Kulkarni
Acc no:- 1264218000332g
Canara Bank - BVB branch.

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science
Conferences within India:

Faculty Sign

Forwarded by HoD

HEAD
School of Mechanical Engineering
KLE Technological University, HUBBALLI-31.

Approved by Dean R&D

Conferences Outside India:
Approved by:

HoD	Dean Academics	Dean P & D	Dean R&D

Gmail

Vinayak N Kulkarni <vinayak33me@gmail.com>

Your Order at IUCEE Foundation is successful

payment-report@payu.in <payment-report@payu.in> Sat, Dec 11, 2021 at 12:42 PM
Reply-To: "payment-report@payu.in" <payment-report@payu.in>
To: vinayak33me@gmail.com

Dear Vinayak N,

Your transaction with IUCEE Foundation was **successful**

Transaction ID: a4af699cce298725221c
Merchant Website:
Amount Paid: 2000.00
Order Date: 2021-12-11 12:39:52
[Quoted text hidden]

Indo Universal Collaboration for Engineering Education
IUCEE FOUNDATION

ICTIEE 2022

NINTH INTERNATIONAL CONFERENCE ON
TRANSFORMATIONS IN ENGINEERING EDUCATION
(7TH TO 9TH JANUARY, 2022)

CERTIFICATE

OF PARTICIPATION

THIS IS TO CERTIFY THAT

Vinayak N Kulkarni

FROM

KLE Technological University

HAS ATTENDED THE NINTH INTERNATIONAL CONFERENCE ON TRANSFORMATIONS IN ENGINEERING EDUCATION (ICTIEE-2022) ORGANIZED BY INDO UNIVERSAL COLLABORATION FOR ENGINEERING EDUCATION(IUCEE)

Krishna Vedula

DR. KRISHNA VEDULA
EXECUTIVE DIRECTOR - IUCEE FOUNDATION

ICTIEE2022154

1244218000 246

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Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Shivanand Prabhuswamimath**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **INTERNATIONAL CONFERENCE ON FUTURISTIC DEVELOPMENTS IN MECHANICAL SCIENCES AND TECHNOLOGY (ICFDMST 2021)**

Title of the paper: **Barriers for effective implementation of Supply Chain Management (SCM) practices in manufacturing sector - A Systematic Literature Review**

Paper Category: **IREF**

Conference serial number.

Area of Conference: **Management**

Conference is in the top % in Scopus/Web of Science: Top 25%, Q3.

Name of the host Institute/Organization: **Dhule, India**

Date & Timings: **23-12-2021**

Mode of Travel: **NIL**

Registration Amount: **1000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **1000**

KLE TECHNOLOGICAL UNIVERSITY, HUBBALLI.
[stamp] 1000/- date 10-01-2022 01160122641 [signature]

above payment has been reversed to wrong a/c no submitted by Dept [initials]

KLE TECHNOLOGICAL UNIVERSITY, HUBBALLI.
PAID ON
By Cash/Axis Pay Pro/Cheque No:
Rs: 1000/-
Date: 06-01-2022
REGISTRAR
BATCH No. 01060122 6007

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
Second online International Conference on Advances in Management and Technology, ICT adoption to Enhance SCM performance in manufacturing sector - A Systematic Literature Review	
Second online International Conference on Advances in Management and Technology, ICT adoption to Enhance SCM performance in manufacturing sector - A Systematic Literature Review	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign	Forwarded by HoD	Approved by Dean R&D
[signature] 20/12/2021 Shivanand P P	[signature]	[signature]

HEAD
School of Mechanical Engineering
KLE Technological University, HUBBALLI-31.

Conferences Outside India:

Approved by:

HoD	Dean Academics	Dean P & D	Dean R&D
[signature] 23/12		[signature]	For F&P [signature]

B. V. Bhoomaraddi College Campus, Vidyanagar, Hubballi 580031. Karnataka (India)
Tel. : +91 - 836 - 2378132 Fax : +91 - 836 - 2374985. www.kletech.ac.in

Account Number: 218/246 Syndicate Bank, BVB Campus, Hubli
Shivanand. P. Prabhuswamimath

Transaction ID
T211220111759051387646 8

Paid to

Shri Vile Parle Kelavani Mandal Institute of ₹1,000
XXXXXX4148
Kotak Mahindra Bank

Debited from

******4514 ₹1,000
UTR:135476387149

Grow your money with Best SIP Funds.
Start with just Rs. 100.

Message

Shivanand Prabhuswaimath

SHRI VILE PARLE KELAVANI MANDAL'S
Institute of Technology, Dhule

International Conference On
Futuristic Developments
In
Mechanical Sciences And Technology (ICFDMST 2021)
23rd – 24th December, 2021

Certificate of Participation

This is to certify that **Shivanand Prabhuswamimath** has participated and presented a paper entitled **"Barriers for effective implementation of Supply Chain Management (SCM) practices in manufacturing sector – A Systematic Literature Review"** in ICFDMST – 2021, organized by the Department of Mechanical Engineering, Shri Vile Parle Kelavani Mandal's Institute of Technology (SVKM's IOT), Dhule.

Dr. Hitesh Thakare
Convener

Dr. Nilesh Salunke
Organizing Chair

ference Number: ICFDMST2021_6

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Research and Development

(Tick mark against the relevant information)

120

7000
7000
7000
7000
28000

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **ARUN PATIL**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **Third International Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2021)**

Title of the paper: **Analysis of Universal Joint using virtual simulation method**

Paper Category: **UG Student**

Conference serial number:

Area of Conference: **Advances in Materials and Manufacturing**

Conference is in the top % in Scopus/Web of Science: **3**

Name of the host Institute/Organization: **D.Y. Patil College of Engineering and Technology, Kolhapur, Maharashtra, India**

Date & Timings: **25-11-2021**

Mode of Travel:

Registration Amount: **7000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **7000**

R&D
Reg 12/10 Advance

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
The Second International Conference on Advances in Physical Sciences and Materials 2021. Design Optimization of Bullock Cart Yoke	
The Second International Conference on Advances in Physical Sciences and Materials 2021. Rubber tapping machine performance and procedure	
The Second International Conference on Advances in Physical Sciences and Materials 2021. Design Optimization of Bullock Cart Yoke	
The Second International Conference on Advances in Physical Sciences and Materials 2021. Rubber tapping machine performance and procedure	

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Rs: 7000/-
Date: 13/10/2021
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BATCH No.
011310213543

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | 15/10 Dean P & D | Dean R&D

Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **ARUN PATIL**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **The Second International Conference on Advances in Physical Sciences and Materials 2021**

Title of the paper: **Analysis of Universal Joint using virtual simulation method**

Paper Category: **UG Student**

Conference serial number:

Area of Conference: **advanced physical sciences and materials**

Conference is in the top % in Scopus/Web of Science: Q3 . INDEXED IN SCOPUS & WOS

Name of the host Institute/Organization: **Coimbatore, Tamil Nadu, India**

Date & Timings: **12-08-2021**

Mode of Travel:

Registration Amount: 7,000/-

Estimated Amount for TA:

Estimated Amount for DA:

Total Amount: **0**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**
International Conference on Advances in Mechanical Processing and Design, ICAMPD 2019, Development of Bio-Material (Tiger Grass-Reinforced Gaur Gum Matrix Composite) for an Alternative Bio-Based Cutlery for Food Service Applications	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Design Optimization of Bullock Cart Yoke	
The Second International Conference on Advances in Physical Sciences and Materials 2021, FINITE ELEMENT ANALYSIS OF KNEE JOINT IMPLANT FOR VARYING BIO MATERIAL USING ANSYS	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Rubber tapping machine performance and procedure	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Analysis of Universal Joint using virtual simulation method	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Optimization of Heat Dissipation in Concrete Ceiling	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Non- Linear Structural and Thermal Analysis of Automotive Brake Disc	

RAD
For Paper pres - Mech
12/8

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Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **ARUN PATIL**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **Third International Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2021)**

Title of the paper: **Optimization of Heat Dissipation in Concrete Ceiling**

Paper Category: **UG Student**

Conference serial number:

Area of Conference: **Advances in Materials and Manufacturing**

Conference is in the top % in Scopus/Web of Science: **3**

Name of the host Institute/Organization: **D.Y. Patil College of Engineering and Technology, Kolhapur, Maharashtra, India**

Date & Timings: **25-11-2021**

Mode of Travel:

Registration Amount: 7000/-

Estimated Amount for TA: —

Estimated Amount for DA: —

Total Amount: **0**

Adv... of R&D
Pay 12/10 paper pres... - mas

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**
The Second International Conference on Advances in Physical Sciences and Materials 2021. Design Optimization of Bullock Cart Yoke	
The Second International Conference on Advances in Physical Sciences and Materials 2021. Rubber tapping machine performance and procedure	
The Second International Conference on Advances in Physical Sciences and Materials 2021. Design Optimization of Bullock Cart Yoke	
The Second International Conference on Advances in Physical Sciences and Materials 2021. Rubber tapping machine performance and procedure	

KLE TECHNOLOGICAL UNIVERSITY, HUBBALLI.
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By Cash/Axis Pay Pro/Cheque No:
Rs: 7000/-
Date: 13/10/2021
REGISTRAR
BATCH No. 011310213543

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | 11/10 Dean P & D | Dean R&D

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **ARUN PATIL**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **The Second International Conference on Advances in Physical Sciences and Materials 2021**

Title of the paper: **Optimization of Heat Dissipation in Concrete Ceiling**

Paper Category: **UG Student**

Conference serial number:

a of Conference:

Conference is in the top % in Scopus/Web of Science: Q3 , INDEXED IN SCOPUS & WOS

Name of the host Institute/Organization: **Coimbatore, Tamil Nadu, India**

Date & Timings: **12-08-2021**

Mode of Travel:

Registration Amount: 7,000/-

Estimated Amount for TA:

Estimated Amount for DA:

Total Amount: **0**

for HOD 12/8 paper pres - mech

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
International Conference on Advances in Mechanical Processing and Design, ICAMPD 2019, Development of Bio-Material (Tiger Grass-Reinforced Gaur Gum Matrix Composite) for an Alternative Bio-Based Cutlery for Food Service Applications	
The Second International Conference on Advances in Physical ·iences and Materials 2021, Design Optimization of Bullock Cart ɔke	
The Second International Conference on Advances in Physical Sciences and Materials 2021, FINITE ELEMENT ANALYSIS OF KNEE JOINT IMPLANT FOR VARYING BIO MATERIAL USING ANSYS	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Rubber tapping machine performance and procedure	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Analysis of Universal Joint using virtual simulation method	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Optimization of Heat Dissipation in Concrete Ceiling	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Non- Linear Structural and Thermal Analysis of Automotive Brake Disc	

KLE TECH

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Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **ARUN PATIL**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **Third International Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2021)**

Title of the paper: **Non- Linear Structural and Thermal Analysis of Automotive Brake Disc**

Paper Category: **UG Student**

Conference serial number:

Ard[redacted] Conference: **Advances in Materials and Manufacturing**

Conference is in the top % in Scopus/Web of Science: **3**

Name of the host Institute/Organization: **D.Y. Patil College of Engineering and Technology, Kolhapur, Maharashtra, India**

Date & Timings: **25-11-2021**

Mode of Travel:

Registration Amount: **7000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **7000**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
The Second International Conference on Advances in Physical Sciences and Materials 2021, Design Optimization of Bullock Cart Yoke	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Rubber tapping machine performance and procedure	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Design Optimization of Bullock Cart Yoke	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Rubber tapping machine performance and procedure	

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Date: 13/10/2021
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BATCH No.
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Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

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Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

11/10

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Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **ARUN PATIL**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **The Second International Conference on Advances in Physical Sciences and Materials 2021**

Title of the paper: **Non- Linear Structural and Thermal Analysis of Automotive Brake Disc**

Paper Category: **UG Student**

Conference serial number:

Area of Conference: **advanced physical sciences and materials**

Conference is in the top % in Scopus/Web of Science: Q3, SCOPUS & WOS

Name of the host Institute/Organization: **Coimbatore, Tamil Nadu, India**

Date & Timings: **12-08-2021**

Mode of Travel:

Registration Amount: RS. 7,000/-

Estimated Amount for TA:

Estimated Amount for DA:

Total Amount: **0**

Advance paper present

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
International Conference on Advances in Mechanical Processing and Design, ICAMPD 2019, Development of Bio-Material (Tiger Grass-Reinforced Gaur Gum Matrix Composite) for an Alternative Bio-Based Cutlery for Food Service Applications	... UNIVERSITY, HUBBALLI. PAID ON
The Second International Conference on Advances in Physical Sciences and Materials 2021, Design Optimization of Bullock Cart Yoke	By Cash/Axis Pay Pro/Cheque No:........ Rs:........
The Second International Conference on Advances in Physical Sciences and Materials 2021, FINITE ELEMENT ANALYSIS OF KNEE JOINT IMPLANT FOR VARYING BIO MATERIAL USING ANSYS	Date:........ REGISTRAR
The Second International Conference on Advances in Physical Sciences and Materials 2021, Rubber tapping machine performance and procedure	BATCH No.
The Second International Conference on Advances in Physical Sciences and Materials 2021, Analysis of Universal Joint using virtual simulation method	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Optimization of Heat Dissipation in Concrete Ceiling	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Non- Linear Structural and Thermal Analysis of Automotive Brake Disc	

Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **ARUN PATIL**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **Third International Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2021)**

Title of the paper: **FINITE ELEMENT ANALYSIS OF KNEE JOINT IMPLANT FOR VARYING BIO MATERIAL USING ANSYS**

Paper Category: **UG Student**

Conference serial number:

Area of Conference: **Advances in Materials and Manufacturing**

Conference is in the top % in Scopus/Web of Science: **3**

Name of the host Institute/Organization: **D.Y. Patil College of Engineering and Technology, Kolhapur, Maharashtra, India**

Date & Timings: **25-11-2021**

Mode of Travel:

Registration Amount: **7000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **7000**

Advance for PhD. Paper - Mech 12/10

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
The Second International Conference on Advances in Physical Sciences and Materials 2021. Design Optimization of Bullock Cart Yoke	
The Second International Conference on Advances in Physical Sciences and Materials 2021. Rubber tapping machine performance and procedure	
The Second International Conference on Advances in Physical Sciences and Materials 2021. Design Optimization of Bullock Cart Yoke	
The Second International Conference on Advances in Physical Sciences and Materials 2021. Rubber tapping machine performance and procedure	

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0113102135 43

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics 11/10 | Dean P & D | Dean R&D

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(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **ARUN PATIL**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **The Second International Conference on Advances in Physical Sciences and Materials 2021**

Title of the paper: **FINITE ELEMENT ANALYSIS OF KNEE JOINT IMPLANT FOR VARYING BIO MATERIAL USING ANSYS**

Paper Category: **UG Student**

Conference serial number:

Area of Conference: **advanced physical sciences and materials**

Conference is in the top % in Scopus/Web of Science: Q3, SCOPUS & WOS

Name of the host Institute/Organization: **Coimbatore, Tamil Nadu, India**

Date & Timings: **20-11-2021**

Mode of Travel:

Registration Amount: Rs. 7,000/-

Estimated Amount for TA:

Estimated Amount for DA:

Total Amount: **0**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**
International Conference on Advances in Mechanical Processing and Design, ICAMPD 2019, Development of Bio-Material (Tiger Grass-Reinforced Gaur Gum Matrix Composite) for an Alternative Bio-Based Cutlery for Food Service Applications	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Design Optimization of Bullock Cart Yoke	
The Second International Conference on Advances in Physical Sciences and Materials 2021, FINITE ELEMENT ANALYSIS OF KNEE JOINT IMPLANT FOR VARYING BIO MATERIAL USING ANSYS	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Rubber tapping machine performance and procedure	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Analysis of Universal Joint using virtual simulation method	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Optimization of Heat Dissipation in Concrete Ceiling	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Non- Linear Structural and Thermal Analysis of Automotive Brake Disc	

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Application for presenting paper at conference

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01200721729

(Tick mark against the relevant information)

For presenting paper at the conference : International [✓] **within India** [ ] **outside India**

Name of the Faculty: **ARUN PATIL**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **The Second International Conference on Advances in Physical Sciences and Materials 2021**

Title of the paper: **Rubber tapping machine performance and procedure**

Paper Category: **UG Student**

Conference serial number:

Title of Conference: **advanced physical sciences and materials**

Conference is in the top % in Scopus/Web of Science: NO, SCOPUS AND WOS INDEXED

Name of the host Institute/Organization: **Coimbatore, Tamil Nadu, India**

Date & Timings: **12-08-2021**

Mode of Travel:

Registration Amount: 7,000/-

Estimated Amount for TA:

Estimated Amount for DA:

Total Amount: 7,000/-

RSP
Paper Presentation
A & R

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
International Conference on Advances in Mechanical Processing and Design, ICAMPD 2019, Development of Bio-Material (Tiger Grass-Reinforced Gaur Gum Matrix Composite) for an Alternative Bio-Based Cutlery for Food Service Applications	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Design Optimization of Bullock Cart Axle	
The Second International Conference on Advances in Physical Sciences and Materials 2021, An Overview of Durability of Underground Pipes Using Recycled Plastic Reinforced Concrete	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Biodegradable Printed Circuit Boards	
The Second International Conference on Advances in Physical Sciences and Materials 2021, FINITE ELEMENT ANALYSIS OF KNEE JOINT IMPLANT FOR VARYING BIO MATERIAL USING ANSYS	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Rubber tapping machine performance and procedure	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Analysis of Universal Joint using virtual simulation method	

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(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: **ARUN PATIL**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **The Second International Conference on Advances in Physical Sciences and Materials 2021**

Title of the paper: **Design Optimization of Bullock Cart Yoke**

Paper Category: **UG Student**

Conference serial number:

...of Conference: **advanced physical sciences and materials**

Conference is in the top % in Scopus/Web of Science: (1) No. Scopus/WOS INDEXED

Name of the host Institute/Organization: **Coimbatore, Tamil Nadu, India**

Date & Timings: **12-08-2021**

Mode of Travel:

Registration Amount: 7,000/-

Estimated Amount for TA:

Estimated Amount for DA:

Total Amount: 7,000/-

R&D
Pay 2017 Paper Presentation - Mech

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**
International Conference on Advances in Mechanical Processing and Design, ICAMPD 2019, Development of Bio-Material (Tiger Grass-Reinforced Gaur Gum Matrix Composite) for an Alternative Bio-Based Cutlery for Food Service Applications	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Design Optimization of Bullock Cart	
The Second International Conference on Advances in Physical Sciences and Materials 2021, An Overview of Durability of Underground Pipes Using Recycled Plastic Reinforced Concrete	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Biodegradable Printed Circuit Boards	
The Second International Conference on Advances in Physical Sciences and Materials 2021, FINITE ELEMENT ANALYSIS OF KNEE JOINT IMPLANT FOR VARYING BIO MATERIAL USING ANSYS	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Rubber tapping machine performance and procedure	
The Second International Conference on Advances in Physical Sciences and Materials 2021, Analysis of Universal Joint using virtual simulation method	

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Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Raju G. U.**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **2ND INTERNATIONAL CONFERENCE ON ADVANCED RESEARCH IN MECHANICAL ENGINEERING (ICARME – 2021) IN ASSOCIATION WITH IOT, GNIET**

Title of the paper: **Dynamic Analysis of Optical Imaging Electro-System**

Paper Category: ~~**Others**~~

Conference serial number:

A: Conference: **DESIGN ENGINEERING**

Conference is in the top % in Scopus/Web of Science

Name of the host Institute/Organization: **Bangalore-Karnataka**

Date & Timings: **29-04-2021**

Mode of Travel: **ONLINE**

Registration Amount: **8500**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **8500**

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Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

G.U. Raju

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Application for presenting paper at conference/ Journals

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Raju G. U.**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **2ND INTERNATIONAL CONFERENCE ON ADVANCED RESEARCH IN MECHANICAL ENGINEERING (ICARME – 2021) IN ASSOCIATION WITH IQAC, MVJCE**

Title of the paper: **Modal Analysis and Harmonic Response of Machine Tool Spindle**

Paper Category: ~~**PG Student**~~ REU Student

Conference serial number:

A[illegible] Conference: **Manufacturing Engineering**

Conference is in the top % in Scopus/Web of Science: Scopus Indexed (Q3)

Name of the host Institute/Organization: **Bangalore-Karnataka**

Date & Timings: **29-04-2021**

Mode of Travel: **ONLINE**

Registration Amount: **8500**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **8500**

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Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

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Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

G.U. Raju
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Paper Presented - Meet.

(Tick)

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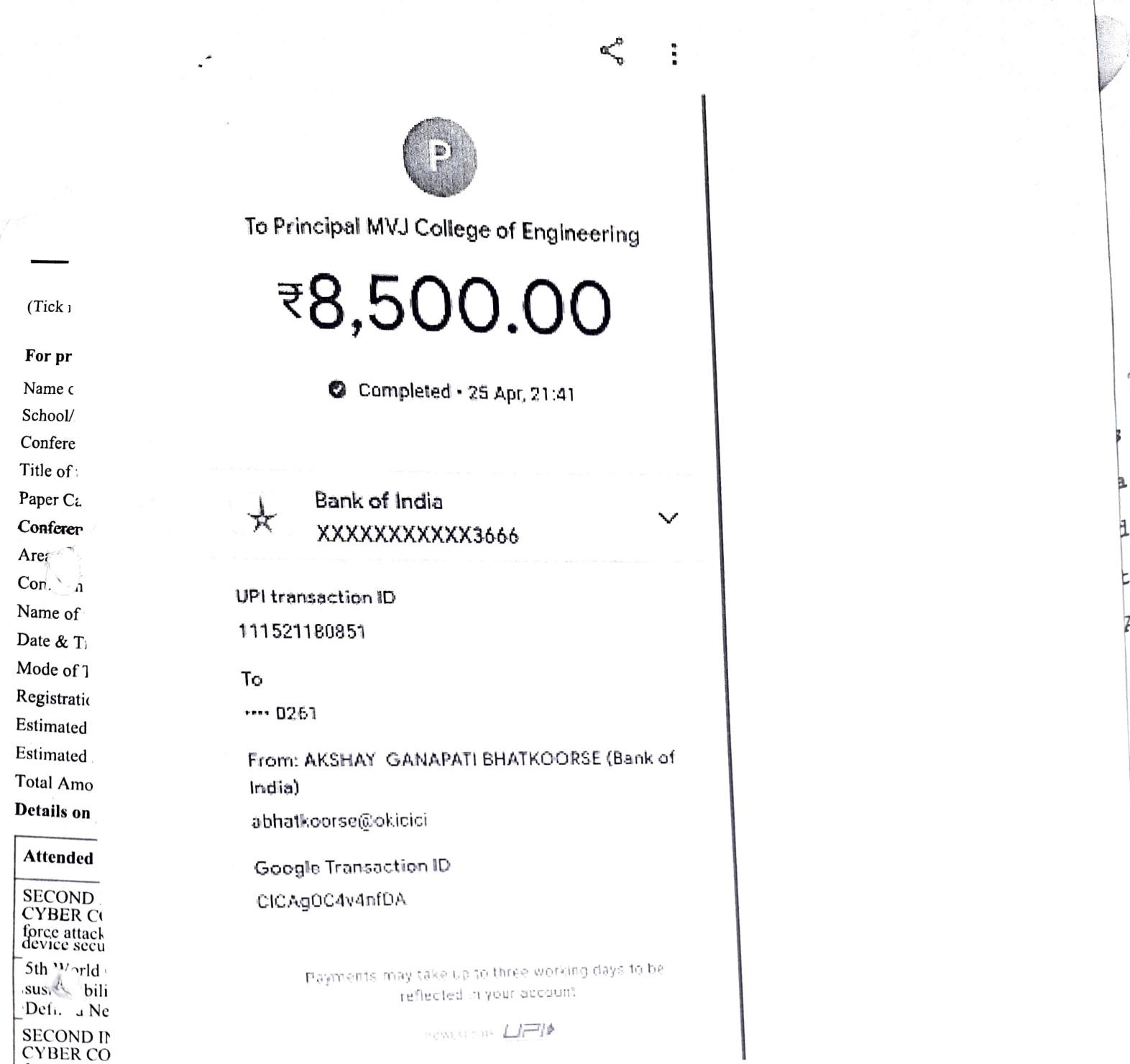

Dated: 21-02-2022

From:

Dr. G. U. Raju
Professor
School of Mechanical Engineering

To:

The Registrar
KLE Technological University
Hubballi

Respected sir,

Subject: Details of expenditure towards **'ICARME-21'** International Conference at MVJ College of Engineering, Bangalore from 29-30th April 2021.

We are happy to inform that two of our research publications have been presented in the 2nd International Conference on Advanced Research in Mechanical Engineering – 2021(ICARME-21). The two articles were presented online one each by me and REU student Mr. Akshay Bhatkoorse. The details of expenditure along with the Certificate of participation are enclosed for your kind perusal.

Sl.No	Particulars	Mode of Payment	Amount in Rs.
1	Registration Fee 2x8500	UPI transaction ID 111521180851 Date: 25-04-2021 UPI transaction ID 111312499580 Date: 23-04-2021	17,000=00
	Advance		17,000=00
	Amount to be reimbursed in Rs.		**Nil**

Kindly find enclosed the details of expenditure and participation certificates.

Thanking you,

21/02/2022

Yours' Sincerely

G. U. Raju

Head of the Department

Enclosures: Payment details and Certificate of Participation

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HUBBALLI-580 031.

To Principal MVJ College of Engineering

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Completed • 25 Apr, 21:41

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abhatkoorse@okicici

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DE-117 Registration

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(Affiliated to VTU, Belagavi, Approved By AICTE, New Delhi,
Recognized by UGC with 2(f) & 12(B) Status
Accredited By NBA and NAAC)

Certificate of Presentation

Certificate ID MVJCE/2ND ICARME-21/074

This is to certify that Mr. Raju G U from KLE Technological University, BVB Campus, Vidyanagar, Hubli-580031, India. has successfully presented the paper titled **Dynamic Analysis of Optical Imaging Electro System** at the "2nd International Conference on Advanced Research in Mechanical Engineering - 2021"(2nd ICARME-21), organized by the Department of Mechanical Engineering, in association with IWS, IIC and IQAC-MVJ College of Engineering, Bengaluru, on 29th and 30th April 2021.

Dr. Vivekanand Huddar
HOD ME , MVJCE.

Dr. P Mahabaleswarappa
Principal, MVJCE.

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Application for presenting paper at conference by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Gireesha Chalageri**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **2nd International Conference on Advanced Research in Mechanical Engineering - 2021**

Title of the paper: **Design Optimization of Light Motor Vehicle Rear Twist Axle**

Paper Category: **Others** [ERS]

Conference serial number: **2**

Area of Conference: **Design Engineering**

Conference is in the top % in Scopus/Web of Science: Q3

Acc No: 1244218000 3632

Name of the host Institute/Organization: **Bangalore**

Date & Timings: **29-04-2021**

Mode of Travel: **online presentation**

Registration Amount: **8500**

Estimated Amount for TA: —

Estimated Amount for DA: —

Total Amount: **8500**

Pool Cola R&D paper presentation - mechanical

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign (G.R. Chalageri) Forwarded by HoD Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD Dean Academics Dean P & D Dean R&D

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Recognized by UGC with 2(f) & 12(B) Status
Accredited By NBA and NAAC)

Certificate of Presentation

Certificate ID MVJCE/2ND ICARME-21/011

This is to certify that Mr. Gireesha R Chalageri from School of Mechanical Engineering, KLE Technological University, Hubli, Karnataka, INDIA - 580031 has successfully presented the paper titled Design Optimization of Light Motor Vehicle Rear Twist Axle at the "2nd International Conference on Advanced Research in Mechanical Engineering - 2021"(2nd ICARME-21), organized by the Department of Mechanical Engineering, in association with IWS, IIC and IQAC-MVJ College of Engineering, Bengaluru, on 29th and 30th April 2021.

Dr. Vivekanand Huddar
HOD ME , MVJCE.

Dr. P Mahabaleswarappa
Principal, MVJCE.

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Application for presenting paper at conference - by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Balachandra Halemani**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **ICMSE-21**

Title of the paper: **Investigation and analysis for mechanical properties of banana and E glass fiber reinforced hybrid epoxy composites**

Paper Category: **IREF**

Conference serial number: **International Conference on Materials and System Engineering; https://icrtsem.sjbit.edu.in/ICMSE/ICMSE-index.html**

Area of Conference:

Conference is in the top % in Scopus/Web of Science: **33** ; 93

Name of the host Institute/Organization: **Bangalore**

A/C No.:- 124621800049 29

Date & Timings: **07-05-2021**

Mode of Travel:

Registration Amount: **7000**

Estimated Amount for TA:

Estimated Amount for DA:

Total Amount: **7000**

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Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
INTERNATIONAL CONFERENCE ON ADVANCED TRENDS IN MECHANICAL & AEROSPACE ENGINEERING (ATMA-2019), 7-9 November 2019. Fabrication and Characterization of hardness and microstructure of Large Sized Al2014-SiC Composite	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

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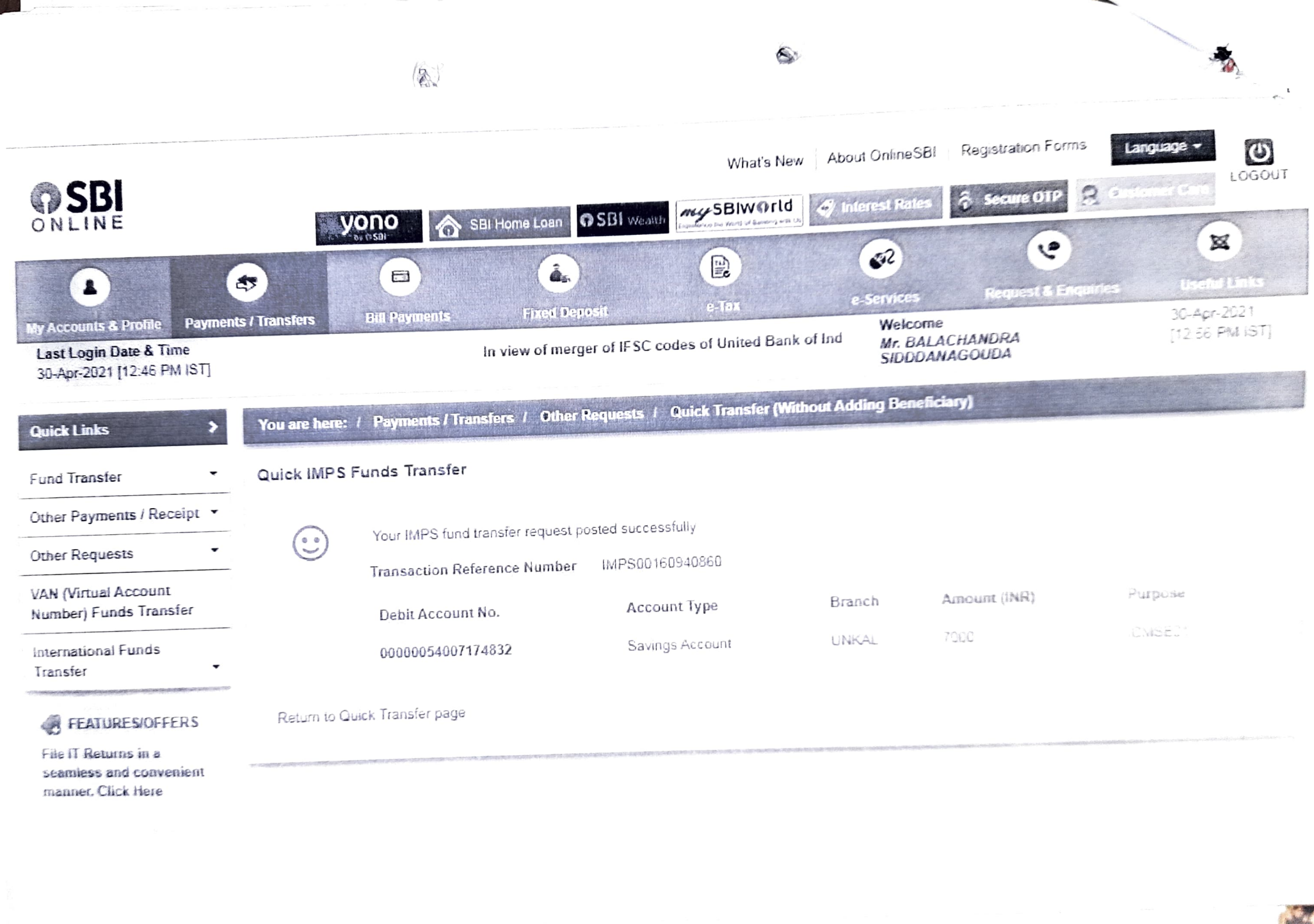
- MTech)



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30-Apr-2021 [12:46 PM IST]

In view of merger of IFSC codes of United Bank of Ind

Welcome
Mr. BALACHANDRA SIDDDANAGOUDA

30-Apr-2021
[12:56 PM IST]

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- Other Requests
- VAN (Virtual Account Number) Funds Transfer
- International Funds Transfer

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Balachandra Halemani <balachandra@kletech.ac.in>

Registration Confirmation

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ICMSE., Dept. Of Mechanical Engg. SJBIT <icmse@sjbit.edu.in> Tue, May 4, 2021 at 4:59 PM
To: Balachandra Halemani <balachandra@kletech.ac.in>, "balachandra@bvb.edu" <balachandra@bvb.edu>, "ravitejmtech@gmail.com" <ravitejmtech@gmail.com>, "hemanth.bhadravathi@gmail.com" <hemanth.bhadravathi@gmail.com>, "udaya_creative@yahoo.com" <udaya_creative@yahoo.com>, "sachin.khot41@gmail.com" <sachin.khot41@gmail.com>
Cc: "icmse@tieindia.org" <icmse@tieindia.org>

Dear Author(s),

We have received your payment & registration of your paper MATPR-D-21-03772R1 for the ICMSE 2021 Conference is confirmed.

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Investigation and Analysis for Mechanical Properties of Banana and E Glass fiber reinforced hybrid epoxy composites

in the International Conference on Materials and System Engineering - (ICMSE-2021) organized by the **Department of Mechanical Engineering**, SJB Institute of Technology, Bengaluru, India in association with Technical Institute for Engineers (T.I.E.), Bengaluru on 7th & 8th May 2021

Dr. Hemalatha K.L.
President
Technical Institute for Engineers

Dr. T. Madhusudhan
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Research and Development

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0120072117291

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: **ADARSH PATIL**

School/Department/Center: **School of Mechanical Engineering**

Conference Name: **2nd International Conference on Advanced Research in Mechanical Engineering (ICARME – 2021)**

Title of the paper: **Wear Behavioural Studies of Graphene Amine Reinforced AA7076 Based Nanocomposite**

Paper Category: **Others**

Conference serial number:

Area of Conference: **Materials, Manufacturing, Thermal and Design Engineering**

Conference is in the top % in Scopus/Web of Science: Yes, Q3, Scopus Indexed

Name of the host Institute/Organization: **MVJ College of Engineering, Bangalore**

Date, Timings: **29-04-2021**

Mode of Travel: **Virtual mode Conference**

Registration Amount: 8500/-

Account Number: 1244220000 3770
IFSC Code: CNRB0011244

Estimated Amount for TA: —

Estimated Amount for DA: —

Total Amount: 8500/-

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
2nd International Conference on Advanced Research in Mechanical Engineering (ICARME – 2021), Wear Behavioural Studies of Graphene Amine Reinforced AA7076 Based Nanocomposites	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign Adarsh. P. Forwarded by HoD Approved by Dean R&D

Conferences Outside India:

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Certificate ID MVJCE/2ND ICARME-21/028

This is to certify that Mr. Adarsh Patil from School of Mechanical Engineering, KLE Technological University, BVB College Campus, Hubli-580031 has successfully presented the paper titled Wear Behavioural Studies of Graphene Amine Reinforced AA7076 Based Nanocomposites at the "2nd International Conference on Advanced Research in Mechanical Engineering - 2021"(2nd ICARME-21), organized by the Department of Mechanical Engineering, in association with IWS, IIC and IQAC-MVJ College of Engineering, Bengaluru, on 29th and 30th April 2021.

Dr. Vivekanand Huddar
HOD ME, MVJCE.

Dr. P Mahabaleswarappa
Principal, MVJCE.

KLE Technological University Mail

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has contributed a paper titled

Pre Stampede Monitoring and Alarm System

participated in 5th International Conference on Information and Communication Technology for Intelligent Systems (ICTIS 2021) held during 23-24 April, 2021. The conference was held through Digital Platform ZOOM.

We wish the authors all the very best for future endeavors.

Nilanjan Dey
TPC Chair, ICTIS 2021

Bharat Patel
Conference Chair, ICTIS 2021

Mihir Chauhan
Organising Secretary, ICTIS 2021

ICTCS 2021

Sixth International Conference on

INFORMATION AND COMMUNICATION TECHNOLOGY FOR COMPETITIVE STRATEGIES

Certificate

This is to certify that

Anvita P., Chaitra K., Lakshmi B., Shraddha, Suneeta B., Vishal P.

has contributed a paper titled

Learning based framework for resource allocation for varying traffic

in Sixth International Conference on Information and Communication Technology for Competitive Strategies (ICTCS 2021) held during December 17-18, 2021. The conference was held through digital platform ZOOM.

The paper has also been selected for publication in the (ICTCS) conference as per fulfilment of guidelines issued by Springer.

We wish the authors all the very best for future endeavors.

Dr. Nilanjan Dey	Dr. Vijay Singh Rathore	Dr. Amit Joshi	Mihir Chauhan
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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Saroja V. Siddamal**

School/Department/Center: **Electronics And Communication**

Conference Name: **Sixth International Conference on Information and Communication Technology for Competitive Strategies**

Title of the paper: **Smart water management: A learning based approach**

Paper Category: **IREF**

Conference serial number:

Area of Conference: **Information and Communication Technology for Competitive Strategies**

Conference is in the top % in Scopus/Web of Science: **75**

Name of the host Institute/Organization: **Jaipur, Rajasthan, India**

Date & Timings: **17-12-2021**

Mode of Travel: **Virtual Conference**

Registration Amount: **13000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **13000**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**
International Conference on VLSI design -VLSID 2023, SUPPLY NOISE AND PEAK CURRENT REDUCTION IN HIGH-SPEED OUTPUT DRIVERS	
International Conference on VLSI design -VLSID 2023, SUPPLY NOISE AND PEAK CURRENT REDUCTION IN HIGH-SPEED OUTPUT DRIVERS	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

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ICTCS 2021

Sixth International Conference on

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Certificate

This is to certify that

Yeshwanth V. S., Vijayalakshmi A. B., Suneeta V. Budihal, Saroja V. S.

has contributed a paper titled

Smart water management: A learning based approach

in Sixth International Conference on Information and Communication Technology for Competitive Strategies (ICTCS 2021) held during December 17-18, 2021. The conference was held through digital platform ZOOM.

The paper has also been selected for publication in the (ICTCS) conference as per fulfilment of guidelines issued by Springer.

We wish the authors all the very best for future endeavors.

Dr. Nilanjan Dey	Dr. Vijay Singh Rathore	Dr. Amit Joshi	Mihir Chauhan
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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Saroja V. Siddamal**

School/Department/Center: **Electronics And Communication**

Conference Name: **International conference on Security, Privacy and Data Analytics 2021**

Title of the paper: **Decentralized and secured voting system with Blockchain Technology**

Paper Category: **UG Student**

Conference serial number:

Area of Conference: **Information Security and Privacy**

Conference is in the top % in Scopus/Web of Science: **75**

Name of the host Institute/Organization: **Sardar Vallabhbhai National Institute of Technology, Surat**

Date & Timings: **13-12-2021**

Mode of Travel: **Virtual Conference**

Registration Amount: **3500**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **3500**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**
International Conference on VLSI design -VLSID 2023, SUPPLY NOISE AND PEAK CURRENT REDUCTION IN HIGH-SPEED OUTPUT DRIVERS	
International Conference on VLSI design -VLSID 2023, SUPPLY NOISE AND PEAK CURRENT REDUCTION IN HIGH-SPEED OUTPUT DRIVERS	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

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Conferences Outside India:

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Sardar Vallabhbhai National Institute of Technology

Surat-395007 (Gujarat) INDIA

International Conference on Security, Privacy and Data Analytics (ISPDA 2021)

Organized by

Department of Computer Science and Engineering

December 13-15, 2021

(Virtual Mode)

E-CERTIFICATE

This is to certify that Dr. Saroja V. Siddamal from KLE Tech has Presented research paper entitled Decentralized and secured voting system with Blockchain Technology in "International Conference on Security, Privacy and Data Analytics (ISPDA 2021)" held during December 13-15, 2021 organized by the Department of Computer Science and Engineering of Sardar Vallabhbhai National Institute of Technology, Surat, INDIA.

Dr. Udai Pratap Rao Dr. Sankita J. Patel Dr. Bhavesh N. Gohil

Organizing Secretaries, ISPDA 2021

ICTCS 2021

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INFORMATION AND COMMUNICATION TECHNOLOGY FOR COMPETITIVE STRATEGIES

Certificate

This is to certify that

Shrilalita Hegde, Aishwarya G., Aishwarya Hugar, Suneeta V. B.

has contributed a paper titled

Bank management system Using Blockchain Technology

in Sixth International Conference on Information and Communication Technology for Competitive Strategies (ICTCS 2021) held during December 17-18, 2021. The conference was held through digital platform ZOOM.

The paper has also been selected for publication in the (ICTCS) conference as per fulfilment of guidelines issued by Springer.

We wish the authors all the very best for future endeavors.

Dr. Nilanjan Dey	Dr. Vijay Singh Rathore	Dr. Amit Joshi	Mihir Chauhan
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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **bhagyashree**

School/Department/Center: **Electronics And Communication**

Conference Name: **International Conference on Innovations in Communication Computing and Sciences**

Title of the paper: **Design and Implementation of AUT 64 Block Cipher for Car Keyless Entry**

Paper Category: **IREF**

Conference serial number: **3rd**

Area of Conference: **Chandigarh Group of Colleges Kharar Banur Hwy, Sector 112, Sahibzada Ajit Singh Nagar, Landran Mohali, Punjab 140307**

Conference is in the top % in Scopus/Web of Science: **20**

Name of the host Institute/Organization: **Chandigarh Engineering College**

Date & Timings: **27-08-2021**

Mode of Travel:

Registration Amount: **8500**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **8500**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

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Conferences Outside India:

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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: **Preeti S. Pillai**

School/Department/Center: **Electronics And Communication**

Conference Name: **INTERNATIONAL CONFERENCE ON INNOVATIONS IN COMMUNICATION COMPUTING AND SCIENCES**

Title of the paper: **Out of Sequence Measurement in multi sensor fusion**

Paper Category: **REU**

Conference serial number: **3**

Area of Conference: **COMMUNICATION COMPUTING AND SCIENCES**

Conference is in the top % in Scopus/Web of Science: **17**

Name of the host Institute/Organization: **Chandigarh, Punjab**

Date & Timings: **27-08-2021**

Mode of Travel:

Registration Amount: **8500**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **8500**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

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3rd International Conference (online)
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Innovations in Communication Computing and Sciences (ICCS 2021)

27th-28th August, 2021

This is to certify that Mr./Ms./Dr.

Preeti S.Pillai

KLE Technological University Hubballi, India

Presented a paper titled

Out of Sequence Measurement in Multi Sensor Fusion

in ICCS 2021 organised by Electronics & Communication Engineering Department, Chandigarh Engineering College, Landran, Mohali, Punjab, India.

Dr. Parveen Singla
Convener, ICCS 2021
Prof. ECE, CEC, Landran

Dr. Vinay Bhatia
Conference Chair, ICCS 2021
Head ECE, CEC, Landran

Dr. Rajdeep Singh
Co-Patron, ICCS 2021
Director-Principal, CEC, Landran

Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Preeti S. Pillai**

School/Department/Center: **Electronics And Communication**

Conference Name: **Sixth International Conference on Information and Communication Technology for Competitive Strategies (ICTCS-2021)**

Title of the paper: **Traffic Sign Detection and Recognition**

Paper Category: **Others**

Conference serial number: **6**

Area of Conference:

Conference is in the top % in Scopus/Web of Science: **13**

Name of the host Institute/Organization: **Jaipur, Rajasthan, India**

Date & Timings: **17-12-2021**

Mode of Travel:

Registration Amount: **13520**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **13520**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

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Certificate

This is to certify that

Preeti S. Pillai

digitally participated in Sixth International Conference on Information and Communication Technology for Competitive Strategies (ICTCS 2021) held during December 17-18, 2021. The conference was held through digital platform ZOOM.

He / She also presented a paper titled

Traffic Sign Detection and Recognition

The paper has also been selected for publication in the (ICTCS) conference as per fulfilment of guidelines issued by Springer.

We wish the authors all the very best for future endeavors.

Dr. Nilanjan Dey	Dr. Vijay Singh Rathore	Dr. Amit Joshi	Mihir Chauhan
Program Chair, ICTCS 2021	Program Co-Chair, ICTCS 2021	Organising Secretary, ICTCS 2021	Program Secretary, ICTCS 2021

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Details of accepted papers

Paper ID	Title of the paper	Name of the faculty in whose name registration needs to be done	List of authors	School belonging to	Category of registration	Registration number
1172	An Experience of Transition From In-Person Mode of Delivery to Online Mode In A First-Year Engineering Course	Kaushik Mallibhat	Kaushik Mallibhat; Nikhita Patil;Rajeshwari Mattimani; Tanuja P Javali; Kiran MR; Jyoti Patil; Nalini C Iyer	School of Electronics and Communication Engineering	Author	**39**
1210	An innovative approach to provide continuing education for industry employees at undergraduate level of engineering	Sanjay Eligar	Sanjay Eligar, Nalini Iyer, Ashok Shettar, Kns Acharya, B L Desai, P G Tewari, Uma Mudenagudi, Shishir Sahay		Author	**53**
1211	Experiential learning methodology adopted for effective delivery of Computer Communication Networks course during Covid-19 pandemic	Shamshuddin	Shamshuddin, Vijaya Eligar, Hemant, Anil, Nalini.		Author	**54**
1121	Enhancing system development learning by applying Real Time Operating System concepts through connected learning concept	Shrishail Pattanashetti	Shrishail Pattanashetti, Rohini Hongal, Prabha Nissimgoudar, Supriya Katwe, Priti Pillai, Bhagyashree Kinnal, Nalini Iyer		Author	**62**
1169	A Hybrid Model for the Undergraduate laboratory Course in Analog Electronics amid the COVID-19 Pandemic Challenges	Jyoti Patil Devaji	Jyoti Patil Devaji, Prashant V Achari, Shraddha Hiremath, Shraddha Revankar, Nalini Iyer, R V Hangal,		Author	**60**
1173	A blended learning framework for delivery of Laboratory Course in Digital Circuits during Covid-19 Pandemic	Suneeta V.B	Suneeta V.B, Bhagyashree K, Nikita P, Shashidhar N, Nalini C Iyer		Women delegate	**59**

1194	Project-Based Learning to Enhance Employablity and Entrepreneurship: A Collaborative Approach	Saroja V Siddamal	Saroja V Siddamal, Aditya M Deshpande		Women delegate	**58**
1176	Project Progress Monitoring and Assessment at Engineering Undergraduate Level during Covid 19 Pandemic - Challenges and Solution	P. G Sunitha Hiremath	P. G Sunitha Hiremath, Sujatha C, Padmashree Desai And Meena S. M	School of Computer science and Engineering	Women delegate	**56**
1101	Transformation in Course Delivery Augmented with Problem-Based Learning and Tutorial	Padmashree Desai	Padmashree Desai, Shantala Giraddi, Shrinivas Desai, Gururaj Hanchinamani, Meena S.M		Women delegate	**55**

Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Raghavendra Shet**

School/Department/Center: **Electronics And Communication**

Conference Name: **Sixth International Conference on Information and Communication Technology for Competitive Strategies (ICTCS-2021)**

Title of the paper: **An IoT based Smart Parking System for Smart Cities**

Paper Category: **IREF**

Conference serial number: **ISSN: 2367-3370**

Area of Conference: **Information and Communication Technology**

Conference is in the top % in Scopus/Web of Science: **13**

Name of the host Institute/Organization: **Jaipur**

Date & Timings: **17-12-2021**

Mode of Travel: **0**

Registration Amount: **13520**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **13520**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

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Smart Trends in Computing and Communications pp 543–550

An IoT-Based Smart Parking System for Smart Cities

Venkatesh Mane, Ashwin R. Kubasadgoudar, Raghavendra Shet & Nalini C. Iyer

Conference paper | First Online: 06 July 2022

Part of the Lecture Notes in Networks and Systems book series (LNNS,volume 396)

Abstract

There has been an exponential growth in the vehicle population in recent times, adding to the metropolitan traffic. This increase in the number of vehicles has led to the problem of inadequate parking spaces resulting in traffic congestion. To address this challenge, a smart parking system is proposed in this paper, which makes use of TIME RESOURCE SHARING to effectively utilize the parking spaces based on peak demand time and enables prior identification and reservation of parking space with the help of unique identification. The system

periodically updates the parking status. The interaction of the driver and the owner of the parking space takes place through the application connected through the cloud. The related work in this area has also been referred. The proposed system has the potential to transform the current parking method and alleviate the traffic congestion caused by insufficient parking space.

Keywords

Time-shared parking **Unique code**

Traffic congestion **Parking space** **Arduino**

References

1. R. Shet, N.C. Iyer, Y. Jeppu, Fault tolerant control system for autonomous vehicle: a survey. J. Adv. Res. Dyn. Control Syst. **12**(8), 813–830 (2020)

2. P.S. Pillai, R. Shet, N.C. Iyer, S. Punagin, Modeling and simulation of an automotive RADAR. In *Information and Communication Technology for Competitive Strategies (ICTCS 2020)* ed. by. A. Joshi, M. Mahmud, R.G. Ragel, N.V. Thakur. Lecture Notes in Networks and Systems, vol. 191. (Springer, Singapore, 2022)

3. N.C. Iyer et al., Virtual Simulation and Testing Platform for Self-Driving Cars. In: *ICT Analysis and Applications. Lecture Notes in Networks and Systems*, ed. by S. Fong, N. Dey, A. Joshi, vol 154 (Springer, Singapore, 2021)

4. R.M. Shet, N.C. Iyer, P.C. Nissimagoudar, A. Kulkarni, J. Abhiram, S.K. Amarnath, Motion Control and Sensor Fault Diagnostic Systems for Autonomous Electric Vehicle. In: *ICT Analysis and Applications. Lecture Notes in Networks and Systems*, ed by S. Fong, N. Dey, A.Joshi, vol. 154 (Springer, Singapore, 2021)

5. P. Shastri, A. Chauhan http://timesofindia.indiatimes.com/city/ahmedabad/Ahmedabad-lets-get-smart-link-fee-to-parking-demand/articleshow/50885898.cms

6. A. Roy. http://timesofindia.indiatimes.com/city/nagpur/New-bldgs-will-require-double-the-parking-space/articleshow/51001996.cms

7. P. White, *No Vacancy: Park Slopes Parking Problem and How to Fix It*, http://www.transalt.org/newsroom/releases/126

8. http://fresno.ts.odu.edu/newitsd/ITS_Serv_Tech/park_sys_tech/parking_systems_tech_report_print.htm

9. Parking Management for Smart Growth by Richard W. Willson

Author information

Authors and Affiliations

KLE Technological University Hubballi, Hubballi, India

Venkatesh Mane, Ashwin R. Kubasadgoudar, Raghavendra Shet & Nalini C. Iyer

Corresponding author

Correspondence to Venkatesh Mane .

Editor information

Editors and Affiliations

University of Leicester, Leicester, UK

Yu-Dong Zhang

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About this paper

Cite this paper

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DOI
https://doi.org/10.1007/978-981-16-9967-2_51

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06 July 2022	Springer, Singapore	978-981-16-9966-5

Online ISBN	eBook Packages
978-981-16-9967-2	Engineering Engineering (R0)

Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Shraddha Hiremath**

School/Department/Center: **Electronics And Communication**

Conference Name: **International Conference on Information Assurance and Security**

Title of the paper: **Lightweight Cryptography for Resource Constrained Devices**

Paper Category: **IREF**

Conference serial number: **17**

Area of Conference: **Cryptography**

Conference is in the top % in Scopus/Web of Science:

Name of the host Institute/Organization: **India**

Date & Timings: **14-12-2021**

Mode of Travel: **Virtual**

Registration Amount: **6000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **6000**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Machine Intelligence Research Labs (MIR Labs)

Scientific Network for Innovation and Research Excellence

Auburn, Washington, USA

17th Information Assurance and Security (IAS'21)

On the World Wide Web

Certificate of Participation

This is to certify that the following paper was presented online using Zoom platform during the 17th International Conference on Information Assurance and Security held on December 14-16, 2021.

Paper ID - Title #11 - Lightweight cryptography for resource constrained devices

Authors Shraddha B H, Bhagyashree Kinnal, Heera Wali, Nalini C Iyer and Vishal P

General Chair

Prof. (Dr.) Ajith Abraham
Director, MIR Labs, USA
December 20, 2021

Springer

NAGARJUNA
COLLEGE OF ENGINEERING & TECHNOLOGY

IEEE
BANGALORE SECTION

2021 2nd Global Conference for Advancement in Technology (GCAT)

1st – 3rd Oct, 2021

Certificate

This is to certify that Dr./Prof./Mr./Ms. ***Supriya Katwe*** *has presented paper entitled* ***Particle Filter Based Localization of Autonomous Vehicle*** *in 2021 2nd Global Conference for Advancement in Technology (GCAT) during 1st & 3rd October 2021.*

Dr. Nagesh K N
Convener

Dr Jitendranath Mungara
Principal NCET

Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Nikita Patil**

School/Department/Center: **Electronics And Communication**

Conference Name: **Sixth International Conference on Information and Communication Technology for Competitive Strategies (ICTCS-2021)**

Title of the paper: **System Design & Implementation of Assistive Device for Hearing Impaired People**

Paper Category: **IREF**

Conference serial number: **ISSN: 2367-3370**

Area of Conference: **Information and Communication Technology**

Conference is in the top % in Scopus/Web of Science:

Name of the host Institute/Organization: **Jaipur**

Date & Timings: **17-12-2021**

Mode of Travel:

Registration Amount: **13520**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **13520**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**
International Conference on Transformations in Engineering Education(ICTIEE-2023), Multicore Architecture and Programming: A Collaborative teaching with Industry for empowering students with industry skills	
International Conference on Transformations in Engineering Education(ICTIEE-2023), Multicore Architecture and Programming: A Collaborative teaching with Industry for empowering students with industry skills	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☐ **within India** ☑ **outside India**

Name of the Faculty: **Nikita Patil**

School/Department/Center: **Electronics And Communication**

Conference Name: **Soft Computing & Pattern Recognition**

Title of the paper: **Design & Implementation of Edge Detection Algorithms using FPGA**

Paper Category: **IREF**

Conference serial number: **13th International Conference**

Area of Conference: **Parallel Computing**

Conference is in the top % in Scopus/Web of Science:

Name of the host Institute/Organization: **India**

Date & Timings: **15-12-2021**

Mode of Travel: **Virtual**

Registration Amount: **6000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **6000**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**
International Conference on Transformations in Engineering Education(ICTIEE-2023), Multicore Architecture and Programming: A Collaborative teaching with Industry for empowering students with industry skills	
International Conference on Transformations in Engineering Education(ICTIEE-2023), Multicore Architecture and Programming: A Collaborative teaching with Industry for empowering students with industry skills	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

GLOBAL KNOWLEDGE RESEARCH FOUNDATION

SmartCom

Receipt No :	584

RECEIPT

Date :	13.12.2021

Received with thanks the sum of INR: Thirteen Thousand Five Hundred And Twenty

Mode of Payment : Online Payment

SmartCom Ref. No : 202122201

M/S : Shamshuddin K

INR	₹ 13520/-

Sixth International Conference on Smart Trends for Computing and Communications
Date : 17 - 18 December, 2021
Conference Venue : Jaipur, Rajasthan, India

For, GLOBAL KNOWLEDGE RESEARCH FOUNDATION

GLOBAL KNOWLEDGE RESEARCH FOUNDATION ★ GR Foundation

Authorized Signature

Global Knowledge Research Foundation

Dear **Shamshuddin K.**,

Greetings to You…!

On behalf of Sixth International Conference on Smart Trends in Computing and communication (SmartCom 2021) and Global Knowledge Research Foundation, we thank you for being a part of the conference held during 17th and 18th December, 2021 will be held at Hotel Four Points By Sheraton, Jaipur, India. We also thank you for your Excellent Presentation/Contribution during the International Conference and it was much informative to other participants as well.

We hope to see you again for Seventh International Conference on Smart Trends in Computing and Communication (SmartCom 2022) at Jaipur, India.

We treasure your contributions and time with us. We also wish everyone and their families' good health and best of luck in these unpredictable times and we also hope to see you soon in person after we have overcome this crisis together.

On behalf of Global Knowledge Research Foundation & Team,

With Best Regards,

Amit Joshi, PhD
Organizing Secretary – SmartCom 2021
Chair – Inter YIT – International Federation for Information Processing
Director – Global Knowledge Research Foundation
Email - amit@gr.foundation

SmartCom 2021

Sixth International Conference on

SMART TRENDS FOR COMPUTING & COMMUNICATION

Certificate

This is to certify that

Shamshuddin K., Vishal B. Pattanashetty

has contributed a paper titled

Comparative analysis of a secure authentication protocol for 5G enabled IoT network using public and shared secret key

in Sixth International Conference on Smart Trends in Computing and Communications (SmartCom 2021)
held during December 17-18, 2021 at Hotel Four Points by Sheraton, Jaipur, India.

The paper has also been selected for publication in the (SmartCom) conference as per fulfilment of guidelines issued by Springer.

We wish the authors all the very best for future endeavors.

Dr. KC Santosh
Conference Chair, SmartCom 2021

Dr. Nilanjan Dey
TPC Chair, SmartCom 2021

Dr. Amit Joshi
Organising Secretary, SmartCom 2021

GR FOUNDATION | INTER VIT | ifip 60 YEARS | Springer | SPRINGER NATURE | KNOWLEDGE CHAMBER OF COMMERCE AND INDUSTRY

SmartCom 2021

Sixth International Conference on

SMART TRENDS FOR COMPUTING & COMMUNICATION

Certificate

This is to certify that

Shamshuddin K.

participated in Sixth International Conference on Smart Trends in Computing and Communications (SmartCom 2021) held during December 17-18, 2021 at Hotel Four Points by Sheraton, Jaipur, India.

He / She also presented a paper titled

Comparative analysis of a secure authentication protocol for 5G enabled IoT network using public and shared secret key

The paper has also been selected for publication in the (SmartCom) conference as per fulfilment of guidelines issued by Springer.

We wish the authors all the very best for future endeavors.

Dr. KC Santosh
Conference Chair, SmartCom 2021

Dr. Nilanjan Dey
TPC Chair, SmartCom 2021

Dr. Amit Joshi
Organising Secretary, SmartCom 2021

GR FOUNDATION | INTER VIT | ifip 60 YEARS | Springer | SPRINGER NATURE | KNOWLEDGE CHAMBER OF COMMERCE AND INDUSTRY

6.3.2 Total number of teachers provided with financial support to attend conferences / workshops and towards membership fee of professional bodies during the year 2021-22

Year	Name of teacher	PAN	Name of conference/ workshop attended for which financial support provided	Name of the professional body for which membership fee is provided	Amount of support
2021-2022	Shivakumar B Patil	BNYPP7498F	Workshop on repair,retro fitting and rehabilation of buildings,bridges and other structures on 19 -20 November 2021 at Chennai	Workshop	10,080/-

Professor & Head
School of Civil Engineering
KLE Technological University
Hubballi.

Certificate of participation

Awarded to

Shivakumar B Patil

for participation in the Workshop on

REPAIR, RETROFITTING & REHABILITATION OF STRUCTURES

Conducted on 19th and 20th November 2021 at Chennai.

Er. Vinay Gupta
President - ICI

Er. R. Radhakrishnan
Secretary General - ICI

UG Unaided KLETU 2021-22

hubbli

Workshop & Seminar-Civil

Ledger Account

1-Feb-22 to 28-Feb-22

Date		Particulars	Vch Type	Vch No.	Debit	Credit
3-Feb-22	Cr	**Shivakumar B Patil** *Being payable towards to Reimburse of TADA & Registration fee for attending workshop on repair, retro fitting and rehabilitation of buildings, bridges and other structures held on 19-20 Nov-2021 at Chennai.*	Journal	3065	10,080.00	
	Dr	**Closing Balance**			10,080.00	
						10,080.00
					10,080.00	**10,080.00**

Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Nagaraj Navalgund**

School/Department/Center: **MBA**

Conference Name: **glogift21**

Title of the paper: **"Drivers influencing the incorporation of the Environmentally Sustainable Practices in SMEs using Theory of Planned Behaviour (TPB)"**

Paper Category: **Others**

Conference serial number:

Area of Conference: **Flexible Sysyems in Management**

Conference is in the top % in Scopus/Web of Science:

Name of the host Institute/Organization: **Shilong**

Date & Timings: **21-04-2022**

Mode of Travel: **Air**

Registration Amount: **6000**

Estimated Amount for TA: **10000**

Estimated Amount for DA: **5000**

Total Amount: **21000**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**
glogift21, "Drivers influencing the incorporation of the Environmentally Sustainable Practices in SMEs using Theory of Planned Behaviour (TPB)"	
glogift21, "Drivers influencing the incorporation of the Environmentally Sustainable Practices in SMEs using Theory of Planned Behaviour (TPB)"	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

IIM SHILLONG

Azadi Ka Amrit Mahotsav

GLOGIFT 21

Indian Council of Social Science Research

GIFT

21st Global Conference On

Flexible Systems Management: Flexibility, Resilience & Sustainability

Certificate

This is to certify that ***Prof. Nagaraj R Navalgund*** has presented a paper titled ***Drivers influencing incorporation of environmentally sustainable practices in SMEs using Theory of Planned behavior (TPB)*** in the 21st Global Conference on Flexible Systems Management: Flexibility, Resilience & Sustainability organized by the Indian Institute of Management Shillong, Meghalaya, India during April 21-23, 2022.

IIM SHILLONG

Prof. Neelam Rani
Convener

Prof. Sanjita Jaipuria
Convener

The Automotive Research Association of India

(Research Institution of the Automotive Industry with the Ministry of Heavy Industries, Govt. of India)

ORIGINAL FOR RECIPIENT

Tax Invoice No:2223103833 DATED 27-JUL-2022

SD Bill Ref:2010003833

IRN : a8e55993d6a71ed3edaecd6284aa6488
2057468f11124d629984a59bd45707c2

Invoice u/s 31 of CGST Act,2017 read with Rules

BILL TO: ARAI Customer Code 9784	**SERVICE\SUPPLY TO:**
KLE TECHNOLOGICAL UNIVERSITY, HUBLI B.V. BHOOMARADDI COLLEGE CAMPUS, VIDYANAGAR, Hubli - 580031 Reg State: 29 Karnataka GSTIN: 29AACAK9702A1ZV Place of Supply: Karnataka	**KLE TECHNOLOGICAL UNIVERSITY, HUBLI** B.V. BHOOMARADDI COLLEGE CAMPUS, VIDYANAGAR, Hubli-580031 Reg State: 29 Karnataka GSTIN: 29AACAK9702A1ZV Place of Supply: Karnataka
Kind Attn.: Hanumanthagouda R. Patil Assistant Professor,Dept. of Electrical - Electronics Engg hrpatil@kletech.ac.in Contact.No: 9916112745	**Our Ref:** ACY FID / 2300001358 / 2022-2023 **Your Ref:** PIP on BMS for EV 26 / PIP on BMS for EV 26-29 Jul 22 **Dated:** 14-JUL-2022 **ARAI SAP Ref.: SO:** 3500003234

Description (SAC/HSN:999293 COMMERCIAL TRAINING AND COACHING SERVICES)

04 Days Online PIP on Battery Management System for Electric Vehicle, scheduled from 26th to 29th July 2022. Training fees for 04 Delegates (Mr. Hanumanthagouda R., Mr. Anup Kumar, Mrs. Aishwarya P. Kamatagi, Mrs. Radhika S. Nadiger).
Payment Reference No. AXISP00304900789 Dtd 19.07.2022.
BCA No. 51685.

Currency:(INR)
THIRTY SEVEN THOUSAND SEVEN HUNDRED SIXTY RUPEES ONLY

Taxable value:	32,000.00
IGST@18.%	5,760.00
CGST@0.0%	0.00
SGST@0.0%	0.00
Total Invoice Amount	37,760.00

ARAI GSTIN: 27AAATT1989P1ZL.
Tax payable under Reverse Charge: NO
ARAI is exempted U/S 197 of Income Tax Act 1961.
Please do not deduct T.D.S. from the Payment.
Before making payment, please ensure receipt of TDS exemption certificate at your end. If it is not received,
Kindly contact on accounts@araiindia.com

Test Report No

Signature Not Verified
Signed by : Mangesh Chandrakant Kulkarni
(The Automotive Research Association of India)
Date : 28-Jul-2022 08:18:29
Location : PUNE
Reason :

Please quote our relevant reference (SO/Quotation/Proforma Invoice/ Invoice) in your remittance for proper linking and quick processing of receipts in the system. In the event of RTGS/NEFT payment made to our account please send the intimation to accounts@araiindia.com, else the amount may not be credited to your account.

The Automotive Research Association of India

(Research Institution of the Automotive Industry with the Ministry of Heavy Industries, Govt. of India)

ORIGINAL FOR RECIPIENT

Annexure to Tax Invoice 2223103833 Dated 27-JUL-2022

SNo	Desc of Goods/Services (HSN/SAC Code)	Service Value	IGST	CGST	SGST	Total Amount
1	COMMERCIAL TRAINING & COACHING SERVICES 999293	32000.00	**Rate(%):** 18.00 **Amt:** 5760.00	**Rate(%):** 0.00 **Amt:** 0.00	**Rate(%):** 0.00 **Amt:** 0.00	37,760.00
					Total	**37,760.00**

Terms & **Conditions** :

1. All Transactions are subject to Pune jurisdiction.
2. ARAI is exempted under section 197 of IT ACT 1961. Before making payment please ensure receipt of TDS exemption certificate at your end.If it is not received, kindly contact on accounts@araiindia.com.
3. Payment requested by A/C Payee Cheque/DD drawn in favour of Director, The Automotive Research Association of India, payable at Pune.
4. Please quote our relevant reference (Invoice No.) invariably in your remittance for proper linking and quick processing of receipts in the system..

Information for E-Remittance NEFT/RTGS :

1. Beneficiary Name : The Automotive Research Association of India, Pune
2. Beneficiary Account Number : 04470200000280
3. Beneficiary Account Type : Current Account
4. 9 digit MICR code : 411012007
5. Beneficiary Bank IFSC/RTGS/NEFT Code: BARB0KARVER (0=ZERO)
6. Beneficiary Bank Name : Bank of Baroda
7. Beneficiary Bank Address : Darekar Heights,Karve Road Pune 411 004
8. Beneficiary E-Mail Address accounts@araiindia.com

Registered State Code and Name	GST Applicable	GST App Date	GSTProvisional ID
29 Karnataka	YES		29AACAK9702A1ZV
PAN	**TAN**		
AACAK9702A			

Signature Not Verified

Signed by : Mangesh Chandrakant Kulkarni
(The Automotive Research Association of India)
Date : 28-Jul-2022 08:18:29
Location : PUNE
Reason :

ARAI
Progress through Research

ARAI ACADEMY
Excellence in Education

CERTIFICATE

This is to certify that ***Mr. Anoopkumar Patil***

of ***KLE Technological University***

has successfully passed the 04-Day Online Proficiency Improvement Programme (oPIP) on 'Battery Management System of Electric Vehicle' organized from 26th to 29th July 2022 by Automotive Research Association of India (ARAI) Pune.

Ms. M. S. Jambhale
Deputy Director, HoD-FMCE,
HoD-Academy & KC-FID,
ARAI, Pune.

Certificate Id:
Al609O01BMSEVFVF02July22609

Date: 29th July 2022

The authenticity of this certificate can be validated on the below link:
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An initiative of The Automotive Research Association of India, Pune

ARAI
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ARAI ACADEMY
Excellence in Education

CERTIFICATE

This is to certify that ***Mr. Hanumanthagouda R Patil***

of ***KLE Technological University***

has successfully passed the 04-Day Online Proficiency Improvement Programme (oPIP) on 'Battery Management System of Electric Vehicle' organized from 26th to 29th July 2022 by Automotive Research Association of India (ARAI) Pune.

Ms. M. S. Jambhale
Deputy Director, HoD-FMCE,
HoD-Academy & KC-FID,
ARAI, Pune.

Certificate Id:
Hl584O01BMSEVFVF02July22584

Date: 29th July 2022

The authenticity of this certificate can be validated on the below link:
Click here

An initiative of The Automotive Research Association of India, Pune

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Progress through Research

ARAI ACADEMY
Excellence in Education

CERTIFICATE

This is to certify that ***Mrs. Radhika S Nadiger***

of ***KLE Technological University***

has successfully passed the 04-Day Online Proficiency Improvement Programme (oPIP) on 'Battery Management System of Electric Vehicle' organized from 26th to 29th July 2022 by Automotive Research Association of India (ARAI) Pune.

Ms. M. S. Jambhale
Deputy Director, HoD-FMCE,
HoD-Academy & KC-FID,
ARAI, Pune.

Certificate Id:
Rr585O01BMSEVFVF02July22585

Date: 29th July 2022

The authenticity of this certificate can be validated on the below link:
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An initiative of The Automotive Research Association of India, Pune

ARAI
Progress through Research

ARAI ACADEMY
Excellence in Education

CERTIFICATE

This is to certify that ***Ms. Aishwarya P. Kamatagi***

of ***KLE Technological University***

has successfully passed the 04-Day Online Proficiency Improvement Programme (oPIP) on 'Battery Management System of Electric Vehicle' organized from 26th to 29th July 2022 by Automotive Research Association of India (ARAI) Pune.

Ms. M. S. Jambhale
Deputy Director, HoD-FMCE,
HoD-Academy & KC-FID,
ARAI, Pune.

Certificate Id:
Ai628O01BMSEVFVF02July22628

Date: 29th July 2022

The authenticity of this certificate can be validated on the below link:
Click here

An initiative of The Automotive Research Association of India, Pune

PROFORMA INVOICE

SAEINDIA #131,1st Floor, Margosa Road, (B/w 9th & 10th Cross), Malleshwaram, Bangalore - 560 003, Karnataka Tele : 080 - 23444646 GSTIN: 29AADTS3913K1Z5 PAN: AADTS3913K	PROFORMA INVOICE NO BEH/DL/PRO/2122/06	DATED 16-Mar-22
	Terms of Payment	100% Payment Against Invoice
	Reference No. & Date	Other Reference
	Buyer's Order No. Email Confirmation	Dated 15-03-2022
Buyer (Bill to) **Ms. Sahana Kalligudd** Assistant Professor, EEE Department, KLE Technological University, B. V. Bhoomaraddi Campus, Vidyanagar, Hubballi - 580031 State Name: Karnataka TIN No. First Two Digits: 29 State Code: KA	Place of Supply	Karnataka

S No	Particulars	HSN/SAC	Amount
	Delegate Registration Fees For SAEINDIA Bangalore Section Webinar "Electric & Hybrid Vehicle Development Course" During 21st-26th March 2022	999512	
1	Mr. A B Raju		Rs. 3,000
2	Mr. Anupkumar Patil		Rs. 3,000
3	Mr. Sachin Angadi		Rs. 3,000
4	Mr. Hanumantha Gouda R Patil		Rs. 3,000
5	Ms. Shweta Koraddi		Rs. 3,000
6	Ms. Radhika S Nadiger		Rs. 3,000
7	Ms. Aishwarya P Kamatagi		Rs. 3,000
8	Ms. Sahana Kalligudd		Rs. 3,000
9	Ms. Vandana H Muratti		Rs. 3,000
			Rs. 27,000
	LESS : Discount 10%		Rs. 2,700
			Rs. 24,300
	ADD : CGST 9%		Rs. 2,187
	ADD : SGST 9%		Rs. 2,187
	Total		**Rs. 28,674**

Amount (In Words)
Rupees Twenty Eight Thousand Six Hundred And Seventy Four Only

Bank Details	
Name	SAEINDIA
Account No	"000101202792"
Bank	ICICI Bank
Branch	Cenotaph Road Branch
IFSC CODE	ICIC0000001

For SAEINDIA

VENKATARAJ.K Digitally signed by VENKATARAJ.K Date: 2022.03.16 10:05:32 +05'30'

Authorised Signatory

Regd office at: No.1/17 Ceebros Arcade, 2nd Floor, 3rd Cross, Kasturba Nagar, Adyar, Chennai - 600 020
Tele : 044 - 24411904 / 42152280

SAEINDIA
Society of Automotive Engineers INDIA

SILVER JUBILEE 1997 - 2022
SAEINDIA 25
Society of Automotive Engineers INDIA

SAEINDIA
BENGALURU SECTION

PROFESSIONAL DEVELOPMENT PROGRAM

Certificate Of Participation

This is to certify that Mr. / Ms. / Dr.

ANUPKUMAR PATIL

has successfully completed Professional Development Program (Virtual) on

"**Electric & Hybrid Vehicle Development Course**" 6 days course

from 21st March to 26th March 2022.

Prakash V. Sardesai

PRAKASH SARDESAI
Chair, MPDB

DAMODARAN SUBRAMANIAN
Chair, SAEIBS

K. VENKATARAJ
Deputy Director General,
SAEINDIA

SAEINDIA
Society of Automotive Engineers INDIA

SILVER JUBILEE 1997 - 2022
SAEINDIA 25
Society of Automotive Engineers INDIA

SAEINDIA
BENGALURU SECTION

PROFESSIONAL DEVELOPMENT PROGRAM

Certificate Of Participation

This is to certify that Mr. / Ms. / Dr.

SAHANA KALLIGUDD

has successfully completed Professional Development Program (Virtual) on

"**Electric & Hybrid Vehicle Development Course**" 6 days course

from 21st March to 26th March 2022.

Prakash V. Sardesai

PRAKASH SARDESAI
Chair, MPDB

DAMODARAN SUBRAMANIAN
Chair, SAEIBS

K. VENKATARAJ
Deputy Director General,
SAEINDIA

Gmail

Aditi Kadam <aditikadam293@gmail.com>

Payment successful for ASIAN EDUCATIONAL MANAGEMENT & RESEARCH CONSULTANT

1 message

Payments <no-reply@razorpay.com>
Reply-To: no-reply@razorpay.com
To: aditikadam293@gmail.com

3 March 2022 at 14:47

ASIAN EDUCATIONAL MANAGEMENT & RESEARCH CONSULTANT

₹8,188.80

Paid Successfully

Payment Id	pay_J2Z19qZflwqg0H
Method	UPI aditikadam293@okaxis
Paid On	3rd Mar, 2022
Email	aditikadam293@gmail.com
Mobile Number	+919902857979

For any order related queries please reach out to ASIAN EDUCATIONAL MANAGEMENT & RESEARCH CONSULTANT

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Fwd: Payment successful for ASIAN EDUCATIONAL MANAGEMENT & RESEARCH CONSULTANT

1 message

Anupama Itagi <anupama_itagi@kletech.ac.in> Tue, Dec 13, 2022 at 6:24 PM
To: altaf.husain@kletech.ac.in, Aditi Kadam <aditi.kadam@kletech.ac.in>

---------- Forwarded message ---------
From: **Anupama Itagi** <anupama_itagi@kletech.ac.in>
Date: Tue, Apr 12, 2022, 1:51 PM
Subject: Fwd: Payment successful for ASIAN EDUCATIONAL MANAGEMENT & RESEARCH CONSULTANT
To: Anupama Itagi <anupama_itagi@kletech.ac.in>

I2Ct payment

---------- Forwarded message ---------
From: **Anupama Itagi** <anupama_itagi@kletech.ac.in>
Date: Tue, Feb 8, 2022 at 3:57 PM
Subject: Fwd: Payment successful for ASIAN EDUCATIONAL MANAGEMENT & RESEARCH CONSULTANT
To: Aishwarya Kallanagoudar <aishwaryabk1999@gmail.com>

---------- Forwarded message ---------
From: **Payments** <no-reply@razorpay.com>
Date: Tue, Feb 8, 2022 at 1:54 AM
Subject: Payment successful for ASIAN EDUCATIONAL MANAGEMENT & RESEARCH CONSULTANT
To: <anupama_itagi@kletech.ac.in>

ASIAN EDUCATIONAL MANAGEMENT & RESEARCH CONSULTANT

₹8,700.60

Paid Successfully

Payment Id	pay_ItTMFtwuzIWmJF
Method	UPI 8904851305@upi
Paid On	8th Feb, 2022

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TABLE OF CONTENTS

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Editorial

Good teaching emanates from Research. The teachers' love for research and their experience in research are vital for the growth of the institution. Any institution is judged by the level and extent of the research work it accomplishes. This sets in a regenerative cycle of excellence. Experience of research leads to quality teaching and quality teaching imparted to the young in turn enriches the research. The campus dynamics needs such type of research teaching research environment.

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So this conference has been designed to stimulate the young minds including Research Scholars, Academicians, and Practitioners to contribute their ideas, thoughts and nobility in these disciplines of engineering. It is a pleasure to welcome all the participants, delegates and organizers to this International Conference on behalf of IRAJ Research Forum and ITR family members. This conference has received a great response from all parts of the country and abroad for the presentation and publication in the proceedings. I sincerely thank all the authors for their valuable contribution to this conference. I am indebted towards the Reviewers and Board of Editors for their generous gifts of time, energy and effort for the Conference.

Editor-In Chief

Prof. R. M. Khaire
Professor, COE,
B. V University, India

REAL-TIME CYCLIST TRACKING IN A VIDEO USING CNN AND DEEP SORT

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Abstract - Due to ever increasing environmental safety concerns, cycles and electric vehicles promise to be the most popular modes of transport. Further, the advancements in autonomous electric vehicles pose a greater threat for pedestrians and cyclists, in terms of road safety, who would be vulnerable as road users. Thus, cyclist detection and tracking in videos is a new dimension in multi-object tracking problems encountered in computer vision research. Calculating speed of cyclist is also important for autonomous vehicles to avoid collision between cyclist and vehicle. In this paper, a novel approach for detection, tracking and calculating the speed of cyclist in videos is proposed. The cyclist detection is done by modified YOLOv3 and real-time cyclist tracking is done by employing Deep SORT. The movement representation and data association algorithms are used for cyclist tracking and the optical flow is used to calculate the speed of cyclist. The proposed algorithm is experimented on two benchmark datasets, namely, KITTI and SCD datasets, of videos of real scenes with cyclists.

Keywords - Convolutional Neural Network, Video Processing, Multi Object Tracking, Data Association

I. INTRODUCTION

The intelligent driving has emerged as an essential technology for achieving safety and congestion control of the urban road traffic. Due to ever increasing environmental safety concerns, cycles and electric vehicles promise to be the most popular modes of transport. Further, the advancements in autonomous electric vehicles pose a greater threat for pedestrians and cyclists, in terms of road safety, who would be vulnerable as road users. Particularly, the attention of the governments, research institutes and automobile companies is focused on cyclist protection in the context of autonomous driving vehicles. The design of such vehicles needs to primarily include the computer vision tools for effective detection and tracking of cyclists in traffic videos. Thus, cyclist detection and tracking in videos is a new dimension in multi-object tracking problems encountered in computer vision research.

Cyclist detection in videos is done by using the sliding window method, in which the video image frameis scaled into different sizes and then a fixed-size window template is used to traverse the cyclist region. Cho et al.[1] used a deformable part model to design a multi view cyclist detection model. Li et al.[2] achieved cyclist detection by using HoG features and SVM classifier. Yang et al.[3] and Huang et al. [4] have developed multilayer methods for detection of cyclists. Tian and Lauer [5] have correlated the object (cyclist) size and position using the geometric constraints of the on-board camera, wherein the cyclist size delimits scanning range of the image and a multi-view classifier model is built for cyclist detection. The differentiating aspects of cyclist and pedestrian detection problems are that: (i) cyclist region's aspect ratio varies with the angle of camera view, (ii) speed of cyclists is higher than the pedestrians generally, and (iii) differentcyclists move with different speeds. A single model with fixed aspect ratio does not adapt to all cyclist regions. On the contrary, the multiple models with varying aspect ratios lead to increase in the computational cost and thus impact the algorithmic efficiency of detection in practical applications.

The accuracy of target (object) detection and, hence, of the classification too, depends on the efficiency of target segmentation in the video images. In the literature, there are many methods for object recognition, e.g., segmentation clustering based method and window scoring based method [6]. In segmentation clustering, the potential regions of objects are determined by using methods for image segmentation, e.g., super pixel clustering method, graph-cut based method and edge contour method. In super pixel clustering, candidate object regions are generated by merging super pixel points, based on selective search [7], randomized Prim's algorithm [8], and combined global and local search [9]. Graph based methods for the image object segmentation are graph-cut algorithms [10], constrained parametric min-cuts[11], diverse ranking [12] and reusing inference in graph cuts [13]. Edge contour methods find the target candidate regions by combining the segmentation results by edge strength [14-16]. In window scoring methods, each candidate window is evaluated for selection as a target candidate region. Measurement of objectness in the image window [17] involves initial selection of a candidate region based on the prominence of its location in the video frame and there after marking score of each candidate region by position, edge, color and size. From the literature, it is noted that the methods, namely, selective search, region proposal network (RPN) and edge boxes, yield better results. However, these methods are effective for a general problem of object detection only and are not apt for cyclist detection problem.

The challenges faced in the cyclist detection problem are: Bicycle type, cyclist's clothes and cyclist's posture alter the targets' appearance; and, different observation angles alter the targets' aspect ratio.

A novel algorithm for cyclist detection and tracking in a compressed domain video, based on multi-object detection and tracking, is proposed in this paper. The proposed algorithm is a tracking-by-detection algorithm with cyclists as the targets (objects). Firstly, the YOLOv3 neural network is refined and then used to detect objects appearing in the camera view effectively. Secondly, the Deep SORT algorithm is used for object tracking by exploiting movement representation and data association. YOLO v3 is convolution neural network (CNN), in which input image is transformed to feature map through the convolution operation and then classified. In traditional ANN, the neural network accepts features as inputs and then does the classification. Deep SORT is an extension of SORT (Simple Online and Real Time Tracker) based on deep neural network, which is used for efficient real time multi object tracking.

The proposed algorithm is tested using some of the real cyclist traffic surveillance videos and the performance measure, namely, average precision, is obtained as 89.15% for cyclist detection. Also, the experimental results obtained by using the proposed algorithm are compared with those obtained by other multi-object tracking algorithms that are tested on the specialized cyclist detection (SCD) dataset.

The organization of paper comprises five sections. The Section 2 contains the relevant work of some authors is reviewed. The proposed multiple-cyclist detection and tracking algorithm is elaborated in the Section 3. In the Section 4, the analysis of experimental results is given, while the Section 5 contains the conclusions of the present work.

II. RELATED WORK

The literature is abundant with many state-of-the-art methods for cyclist detection and tracking. The key basis for these methods are the high-resolution video cameras which acquire images with rich color and texture information that support video analysis [18–20]. Zangenehpouret al. [18] have used histogram of oriented gradient (HoG) features for cyclist detection in videos of crowded traffic scenes. Li et al. [19] have proposed a novel method for concurrent detection of pedestrians and cyclists, which combines a novel detection method and a Fast R-CNN as a discriminative deep model and is tested using more than 50000 images. Tian and Lauer [20] examined geometric constraints entailed by different camera setups and also designed a method for cyclist detection from multiple viewpoints using cascaded multiple classifiers. Bieshaaret al. [21] employed spatio-temporal features constructed by a 3D CNN for detecting the cyclist's motion in video image sequences. Liu et al. [22] considered a region proposal method utilizing aggregated channel features to solve the cyclist detection problem in case of high-resolution videos. Li et al. [2] detected crossing cyclists using HoG-LP features and linear SVM classifier. Chen et al. [23] have considered feature fusion for bicycle and motorcycle detection in the video scenes of nighttime environments. Cho et al. [1] developed a mixture model of multiple viewpoints for detecting cyclists by employing part-based representation approach with HoG feature and SVM. In [3], a two-stage scheme is proposed for cyclist detection in naturalistic driving video processing, wherein negative windows among the potential windows are filtered out by an integral feature based detector and this operation is followed by classification of the remaining windows as cyclist and non-cyclist windows by a view-specific pre-learned detector. To solve the problem of cyclist detection in multi-view cameras [5], the cyclists' orientation is considered to categorize the cyclists. For each orientation bin, a cascaded detector is designed using HoG features and it is trained using KITTI tracking dataset. Further, in this work, the applications of geometric constraints are explored for improvement in the detection efficacy.

III. METHODOLOGY

The proposed method consists of three processing steps, namely, cyclist (object) detection, multi-cyclist (object) tracking, and cyclist (object) speed computation, which are described below. The Figure.1 depicts the flowchart of the proposed methodology.

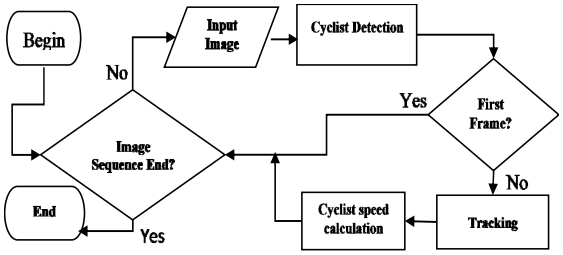

Figure 1: The proposed methodology

Cyclist Detection

For the cyclist detection step, YOLO v3 detection framework [25] is modified, wherein a compressed VGG network [26] is used as the front network of the framework, and thereby reduce the network complexity from 65 Bflops to 39 Bflops. The main object for detection algorithm is cyclist. It is achieved by using a clustering algorithm. The usage of very small anchor settings does not affect detection performance and reclustering the size of anchors is accomplished by using K-Means algorithm. The computational complexity is further reduced to 34 Bflops by removing the final FPN structure of the YOLO v3 network. To avoid the severe occlusion between the cyclist targets, soft–NMS method is

used. It overcomes the drawback of traditional non-maximum suppression (NMS) [27]. In soft-NMS method, the bounding box, wherein IOU is greater than the threshold and confidence is found to be lower, is not removed but instead its confidence is reduced. Hence, it is more unlikely that the correctly detected targets are removed incorrectly in cases of the dense targets. Thus, the false positives of detected targets are correctly removed and also the false negatives are reduced.

Multi-Cyclist Tracking

In the cyclist tracking step, the Deep SORT algorithm is used for tracking multi-targets, which is based on distance, velocity and looks. Deep SORT computes the in-depth features for every bounding box and, using similarities between deep features of targets, the tracking logic is developed. First, a classifier is built for the given dataset, which is trained well to achieve an acceptable degree of accuracy, and then remove the final classification layer. It means that, in view of a classical architecture, this process ends up with a dense layer producing a single feature vector, which needs to be classified. Such a feature vector becomes the "appearance descriptor" of the object. Thus, Deep SORT is an elegant and most popular Object Tracker, due to the powerful deep learning technique combined with a simple distance metric as a similarity measure.

Association of the bounding boxes with the relevant tracks is achieved by using the Hungarian algorithm. The corresponding assignment problem has the cost matrix, that is computed in terms of Intersection-Over-Union (IoU) distances, in which the overlap between predictions and detections is maximized. In the first image frame of the sequence, detection results are used to build motion models, which are then used as new tracklets for initializing the sequence. The determination of tracking sate is entirely done by the prediction matrix when unmatched tracklets are found as output, and the predicted tracklets move in the straight line as determined by the state variables. This process mitigates effects of occlusion or detector failure quickly. Failing to match any detected target in multiple sequential frame simplies the disappearance of the target and the corresponding tracklet is discarded. The Figure.2 depicts the flow chart of the object motion tracking algorithm.

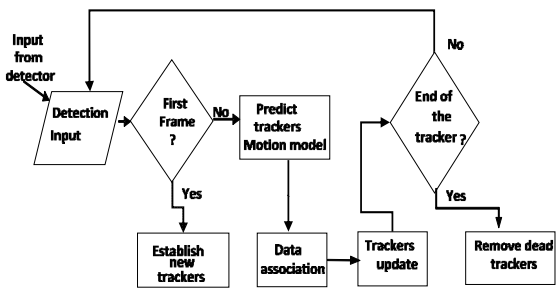

Figure 2: The object motion tracking algorithm.

Cyclist Speed Computation

Speed of cyclist is computed by using optical flow, which is based on the displacement of object corners observed from one image frame to the next consecutive frame. It gives the instantaneous speed of the object's motion in terms of pixel motion on the observation image plane.

Lucas-Kanade algorithm [28] is used for calculating sparse optical flow efficiently, since it acquires the local information of objects' comers only and thus reduces the computational time. Also, it is an efficient motion estimator based on optical flow [29] suitable for the scenarios, wherein changes in brightness are few and the inter-frame motion is slow and coherent, that are apt for cyclists in the scene.

Distance D(k) covered by k^{th} object is calculated by observing the motion of its centroid $(x_i^{(k)}, y_i^{(k)})$from $(i\text{-}1)^{th}$ frame to i^{th} frame using the formula:

$$D^{(k)} = \sqrt{[(x_i - x_{i-1})^2 + (y_i - y_{i-1})^2]}$$

and its velocity $V^{(k)}$ is calculated using the formula

$$V^{(k)} = D^{(k)}/T$$

where T= 1/f, with f as frame rate of the video sequence, is the time between i^{th} and $(i\text{-}1)^{th}$ frames. The distance measurement is in pixels. The physical distance measure (in meters) depends on the camera resolution and pixel-scale corroborated with ground truth.

IV. EXPERIMENTAL RESULTS AND DISCUSSION

For the purpose of experimentation of the proposed algorithm for multi-cyclist tracking, the publicly available benchmark datasets, namely, Specialized Cyclist Detection (SCD) dataset [30] and KITTI dataset [31] are utilized. The characteristics of these two datasets are given in the Table.1.

SCD dataset contains images of cyclists riding along with motorized vehicular traffic in different environmental conditions, namely, Autumn and Winter. Cyclists ride as single riders and sometimes as groups of 2-8 riders. For the Autumn conditions, videos are recorded in the southern end of the Silicon Valley, Morgan Hill, California. For the Winter conditions, videos are recorded in suburbs of Novosibirsk, Siberia.

Video specs	**SCD[30]**	KITTI[31]
Resolution	1920x1080	1242x375
Frame rate (per sec)	47.95 FPS	10 FPS
Color	Gray scale (full color original video)	Gray scale (full color original video)

No. of video frames	62702	2844
No. of video frames containing cyclists	18370 (‘Easy’ 10694, ‘Moderate’ 6589, ‘Hard’ 1087)	633 (‘Easy’ 480, ‘Moderate’ 105, ‘Hard’ 48)
No. of video frames with cyclists wearing street clothes	12575 (‘Easy’ 7738, ‘Moderate’ 4581, ‘Hard’ 1087)	--
No. of video frames with cyclists wearing a jersey having known pattern	5795 (‘Easy’ 2956, ‘Moderate’ 2008, ‘Hard’ 831)	--

Table 1. Characteristics of Datasets SCD[30] and KITTI[31]

The samples of these datasets are used for experimentation of the proposed method and its performance comparison with some of the methods in the recent literature, namely, YOLO [32], VoxelNet [33], HC-baseline [33], SeueezeDet+ [34] and CyDet [35]. The dataset used for experiments are given in Table.2. For training, 50% of the data is used, while the remaining 50% is used for testing during the experiments.

To test the robustness of the proposed cyclist detector, the experimentation has been done using the KITTI and SCD dataset and its performance comparison with other detectors, that are also trained using both these datasets, is shown in the Tables.4 and 5, respectively. Some authors have used the data that is acquired using LiDAR (light detection and ranging) and monocular camera. In the both the datasets, the cyclist instances are categorized and also labeled into three levels of detection difficulty, namely, Easy (E), Moderate (M), and Hard (H) based on the criteria given in Table.3[36].

Dataset	Number of frames with Cyclist	Remarks
Specialized Cyclist Detection (SCD)	18370 images	Used for Training/ Testing Detector
KITTI	633 images	Used for Training/ Testing Detector

Table 2. Dataset Used for Experiments

Category	Minimum height of bounding box	Maximum level of occlusion	Maximum truncation
Easy	40 Px	Fully visible	15%
Moderate	25 Px	Partly occluded	30%
Hard	25 Px	Difficult to see	50%

Table 3. The rules of categorization of labeled data.

The Table.6 shows the computed velocity for each cyclist in the given frame with frame rate of 47.95 fps

Method	Modality	Average Precision (%) of Cyclist detection		
		Easy	Moderate	Hard
YOLO [32]	Mono	16.71	16.03	08.33
VoxelNet [33]	LiDAR	67.17	47.65	45.11
HC-baseline [33]	LiDAR	55.35	36.07	34.15
SeueezeDet+ [34]	Mono	87.6	80.03	78.1
CyDet [35]	Mono	88.12	80.92	75.47
Proposed	**Mono**	**89.15**	**82.00**	**76.12**

Table 4. Performance Comparison of Cyclist Detection using KITTI Dataset.

Method	Modality	Average Precision (%) of Cyclist detection		
		Easy	Moderate	Hard
YOLO [32]	Mono	47.87	38.97	32.48
SeueezeDet+ [34]	Mono	53.54	39.53	39.01
CyDet [35]	Mono	81.10	77.85	77.4
Proposed	**Mono**	**84.25**	**79.45**	**78.85**

Table 5. Performance Comparison of Cyclist Detection using SCD Dataset.

Tracked cyclist	Cyclist's speed (pixels/second)
Cyclist 2 in Fig.3	39.2
Cyclist 10 in Fig.3	23.8
Cyclist 2 in Fig.4	39.2
Cyclist 10 in Fig.4	23.8
Cyclist 19 in Fig.4	20
Cyclist 5 in Fig.5	21

Table 6. Computed Speed of Cyclist.

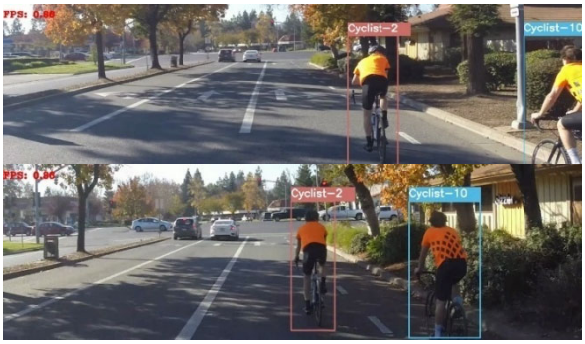

Figure 3: Samples of SCD dataset with cyclists in diamond pattern jeresy, Autumn

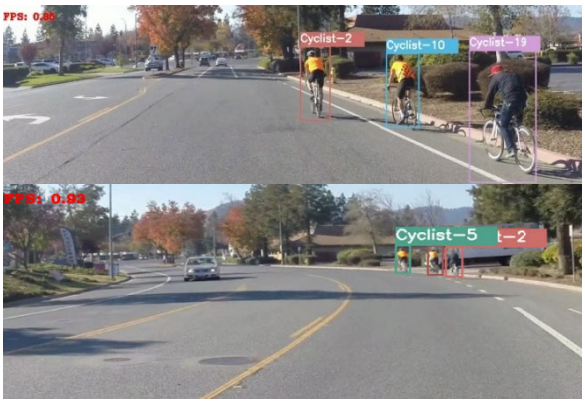

Figure 4: Samples of SCD dataset with cyclists in diamond pattern jeresy and street clothes, Autumn

Figure 5: Samples of SCD dataset, Winter

The sample results of multi-cyclist tracking algorithm using SCD dataset, which contains different scenarios of cyclist patterns namely, autumn, winter, cyclist in diamond pattern jersey, cyclist in street clothes, are presented in the Figures.3, 4, and 5. These results demonstrate the effectiveness of the proposed method in all the scenarios considered for experimentation. In the Figure.3, cyclists with diamond pattern and cyclists under the bright light as well as those under shadow are detected. In the Figure.4, cyclists near the camera and also those farther away from the camera are detected. In the Figure.5, there is a scenario with poor illumination and the cyclist farther away from camera is detected. The results in Tables.4 and 5 indicate that the proposed methodology for multi-cyclist detection and tracking has outperformed other methods in the literature in terms of average precision for all the three classes of cyclists, namely, 'easy', 'moderate' and 'hard'.

V. CONCLUSION

In this paper, a novel real-time multi-cyclist tracking is developed, which comprises revamped YOLOv3 for object detection and Deep SORT for object tracking based on movement representation and data association algorithms. The optical flow-based cyclist speed computation is proposed. The experimentation of the proposed algorithm is carried out on different benchmark datasets. The results of experimentation demonstrate that the proposed algorithm yields improved accuracy and real-time performance in comparison with other cyclist tracking methods in the literature and, hence, is an effective multi-cyclist tracking algorithm. In future work, the intent estimation of cyclist will be considered.

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★★★

WORK MOTIVATION AMONG EMPLOYEES: A COMPARATIVE ANALYSIS OF TECHNICAL & ADMINISTRATIVE STAFF

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Abstract - The present study aimed to know the work motivation among technical and administrative departments in private sector. It also aimed to explore work motivation with reference to level of experience. The Work Extrinsic and Intrinsic Motivation Scale (WEIMS) 18 items scale was used for the study, it is divided into three item six subscales which corresponds to six types of motivation postulated by SDT. The sample constituted of 132 employees out of which 58 were from administrative department and 74 were from technical department. The data was collected from private sector of Ahmedabad City. The data was scored, analyzed with F test and mean was calculated. The result shoed that employees working in technical department have more work motivation than those working in administrative department. Also, it was also found out that employees with more than 10 years of work experience had more motivation than those having less than 10 years of experience.

I. INTRODUCTION

Organizational success is a complicated phenomenon that is heavily influenced by the skill and enthusiasm of a company's employees. One of the most significant issues confronting most employers, both public and private, is how to inspire their workers to enhance efficiency. The premise in economics is that monetary rewards increase results (Igbaekemem,2014). Employees in a company have motivations and inner desires, which they manifest through acts and activities in job positions to fulfill their needs.

The most important thing for a company is its workers' commitment and loyalty, which can be accomplished if they are paid better. Rewarding workers is a major concern to alleviate dissatisfaction and improve efficiency (Mehta, 2014).

Money is generally used to keep an organization properly staffed in most businesses and other organizations, rather than as a motivator. Various researchers have proposed various methods for motivating employees at work. However, since human beings vary in terms of needs, culture, religion, and other factors, what motivates them differs as well. Some workers are inspired by a variety of factors.

Managers are often looking for new ways to build a motivating atmosphere where workers can go above and beyond to achieve the organization's goals. Since human resources are an organization's most valuable resource, they must be activated, trained, developed, and most importantly, motivated to achieve individual and organizational goals. The use of monetary incentives as a motivator is common in developing countries.

Motivation is referred to as a desire or a need, it is a state of mind that yearns for improvement, whether it be in oneself or in the world. Motivation provides the push and direction required to communicate with the world in an adaptive, open-ended, and problem-solving manner when we tap into this source of energy (Reeve, 2015).

Energized and consistent goal-directed action is the root of motivation. Individuals move and act when they are inspired. The fulfillment of needs that are either required for survival or important for health and development influences motivation. Physiological requirements for food, water, and sex help to keep the organism alive while also providing pleasure.

Behavior is similarly driven by psychological needs for autonomy, superiority, and belonging. Achievement, strength, closure, sense, and self-esteem all play a role. Some of these needs, as well as all the intrinsic behaviors, will become motivations. Extrinsic motivation can be heavily influenced by surroundings and social background. Goals, beliefs, and expectations to feel feelings associated with specific end-states can also inspire (Reeve, 2015).

Motives are the immediate and proximal triggers of driven behavior, and they are internal interactions in the form of needs, cognitions, and emotions. Motives that induce or activate motivational states are antecedental by social environments and external events. Behavior, engagement, psychophysiology, brain activations, and self-report are all ways for an individual to articulate their motives.

The human desire to work to reap benefits, whether those rewards be physical, mental, social, or monetary, is referred to as work motivation. Work motivation is linked to skill and environmental conditions, according to research. It varies with age and individual psychology. Work motivation is described as “a collection of energetic forces that originate within individuals, as well as in their environment, to initiate work-related behaviors and to determine their type, direction, intensity, and duration” in the professional domain (after Pinder, 2008, p. 11).

As previously stated, individual differences and their environment (e.g., cultural, societal, and job organizational) interact to determine work motivation (Latham and Pinder, 2005). Furthermore, personality characteristics, needs, and even job fit influence motivation, resulting in a variety of outcomes and attitudes, such as happiness and organizational citizenship behaviors (OCBs) (Tziner et al., 2012).

Factors Affecting Work Motivation

Relationship between Co-workers: Since the workplace is all about people working together to accomplish a common goal, it's important that all coworkers appreciate and never show disrespect to one another. It is easier to build a workplace where respect and duty prevails if workers have a clear understanding of the job that others do and how their responsibilities bring value to the company.

Leadership: The position of the leader is critical in creating a positive work environment. The leader must be able to communicate with a variety of workers. It is important for leaders to support their workers, as this will encourage others to follow in his footsteps, resulting in the establishment of a community of mutual respect and honor.

Development: Employee growth is critical for empowering workers. Surveys indicate that 20% of employees prefer professional development opportunities and training over salary compensation. Employee development not only makes them self-sufficient and allows them to contribute more efficiently to the workplace, but it also allows them to improve their contribution to the business.

Rewards and recognition: Appreciation that isn't followed by a reward has a short shelf life; praise that isn't accompanied by a reward starts to lose its effect. Employees lose motivation if they are not rewarded for extra effort. Although praise is sufficient in some situations, employees lose motivation if they are not rewarded for extra effort. Employees are rewarded and recognized to inspire and empower them to go above and above in their jobs and to cultivate good behaviors.

Work Life Balance: Employees are nurtured when they have a strong work-life balance. Employees who are motivated are less likely to take sick days, leave the business, and are more willing to work longer hours. If there isn't a good work-life balance, these same workers are more likely to "burn out" and become unmotivated. While motivated workers may go above and beyond for the organization to do their best, if they become exhausted, they can lose interest in their work.

Work Environment: Employees who are motivated excel in a supportive work climate. Google is known for its extraordinary office environments that prioritize employee wellness, including open spaces, quiet areas, beach volleyball, and other amenities

Importance of Work Motivation

Employee motivation is critical for a variety of reasons because it enables management to achieve the company's objectives. Companies could be put in a dangerous situation if they don't have a motivated workforce. Employees that are motivated are more productive and help an organization achieve higher levels of production.

Increased employee commitment

When workers are inspired to work, they are more likely to give their all to the tasks that have been assigned to them.

Improved employee satisfaction

Employee satisfaction is critical for any business because it can contribute to growth.

Insures Reactive Workforce

Any effective company must be able to adapt to evolving business conditions. An organization's employees must be extremely loyal and committed in order to respond quickly to changes and maintain smooth operations. As a result, the company is more effective at responding to evolving needs.

Facilitates Direction

Direction is a crucial managerial feature and one of the core functions. Motivation, as previously said, is an important aspect of the route. The direction is a process that entails directing or acting in accordance with a strategy that requires employees to work tirelessly and loyally.

Higher Productivity Levels

More production would result if people were driven to work faster and more effectively. This will enable your company to accomplish more and possibly sell more.

More Innovation

Motivated employees will not only produce more, but they will also be more likely to improve the product. Motivated employees will see areas for improvement and will be inspired to work to better them because they are so focused on the product or service.

Lower Levels of absenteeism

Employees who are motivated are more satisfied with their jobs and have a clear target in mind. These workers are less likely to miss work for good reason because they believe it would cause them to fall behind in their work.

Lower Level of Staff Turnover

Motivated employees are more likely to remain in their jobs because they can see the results of their efforts and believe that they can continue to make a difference in the business. Employee turnover can be minimized, resulting in lower training, and recruiting costs for the company.

Great Reputation and Stronger Recruitment

People, as we all know, chat about the things they like and, more importantly, the things they don't like. Satisfied employees spread the word, giving the company a positive image as an employer. As a result, attracting top talent becomes much easier.

II. REVIEW OF LITERATURE

Motivation, according to Hellriegel, Slocum, and Woodman (2001), refers to the forces that act on or within an individual to cause them to behave in a goal-directed manner. Therefore, motivation is the greatest measure of an organization's success since it is directly linked to the outcomes.

Siddhpara, and Parmar (2017) conducted a research on work motivation of employees in private sector. They wanted to know whether work motivation was more among technical employees or administrative employees, and they also wanted to find difference among work motivation of different level of experience i.e., more than 10 years. The sample consisted of 120 employees out of which 60 were from types of work (30 technical and 30 administrative) and 60 from level of experience (less than 10 years and more than 10 years). The work motivation questionnaire (WMQ-A) prepared by Agarwal (2012) was used to collect data and 'F' test was calculated and results were interpreted. The research found that the technical employees had more work motivation than administrative employees and employees having experience less than 10 years had good work motivation than those with more than 10 years of experience.

A research was conducted to study the influence of motivation and work environment on the performance of employees (Oktaviani, 2017) data was collected through questionnaire technique. The objective was to determine the responses of respondents regarding motivation, work environment and employee performance. Questionnaire was distributed to all employees of the University PGRI Ronggolawe Turban. Multiple Regression analysis was used for analysis and found out motivation and working environment influence employee performance significantly. They also concluded that Employee performance of 11.5 % was influenced by work motivation while remaining was caused by other factors.

Employees who are motivated and happy are more committed to the organization's goals; in turn, companies must demonstrate a similar dedication to employee goals. In a research, importance of employee motivation and job satisfaction for organizational performance by Varma (2017). In this research, 150 employees were surveyed through questionnaire. It was seen that the compensation policies had been one of the important factor which had affected the motivation of employees records lowest score of satisfaction, recognition and appreciation practices. The employees were also found to have scored low in work – life balance. It was concluded that motivation is the most important aspect of any organizational setup and creates an environment which facilitates and supports employee to perform optimally.

Organizations around the world that treat human resources as a central core of the company and strive to consistently improve employee motivation and efficiency are more successful (Adi, 2000, Anka, 1988, Rothberg 2005). In the study, the impact of employees motivation on organizational effectiveness was studied to reveal what motivational factors motivate a person the most at work and how it is linked with their work performance and its contribution to organizational effectiveness. The research surveyed 314 respondents studying at Vaasa University of Applied Science and found that money, personal growth and work-life balance are the three most influential motivation factors for employees. The practice of combining both physical incentives and spiritual stimulation was proved to be the most effective to increase employee's level of motivation. However, according to the results the respondents experienced a low rate for empowerment which might be the consequences of deficient work involvement, low responsibility level. (Nguyen, 2017)

Saad (2018) conducted a research with the purpose to study the impact of employee motivation on work performance. The purpose was to see whether the overall business performance depends over the employee motivation or not. Sample size of the survey was 50 people and depicted that the kind of motivation given to worker has a significant influence on the performance which in turn impacts he overall business performance. The research findings illustrated that it was the low consideration made by the organization in the employee motivation segment that contributed to low morale., lack of commitment and low productivity. The findings also showed that the individual employee that received intrinsic rewards performed better than those that did not received the rewards. In this respect the study illustrated that performance related appraisals and rewards had a significant impact on the workers motivational level and the standards of work commitment.

In the context of employee motivation, the terms incentive and reward are intertwined and complementary. The most general category was incentive, which motivates employees to do better, contribute more efficiently, and put forth more effort. Several studies have been done to measure the influence of incentives on employee motivation and performance. The research done by Naveen and Yenugula (2017) studied the impact of monetary and non-monetary incentives on performance of employees. The objective was to investigate the effectiveness of financial incentives, the importance of non-monetary incentives and to determine the type of reward that acts as the best element on employees performance. 100 employees were selected by random sampling technique of Beverage Industry and found that non- monetary incentives were valued highly by the employees, even in the absence of

monetary incentives. Among the non-monetary incentives, job related non-monetary incentives were more preferred as the incentive that would increase the employees' interests in their jobs the most. This may imply that most of the employees in the organization value meaningful job with more responsibility, variety of tasks and opportunity to use variety of skills, autonomy over job, participation in decision making, promotion, etc.

Singh (2017) in his research, conducted a systematic review on modern workplace motivation. He analysed researches done on different generations, Generation X, Generation Y and Baby boomers to understand why employee motivation is important. It was found on the basis of gender wise analysis that 85% male and 63% female feel that there is not enough appreciation from their boss at work. While 62% junior level, 80% middle level and 50% senior level employees claim lack of appreciation at workplace. The paper concluded that employee motivation is an intricate and sophisticated subject.

Hussein & Simba (2017), studied that employee's performance fundamentally depends on employee motivation, training and development, performance appraisals, employee satisfaction, compensation, job security, organizational structure among others.

Ocholain (2018) published a paper based on document analysis called employee motivation, an organizational performance improvement strategy (a review on influence of employee motivation on organizational performance). The study recognised the different ways of motivating employees, it includes training workshops, good leadership style, improved working environment, employee remuneration, proper organizational physical facilities, coaching , counselling , mentoring and assimilation . The researcher agreed that motivation of employee can significantly affect performance of an organization. It also found that stressed, exhausted and demoralized hearts or mind are associated with poor performance while motivated one remain focused to the organizational goal hence productivity and performance.

Deressa and Zeru (2019) conducted a research on work motivation and its effect on organizational performance. The objective was to assess level of motivation, nurses' work motivation and its effect on organizational performance among nurses. Mixed method study design was applied and concurrent triangulation was considered to triangulate qualitative and quantitative data. Purposive sampling was used to select hospital and key informant interviewees. Self-administered questionnaire was used to collect data for the qualitative approach and Multidimensional work motivation scale was used. 220 people were interviewed with the questionnaire and found that recognition and financial incentives were the main description the nurses gave to motivation. Also greater part of sample mainly public hospital nurses were not or less motivated and increased work performance, job satisfaction, good team spirit, patient satisfaction and job attachment were identified effects of nurses motivation

III. RESEARCH METHODOLOGY

Method

- To study the work motivation among employee of technical department and employees from administration of media houses.
- To study the work motivation among employees who have less than 10 years of experience and employees who have more than 10 years of experience.

Hypotheses

- There would be no significance difference between the motivation level of technical and administrative staff.
- There would no significance difference between the motivation level of employees who have more than 10 years of experience and motivation level of those who have less than 10 years of experience.

Sample

The sample for the study consisted of 132 subjects. Their age range was from 19 to 47 years. Subjects were categorised into different as per the objectives. Subjects were matched in terms of age, education, marital status and socio-economic status.Sample was taken from Ahmedabad city.

Following inclusion and exclusion criteria were followed for selection of the sample:

- Subjects were working since last one year.
- Those who were graduated were selected into final sample.
- Subjects who have joined the organization in last 6 months were not included in the final sample.

Design: Between Group Design was used in the present research.

Tool: The Work Extrinsic and Intrinsic Motivation Scale (WEIMS) developed by Tremblay et al. (2009) was used to measure work motivation among subjects. It has different types of motivation factors included in the self-determination continuum are amotivation, external regulation, introjected regulation, identified regulation, integrated regulation and intrinsic motivation. Tremblay et al. (2009) created an English version to make the scale available on a broader scale. They performed a rigorous testing procedure of their own version of the scale to ensure it to be a valid and reliable measurement tool of work motivation. The internal consistency of the scale (Cronbach Alpha values) ranged between 0.64 to 0.83 for the six different constructs, which can be perceived as acceptable. The questionnaire contains 18 close-ended questions with a six-factor structure, meaning that three questions assess each of the six types (regulations) of motivation. A positive score

indicates a self-determined profile and a negative score indicates a nonself-determined profile.

Procedure

After the selection of the sample and distribution of subjects in groups, selected tool was administered on the subjects. In the time of pandemic, researcher converted the form into google form and shared the link with subjects. Assessment of each subject was done individually. Subjects were assured that their results would be confidential. After the collection of the data scoring was done according to the instructions given in the manual and obtained scores were tabulated for the analysis of the data.

Statistical Technique

To study the significance of difference between mean work motivation of staff from technical department and mean work motivation of administration department *t* test was applied. One way ANOVA was applied to study the difference among three groups categorized on the basis of the experiences.

IV. RESULTS & INTERPRETATION

After Scoring, analysis of data was done to test the hypotheses. The quantitative analysis includes computation of results with the help of statistical techniques. The statistics employed in this research study includes mean, SD, *t* test, and One way ANOVA.

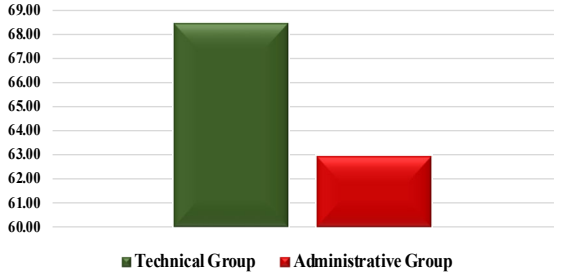
To find the significance of difference between work motivation of subjects who work in technical department and those who work in administrative department *t* test was applied. Results are shown in Result Table 1.

Group	n	Mean	Std. Deviation	Std. Error Mean	t value
Technical Group	91	68.45	13.74713	1.44109	2.26*
Administrative Group	59	62.88	15.35004	1.99840	

*significance level .05

Result Table 1: Significant Difference between Mean Work Motivation of Subjects from Technical Department and Administrative Department

Figure 1: Mean Work Motivation among Employees of Technical Department and Administration Department



As shown in Result Table 1, mean work motivation value among subjects from technical department is 68.45 and mean work motivation value among the subjects from administration department is 62.88. It shows that subjects from technical department have higher work motivation than subjects from administrative department. Obtained t value is 2.26 that is significant at .05 level. It shows that there is a significant difference between the work motivation level of both the groups. Results are shown with the help for figure also.

To find significance of difference between different experience group ANOVA test was applied. It is shown in Result Table No.2, F value is 4.4 that exceeds the critical value at .01 level. So, it is significant and proved that there was a significance difference among mean work motivation of employees having work experience less than 5 years, between 5-10 years and more than 10 years.

Source of Variance	SS	MS	F Ratio
Between Groups	2088.77	1044.38	4.4**
Within Groups	30799.29	236.91	
Total	32888.07		

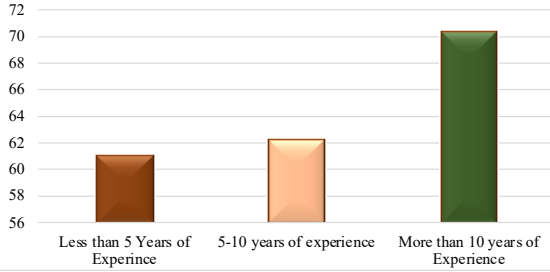
Result Table 2: Significant Difference between Work Motivation among Different Groups

Group	Mean	SD
Experience less than 5 years	61.01	17.32
Experience 5-10 years	62.21	16.06
Experience more than 10 years	70.33	10.49

Result Table 3: Mean Work Motivation among Different Groups

Result Table 3 shows that Work motivation mean among subjects who have less than 5 years of experience is 61.01 when SD is 17.32. In other group, subjects who have 5-10 years of experience mean work motivation is 62.21 and SD is 16.06 while in third group, subjects who have more than 10 years of experience mean is 70.33 and SD is 10.49. This shows that subjects who are more than 10 years of experience have higher motivation than other subjects who have comparatively less experience. Subjects who have 5-10 years of experiences have more work motivation than those who have less than 5 years of work experience. Similar results are shown with the help of Graph also.

Figure 2: Mean Work Motivation among Employees with different Years of Expereince



V. DISCUSSION

The results of present study lead to the rejection of first hypothesis that there is no difference between motivation level of technical and administrative employees. The results show that technical employees have far more work motivation level than administrative employees. There are many previous researches which confirms the present findings.

Many reasons could be found to support the results in the time of global pandemic. Since this research was conducted during prime time of covid, where people got used to work from home for a year and suddenly things started to go back to normal with certain restrictions. In the state of Gujarat, only 20% of employees were allowed in the office which means only administration staff was asked to come back to office. The factor of risking their health and lives every day in the time of pandemic would have affected their work motivation. The difficulties faced from adjusting from work from home to work from office could have tremendous effect on one's motivation as they had no longer had the comfort of their house. Technical employees are at advantage as they don't require physical presence in the office to get work done, so they don't need to risk their lives and come to office.

One of the reasons could be that since people in administration have to get work out of people which is difficult in times of pandemic as the person themselves is sick or their family member is sick, this makes hitting targets and goals very difficult. Whereas for technical people, they get their work done from machines and involves least amount of human interactions required to get work done. Learning new technology is not using and getting all the work done through it is difficult for employees getting work out of other humans. So, the difficulties faced while adjusting to new technology and working online and having monotonous work life had affected the work motivation of administrative employees. Whereas for technical employees learning new technology is fun, they don't have monotonous work life as new technology comes every day. They were the one teaching everyone from CEO to Managers how to work online using different software this led to increasing demand and recognition for technical employees.

Typically, in an organization, Administration is the backbone of the company and is responsible for maintaining everyday workflow. However, due to pandemic there is shift of power of from administration to technical department as they are now responsible for ensuring smooth workflow online for all the departments. This shift of power for administrative does not only means loss of power but also a huge chunk of work on everyday basis. This shift has resulted in low work motivation among administrative employees.

The result of present study also lead to the rejection of second hypothesis that there is no significant difference between the motivation level of employees who have more than 10 years of experience and those who have less than 10 years of experience. The results shows that employees having more than 10 years of experience have more experience than those having experience less than 10 years.

It could be said that people with more than 10 years of experience have lived their life to fullest and are either in the fourth stage or going towards self-actualization in Maslow's Need of Hierarchy. People in their late 40s and 50's tend to be satisfied with their life and does not crave change as they need stability for their family. Whereas those with less than 10 years of experience are in their youth and have just started their professional life. Life in early 20's and 30's is all about experience and change, people want to explore themselves and opportunities provided to them which may lead to lower work motivation. In this process of exploring, employees do not attach themselves to one company for long period of time. They keep changing companies if one does not serve them the experience they need. Availability of this option of quitting makes it difficult for one to have high motivation at the time of heavy workload. Younger employees do not have the people relying on them financially and are independent of responsibilities, whereas employees with more than 10 years of experience often have a family to take care of, they have different loans to pay and have the responsibility of securing future of their children.

Employees with more than 10 years of experience have already explored their options and have found their comfort which is why they have higher work motivation. They love the work they do and are happy to do it every day. These people would have been with one company for a long period of time which means getting proper recognition and appreciation from senior management and other employees. From the current sample, it was noticed that all these employees were in good position of their department and were always consulted for important decisions by board members. Nonetheless we can say that all these factors do lead to high work motivation among them.

VI. CONCLUSION, LIMITATION & SUGGESTIONS

Conclusions:

- Employees of technical department have higher work motivation than employees in administrative department have.
- Work motivation of the employees who have more than 10 years of work experience is higher than employees who have less than 10 years of work experience.

- Employees who have 5-10 years of work experience have higher work motivation than those who have less than 5 years of work experiences.

Limitations & Suggestions:

- The study has been conducted on a limited sample taken from one media house in Ahmedabad city. Further research is suggested on wider sample taken from various cities and different states.

- The study is limited to subjects of 18-50 years of age only. Subjects of other age groups can also be included in the sample in future researches.

- The study depicts the work motivation among the employees of technical department and administrative department. In further researches, work motivation among the employees of other department as Finance and Accounting Department, Research and Development Department and Marketing Department can also be studied.

- For the comprehensive measures of work motivation observation methods, interviews sessions may also be used.

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STUDY OF MACHINE LEARNING IN ARTIFICIAL INTELLIGENCE

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Abstract - In several areas of science and business, machine learning (ML) and artificial intelligence are becoming the dominant problemsolving methods, not least because of recent successes in deep learning (DL). Strategists are driven by the rapid speed of artificial intelligence (AI) and automation to reshape business models. This encourages the use of AI in business processes, but the implications of this adoption are underexplored and attention is required. During this past few years, the application of ML and AI has become popular. Both terms are widely used in media and science, sometimes interchangeably, sometimes with distinct interpretations. In addition to explain the relationship between AI and ML, this paper is a short step toward defining the contribution of ML to AI in particular. The related literature and existing conceptual structure are reviewed

Keywords - Artificial Intelligence; Machine Learning; Automation; Simple-Reflex Agent

I. INTRODUCTION

Artificial Intelligence (AI) and Machine Learning (ML) are somewhat related to each other. According to McCarthy (2007), Artificial intelligence is a technology and smart machine creating engineering is especially advanced computer programs. It is connected to the simulation challenge of using software to grasp human intelligence, but AI does not have to restrict itself to genetically detectable approaches. Machine Learning technique is related to the development of algorithm which allows the computer to "learn". Learning like intelligence broad range of process that it is difficult to define precisely. It seems odd that there is hardly any helpful scientific delineation, considering the extensive usage of the words. Therefore, the purpose of this paper is to concentrate on the relationship between ML and AI. AI has been an important research area in the 21st century in all areas, including engineering, technology, education, medicine, industry, accounting, banking, marketing, economics, the stock market, and law. Since the intellect of machines with machine learning capabilities has produced profound effects on industry, governments, and culture, the spectrum of AI has expanded exponentially. They also influence the larger trends in global sustainability. Artificial intelligence (AI) can be useful to solve critical issue for sustainable manufacturing (e.g., optimization of energy resources, logistics, supply chain management, waste management, etc.). In this publication we try to formulate About the position of AI in machine learning, precisely with integrated agents. To have it for a machine learning perspective, we construct the conceptual structure of AI Because of potential of integrated agents such as the corresponding execution. That clarifies the function of the machine learning in the construction of intelligent (artificial agents). Therefore, we aim to provide greater consistency of terminology. For today's major companies, subfields of AI, such as deep learning, image processing, natural language processing and data mining, have therefore also become an important topic. By reason of the continuing rise of technology available today, the topic of AI creates tremendous interest in the scientific world. ML's evolution as either a subset of AI has become very rapid. Its use has extended to different areas, like machine language presently used in intelligent engineering, medical research, pharmacology, agriculture, archeology, games, industry, and so on. The impact made by our article is three-fold. "First, by further detailing the "thinking" layer of any intelligent agent by breaking it into separate "learning" and "executing" sublayers, we extend the theoretical structure of Russel & Norvig (2015) [11]. Second, we explain how this distinction helps us to differentiate the various contributions of integrated agents to machine learning. Third, to describe a continuum, we rely on the implementation and learning sublayers ("backend") implementations. First, we review applicable literature Inside the domains of AI and ML in this publication. Next, our conceptual structure that illustrates the contribution of machine learning to Artificial intelligence (AI) is discussed and elaborated. On another point, we draw up a timeline for future study and conclusion with a review, present limitations, and also a forecast. We first study the various notions, principles, or meanings of AI and ML within existing research as a basis for our conceptual work. In addition, in our context, we expand in greater depth on the hypotheses we draw upon.

II. METHODOLOGY

Artificial Intelligence and Machine Learning are related, often present In a same manner, and often used interchangeably, as are the terms data mining, deep learning and statistical learning. Although in various cultures, the words are familiar, their precise use and significance varies widely. For instance, machine learning utilizes approaches from statistics,

it also includes methods which are not entirely based on previous work of statisticians—resulting in new and well-cited contributions to the field. In current history, the technique of deep learning in particular has created significant motivation. While the emphasis Inside context of statistics is on statistical learning, which is characterized as a collection of knowledge gaining Algorithms and Processes, predicting results and making decisions by constructing data set models. Machine learning can be viewed as an implementation of mathematical learning from a statistical point of view. Machine learning focuses on developing powerful algorithms Inside context computer science to solve problems with computer resources. In recent years, the technique of deep learning in particular has raised greater interest.

Deep learning models qualified to teach data representations with several length scales are made of different computing layers. The capabilities of machine learning, for example, in speech or image recognition, have been greatly enhanced by deep learning. Data mining defines the process of applying quantitative analytical methods in demarcation to the previous terms, which help to solve real-world problems, e.g. Even in instance of machine learning, data mining is the method of creating practical machine learning models in business settings. In addition to gain insights, the aim is not to establish more knowledge of machine learning algorithms, but to apply them to data. Machine learning can also be used as a basis for data mining. In comparison, to imitate intelligence in computers, Artificial intelligence (AI) applies Methods like ML, statistical learning or other Methods like descriptive statistics. Artificial Intelligence and Machine Learning are linked, regularly introduce a same manner, and Used interchangeably frequently, as are the terms data mining, deep learning and statistical learning. Although in various cultures, the words are familiar, their precise use and significance varies widely.

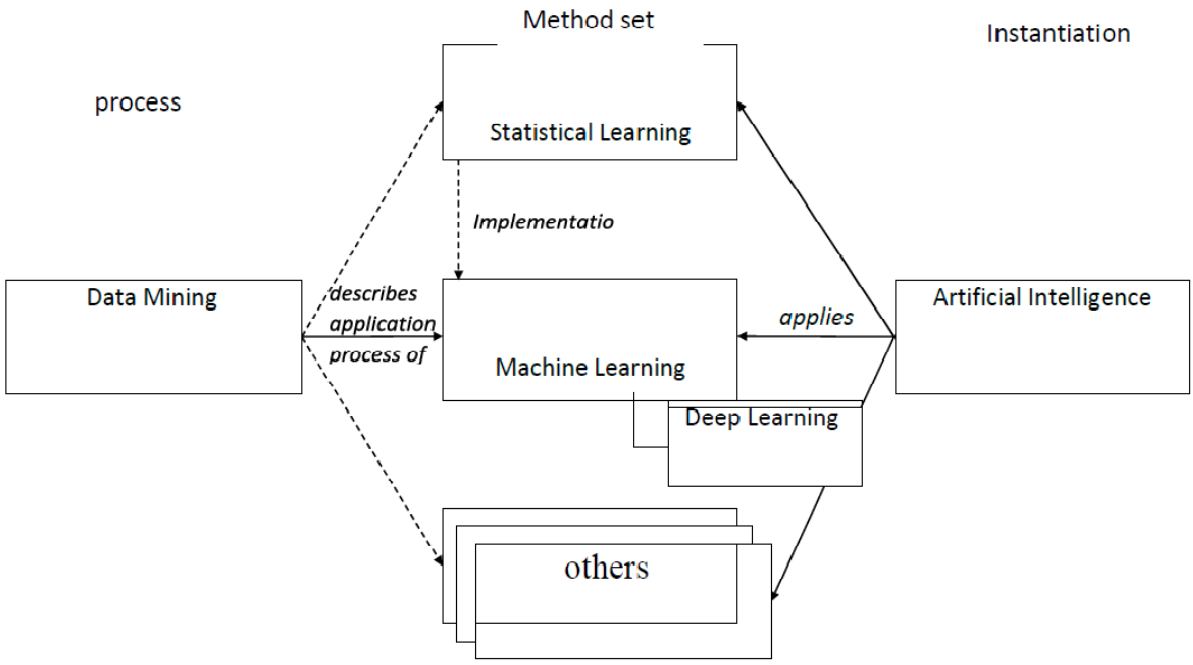

Figure 1. General terminology used in this publication

2.1. Machine learning

To solve a range of real-world problems with the assistance of Machine learning, with the assistance of computer systems which may learn to resolve a controversy rather than being explicitly programmed. Machine learning algorithms aim to optimize the performance of a specific task by using examples and/or past experience. Generally speaking, machine learning may be divided into three main categories, namely, supervised learning, unsupervised learning, and reinforcement learning. Learning means a group of examples ("past experience") is employed to construct knowledge a few given task with relation to supervised machine learning. Although statistical methods are used throughout the educational process, there's no need for manual
adaptation or programming of rules or strategies to resolve an issue. In additional detail, machine learning techniques (supervised) often try and construct a model by applying an algorithm to a package of known data points additionally to achieve insight into an unknown data set. Supervised ML is predicated on the identical principles as a typical fitting procedure: it tries to seek out the unknown function that connects known inputs to unknown outputs. This desired result for unknown domains is

estimated supported the extrapolation of patterns found within the labeled training data. Unsupervised learning is anxious with finding patterns in unlabeled data, as, e.g., within the clustering of samples. Finally, reinforcement learning treats the matter of finding optimal or sufficiently good actions for a situation additionally to maximize a souvenir. In other words, it learns from interactions

2.2. Artificial intelligence

Of related methodologies, but very separate aims, artificial intelligence (AI) and research are two separate domains. AI may be a branch of branch of knowledge and is anxious with the event and deployment of integrated agents as computer programs and with understanding the behavior of these artifacts. Science would be an inherently complex anatomical containing AI, but also linguistics, philosophy, psychology, and other social and biological science sub-fields. Using the full range of observations and techniques of the relevant sciences, the unifying aim of the analysis is to consider and model human intellect. The majority of interdisciplinary study in science is more likely to stay focused on specialist areas such as vocabulary, voice, and vision. Eligible individuals may also be of concern, such recognition, intuition, and learning, and will form the basis of the real confrontation between AI and the field. In the following, we are visiting observe the "Rational Agent" stream in some more depth, as when applying machine learning in AI it's essential. In section 3, we'll visit the other three research streams within which we demonstrate that they are consistent with our agent-based AI architecture. The intelligence itself is conveyed, in keeping with the "Rational Agent" stream, by the actions of agents. These agents are defined by five characteristics: they "operate autonomously, perceive their environment, persist over an extended period of it slow, adapt to change, and make and pursue objectives." An agent explains its actions not for itself, aside from the earth during which it communicates. According to Russel & Norvig, when it involves the general demarcation of agents, the agent program is segmented into four distinct agent forms: a basic reflex agent only responds supported its sensor details, while a model-based reflex agent often considers the inside state of the agent. additionally, to make the right decision, a goal-based agent decides to meet his goals. The attainment of a goal may be a binary choice, which suggests that it can either be accomplished or not. within the opposite hand, a utility-based agent doesn't have a binary target, but a whole utility function that it tries to optimize. An agent could become a learning agent by extending their software. Such a learning agent then consists of a performance component that selects an intervention supported sensor data and a learning function that collects environmental feedback, produces its own problems, and enhances the performance component if necessary. The agent-environment system has three components: an agent, an environment and a goal. Intelligence is that the calculation of the agent's ability to accomplish goals in an exceedingly wide array of situations. By impressions produced, the agent gets input from the environment. Environmental insights are one form of experience, whereas others are reward signals that indicate how well the goals of the agent are achieved. looking on these feedback signals, the agent decides to execute acts that are sent back to the environment as signals.

III. A STRUCTURE TO UNDERSTAND MACHINE LEARNING'S ROLE IN AI

3.1. Levels of agents

It is possible to explain the role of ML within AI, We must take a perspective that reflects on the application of integrated agents. We need this viewpoint, as it enables us to map the various tasks and elements of ML to the capabilities of integrated agents. If we recognize an intelligent agent's thinking and acting capabilities and translate this into software design terms, we can reason that the acting capabilities can be viewed as a frontend, while the thinking component can be viewed as a backend. In addition to allow more versatility and independence and to allow parallel development, software engineers usually strictly separate form and function. The interface in which the environment communicates is the frontend. It can take lots of forms. It can be a very abstract, machine-readable web interface, a human-readable program, or even a humanoid prototype with elaborate speech capabilities, Even in instance of integrated agents. To communicate with the environment, two technical components are needed for the frontend; sensors and actuators. Sensors identify events or environmental changes and forward the data to the backend through the frontend. For example, inside an industrial production system, they can read the temperature or read visuals of an interaction with a person. On the other hand, actuators are elements that are responsible for moving a system and manipulating it. Although sensors simply process data, actuators operate by for example, automatically buying stocks or altering a humanoid's facial expressions. One might argue that when the world interacts with the frontend, the Turing test takes place, more specifically the mixture of sensors and actuators if one wants to test the AI of the agent to behave humanly. Despite and frontend having sensors and actuators, what the exact frontend looks like is not of interest to our work; it is just necessary to remember that there is a backend-independent, encapsulated frontend. The backend provides the requisite features that represent an intelligent agent's thought capabilities. The agent requires, therefore to acquire and apply acquired experience.

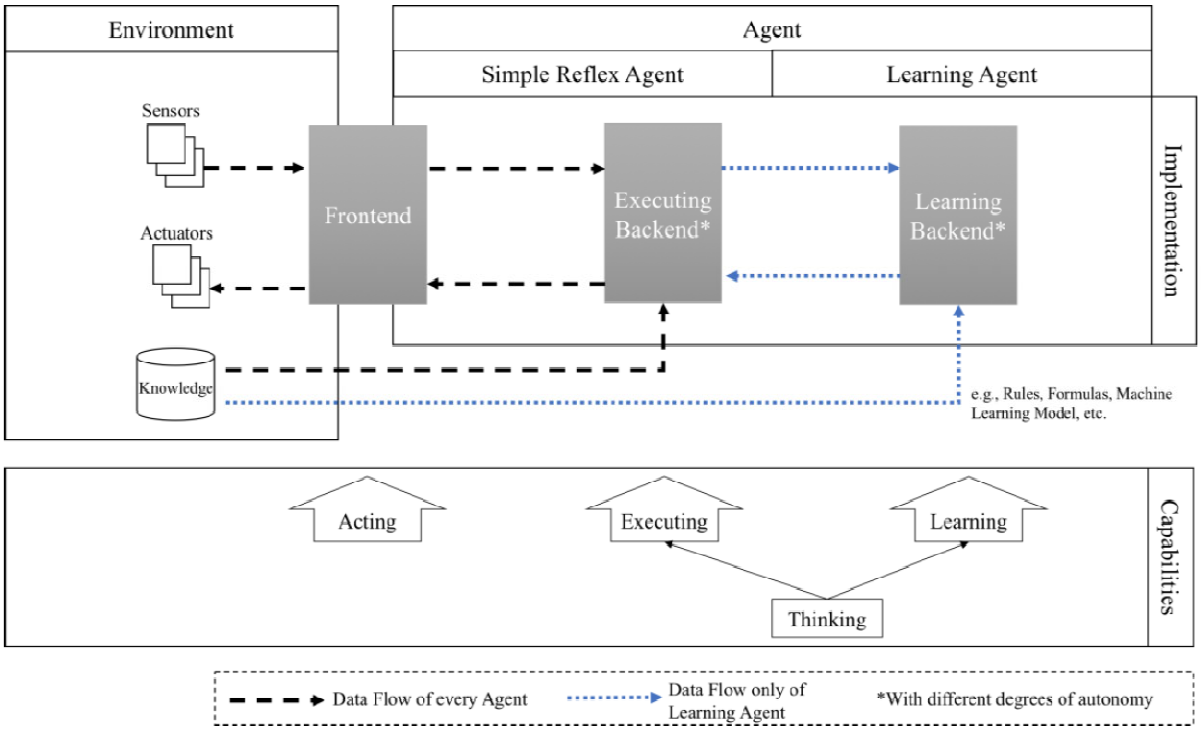

Figure 2. Conceptual framework

Consequently, in this implementation layer, machine learning is important. Even in instance of supervised machine learning, we need to further distinguish between the process task that constructs adequate machine learning models and the process task that executes the models deployed. We therefore refine the thought layer of agents into a learning sublayer (model building) as well as an executing sublayer (model execution)2 to better understand the role of machine learning within integrated agents. Therefore, for the learning sublayer, we consider the required implementation as the learning backend, while the executing sublayer is denoted by the executing backend.

3.2. Types of learning

First, the computer context determines when a professional program can learn and, secondly, how an agent can learn, such as using certain methods, using what type of data analysis, how to deal with conflicts of interest, etc. Therefore, we use Russel & Norvig's phraseology by looking at two different types of connected objects: simple-reflex agents and learning agents. In terms of machine learning in AI, this distinction is very important, because it looks at whether the basic models in the thought framework have been taught but have not been touched (simple-reflex) or constantly changed and flexible (learning). In recent publications, both examples can be found. For example, in simple reflex agents, Oroszi and Ruhland developed and introduced the first pneumonia warning system in hospitals: while the design and testing of the agent model provides convincing results, flexible learning after the program may be critical. Other examples of agents with single-trained models, such as those for anaphora solution, pedestrian prediction or annotation object, are common in various fields. On the other hand, for study workers, recent research also provides illustrations. Mitchell et al. introduced the goal of continuous learning agents who continue to design and review models with obvious focus between agents. An example of an agent is Liebman et al., Who created the 2nd study agency 2 Russel & Norvig demonstrated a similar relationship by distinguishing between study materials and exit materials. For example, the control of thermostats heat pumps, a joint information acquisition agent with different functions or definitions of learning words, are some of the examples. The decisions of this particular profession (simple-reflex vs. learning agent) influence the complete configuration of the agent and the inclusion of machine learning. An overview of our emerging approach is shown in Figure 2. In contrast, it plays a major role in the learning agent's clause in order to consolidate the model on the working substrate. This development focuses on the information and input found in the atmosphere from the execution layer.

3.3. The distinction between human contact and machine participation

When it comes to regression and regression, when and how machine learning models are modified, it focuses more on how the required processes are automated rather than on how important they are. Each machine learning function involves a variety of process steps, including data selection, data

collection, reconstruction, model construction, testing, deployment, repair and optimization.

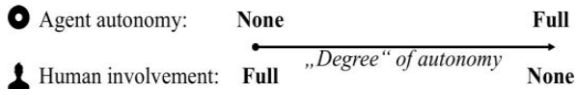

Figure 3. Level of agency independence and human participation

For example, while it is very easy to create a built-in model once, it is very difficult to automatically find the right data source for a new problem or retraining, as well as to create a custom model. Therefore, we need to take into account the presence of a clever agent in the required machine learning activities, as shown in Figure 3. The scope varies between zero or non-agent autonomy by the full personal involvement of one person over and over. in the given task. For example, a smart agent with the task of driving a car independently looks at road signs that already indicate a high level of agent independence. If the agent is given a new road sign, but learning this new situation will still require human intervention, because the agent may not be able to read "completely on his own". Therefore, when it comes to AI with sub-machine learning models, human involvement is required, especially in the field of thought (= retrospective and retrospective learning), there is great interest. It is possible to investigate the degree of independence in each stage of machine learning and may help to explain the agent's independence in relation to learning-related activities.

IV. CONCLUSION

In this publication, we describe the role of machine learning, especially integrated agents, within AI (AI). We present a framework outlining two reflex-reflex events and learning agents for every of them, also because the role that learning devices can play. In short, machine learning algorithms may be used within the intelligent agent as trained models moreover, without the flexibility to achieve more understanding of the environment (simple reflex agent). Using ingenuity, we appeal the repeater to bring back this small player to use the small print. The agent is in a position to use machine learning models (pre-built) during this situation, but to not create and build their own. However, if the agent is in a position to find out from his or her systems and thus be ready to update machine learning models within the mini-player, the educational agent. With model construction / training, learning agents have another underlying player, a learning backend, which enables them to use machine learning. it's vital to capture the amount of independence required by machine learning within the agency when it involves the implementation of those two-underground people. This feature focuses on one's involvement in important machine learning activities. Data collection or algorithm selection, as an example. The existing analysis is in an exceedingly state of mind and has some problems. Firstly while the proposed framework makes it possible to deepen AI understanding of machine learning, there's still a necessity for further studies to determine how current AI applications are validated by machine learning during this system. The model may be verified and data quality completed and evaluated through professional interviews with AI developers. additionally, to achieve a deeper understanding of the degree of autonomy of technology agencies, we want to search out ways to live human participation in activities associated with machine learning within AI. within the early stages, when it involves technology research and AI, our framework should allow scientists and practitioners to be more accurate. Emphasizes the importance of not using wordsin contrast but specifies which machine learning role plays within a specific agent implementation

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GROWTH OF HOSPITALITY INDUSTRY IN ARUNACHAL PRADESH WITH SPECIAL REFERENCE TO TEZPUR-BHALUKPONG-BOMDILA-TAWANG TOURIST CIRCUIT

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Abstract -
The hospitality industry on the back of tourism is one of the fastest-growing industries in the world providing employment to one in every ten people worldwide (Gombu. 2021). WTTC reports that travel and tourism contributed 10.4% to global GDP in the year 2019. In India, Travel and tourism contributes 6.9% of the country's GDP in the year 2019, and in the year 2020, it contributes about 4.7% of GDP in spite of its badly affected by the Covid-19 pandemic. Arunachal Pradesh located in the easternmost part of India is known as the 'Orchid state of India' is home to rich flora and fauna has a huge tourism potential due to its unique topography with diverse culture and the treasure of monuments and events. Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit is the oldest tourist circuit in Arunachal Pradesh contributing economy and employment to the growth and development of the State. This tourist circuit is famous for Tawang monastery, Asia's second-largest monastery, and an appealing landscape with diverse topographic features that attracts numerous travelers for adventure and pleasure activities. Accommodation and lodging under hospitality industry are some of the key components or elements of the tourism industry. In the present study, an attempt has been made to study the growth and development of the hospitality industry in the Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit using regression trend analysis and Compound Annual growth rate. Further, the present study estimates and analyse the seasonality of tourism and hospitality business in the study area. Linear regression trend analysis is a statistical used to analyse absolute and compound growth of the tourism and hospitality industry in Arunachal Pradesh with special reference to the Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit.

Keywords - Hospitality Industry, Attractions, Regression Analysis, Accommodation, and Tourist Circuit.

I. INTRODUCTION

Tourism and hospitality are today emerging as a leading sector in the world and have proved to be an engine of growth in many countries (Miluwi. 2014)[1]. Tourism comprises a broad range of industries ranging from accommodation to and transportation to food & beverage, retail and culture and sports & recreation, etc. provides employment to millions of people all over the world. Today, it provides 330 million jobs i.e. every 1 in 10 people are engaged in tourism and its allied activities and contributes about 10.4% of global GDP (WTTC, 2020)[2]. With the objectives of facilitation and strengthening, tourism in India is an economic powerhouse and a tool development. During the year 2019, Foreign Tourist Arrival (FTA) number 10.89 million with a growth rate of 3.2%, and Foreign Exchange Earnings (FEEs) was Rs. 210,981 Crore with a growth rate of 4.8% (Ministry of Tourism, 2020)[3]. Tourism shares 12.75% of employment in India of which 5.56% are from direct employment and 7.19% are from indirect employment with total employment of 87.50 million during the year 2019 (Ministry of Tourism, 2020)[4]. In India, Travel and tourism contributes 6.9% of the country's GDP in the year 2019, and in the year 2020, it contributes about 4.7% GDP in spite of its badly affected by the Covid-19 pandemic (WTTC. 2020)[5]. The hotel industry comprises a significant part and occupies an significant role in the tourism industry. The hotel industry in India was slow before the 1980s. After the 1980s, demand for hotels and tourism improves following the initiatives taken to liberalise the Indian Economy (Ingle. 2015)[6]. In this 21st century, low-budget tourism, low-budget hotels, and airlines, etc. are in great demand by visitors. Today the tourists are more complex, more sophisticated, more demanding, and cheaper price which is challenging for all stakeholders to satisfy these needs[7]. In the hospitality industry, humanity matters a lot than in buildings. A customer in a hotel will genuinely appreciate it if hoteliers know his or her name. With the advancement of information Technology and accordingly transition into Information Technology, the hospitality industry has become sophisticated and competitive to cope for

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long-term sustainability. But still, Messenger, Email, Facebook, Watsapp, etc. cannot replace that human connection in the hospitality business. Arunachal Pradesh located in the easternmost part of India is known as the 'Orchid state of India' is home to rich flora and fauna has a huge tourism potential due to its unique topography with diverse culture and the treasure of monuments and events.

Arunachal Pradesh the Land of dawn-lit mountains and has a huge tourism potential that lies in the easternmost part of India surrounded by China in the North, Myanmar, and Nagaland in the East, Assam in the South, and Bhutan in the West. Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit is one of the oldest tourist circuits out of 12 approved tourist circuits in Arunachal Pradesh. Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit *which offers rich a* flora and fauna is the best way to enjoy scenic beauty along with recreational activities has four main recreational attributes i.e. cultural, unique topography, eco-tourism, and adventure tourism attributes. The prime attractions in Bomdila-Tawang Tourist circuit are rich religious heritage like Tawang Monastery, Lhagyala Gonpa, Gorsam Chorten (Stupa), etc., Sangestar Tso (Madhuri Lake), Sela Pass, Sangti Valley, and Bumla Pass, Eaglenest Wildlife Sanctuary, and Orchid nursery.

This paper is a descriptive paper based on empirical studies conducted on tourists at the tourist destinations of West Kameng and Tawang district of Arunchal Pradesh. Both primary and secondary data were employed. The present study employed Linear trend regression analysis and Compound Annual Growth Rate (CAGR) to analyse the absolute and compound growth of the tourism and hospitality industry in Arunachal Pradesh with special reference to the Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit.

II. REVIEW OF LITERATURE

Natural factors, cultural features, recreation & shopping facilities accessibility, infrastructure, reception, services, and cost are the important factors that determine the tourist's satisfaction in any destination (Shahrivar. 2012)[8]. The development of the hotel industry can have a direct impact on both long-term and short-term increases in tourists inflow. So, technological up-gradation in the hotel industry is necessary to support or promote tourism development in the region (Khanalizadeh & et al. (2018)[9]. Tourism encourages investments like accommodation, development of tourists sites, development of roads and connectivity, etc. that contribute to national income (Zaei & Zaei. 2013)[10]. Online reservation of accommodation is important for travelers and the development of tourism; so, technology in the hospitality industry should be upgraded and updated in order to bring the customers and stakeholders in common platform (Bethapudi. 2013)[11]. Covid-19 pandemic has forced the hotel industry to adopt technology and new business models through the use of sophisticated technology like Robots, Artificial Intelligence, facial recognition, the internet, Wi-Fi, etc. that enhance hygiene, promotes social distance, improve guest satisfaction, and experience (Lau. 2020)[12]. Though the motivation for travel is not much influenced by accommodation, the development of all types of tourism has a direct impact on the development of the hospitality industry (Kalgi. 2016)[13].

III. OBJECTIVES OF THE PAPER

The main objectives of the paper are:

1. To study the growth of the hospitality and tourism industry in Arunachal Pradesh.
2. To examine the growth of the hospitality industry in the Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit.

IV. HYPOTHESIS OF THE STUDY

The following hypothesis was framed considering the above objectives:

1. The growth of the tourism and hospitality industry in Arunachal pradesh is not significant with respect to time.
2. The growth of the hospitality industry in the Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit is not significant.

V. RESEARCH METHODOLOGY

This paper is a pragmatic approach based on both primary and secondary data collected from the Department of Tourism, West Kameng and Tawang district of Arunachal Pradesh. To analyse the collected data, Linear trend regression analysis was applied. Linear regression analysis studies the average linear relationship between two or more variables using the least-squares method. The following linear equation was applied:

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$y = a + b\,x$

Where, y is the dependent variable
a and b are parameters where a is the intercept of y and b is a change in y
x is the independent variable i.e. number of years.

Further, in order to estimate the Compound Annual Growth Rate (CAGR) the following equation was applied:

Compound Annual Growth Rate (CAGR) = $(\frac{V\,final}{V\,begin})^{1/t} - 1$

Where,
V final = final value
V begin = beginning value.
t = time in years
Further, to measure the variability due to trend, Cyclical and seasonal variations are calculated for tourists' arrival in the study area.

VI. DATA PROCESSING & ANALYSIS

Growth of Hospitality and Tourism in Arunachal Pradesh:
India registered 10.93 million foreign tourist arrival in the year 2019 with an annual growth of 3.5% have ranked 23rd in world tourist arrival and earned US$30.058Billion foreign exchange from tourism (MoT. 2020)[14]. Arunachal Pradesh has been awarded Best Emerging Tourist Destination in India and Best Emerging Green Destination of 2019 by Travel & Leisure magazine in the year 2019 (IBEF. 2021)[15]. Further IBEF report 2021 states that Arunachal Pradesh has grown rapidly in eco and adventure tourism, cultural and religious tourism in recent years. The given table shows that tourist arrival in Arunachal Pradesh from 2000 to 2019:

Year	Domestic	Foreign	Total	Absolute change from previous year	Change from previous year in (%)
2000	3126	129	3255	-	-
2001	4644	78	4722	1467	45.07
2002	6878	137	7015	2293	48.56
2003	3632	438	4070	-2945	-41.98
2004	39767	321	40088	36018	884.96
2005	50560	313	50873	10785	26.90
2006	80137	706	80843	29970	58.91
2007	91100	2212	93312	12469	15.42
2008	149292	3020	152312	59000	63.23
2009	195147	3945	199092	46780	30.71
2010	227857	3395	231252	32160	16.15
2011	233227	4753	237980	6728	2.91
2012	317243	5135	322378	84398	35.46
2013	318461	10846	329307	6929	2.15
2014	336028	6307	342335	13028	3.96
2015	352176	6453	358629	16294	4.76
2016	385875	6598	392473	33844	9.44
2017	443211	7147	450358	57885	14.75
2018	512436	7653	520089	69731	15.48
2019	555639	7824	563463	43374	8.34
2020	42808	961	43769	-519694	-92.23

Source: Department of Tourism, Government of Arunachal Pradesh
*Foreign Tourist Arrival (FTA) increase in 2013 due to conduct of ITM at Tawang & Tawang Festival

Table – 1
Tourist arrival in Arunachal Pradesh from 2000 to 2020

From the above it is clear that tourist inflow in Arunachal Pradesh is increasing at a rapid pace except in the year 2003 and 2020. Negative growth in the year 2003 may be due terrorists attact in Mumbai, the commercial capital of India. Further, tourist inflow in the year 2020 was due to wide spread of Covid-19 pandemic cross the globe. The percentage of growth from previous year has shown highest in the year 2004 with 884.96% followed by 63.23% in the year 2008.

Category of Tourist	R^2	Absolute Growth	Compound Annual Growth Rate (CAGR)
Domestic Tourist	0.966	7369.4	31%
Foreign Tourist	0.828	163.6	24%
Total/Average	**0.897**	**7533**	**28%**

Source: Computed data

Table No: 2
Compound Annual Growth Rate (CAGR) of Tourist inflow (Domestic & Foreign) in Arunachal Pradesh from the year 2000 to 2019

From the above Table No – 2 it is found that CAGR in respect of domestic tourist inflow is estimated at 31% and for foreign tourist it is estimated at 24% with absolute growth at 7369.4 for domestic tourist and 163.6 for foreign tourist. Further, R^2 is estimated at 0.966 for domestic tourist and 0.828 for foreign tourist. Thus, it can be concluded that Arunchal Pradesh is growing as tourist hots spot in India.

Therefore, from the above, it is found that R^2 is estimated higher i.e 0.897 which means variation between dependent variable and indepedent variable is less. Thus, we reject Null hypothesis 1 "The growth of hospitality and tourism industry in Arunachal pradesh is not significant with respect to time" and accept Alternative hypothesis.

[14] MoT. (2020). *India Tourism Statistics at a glance 2020.* New Delhi: Government of India.
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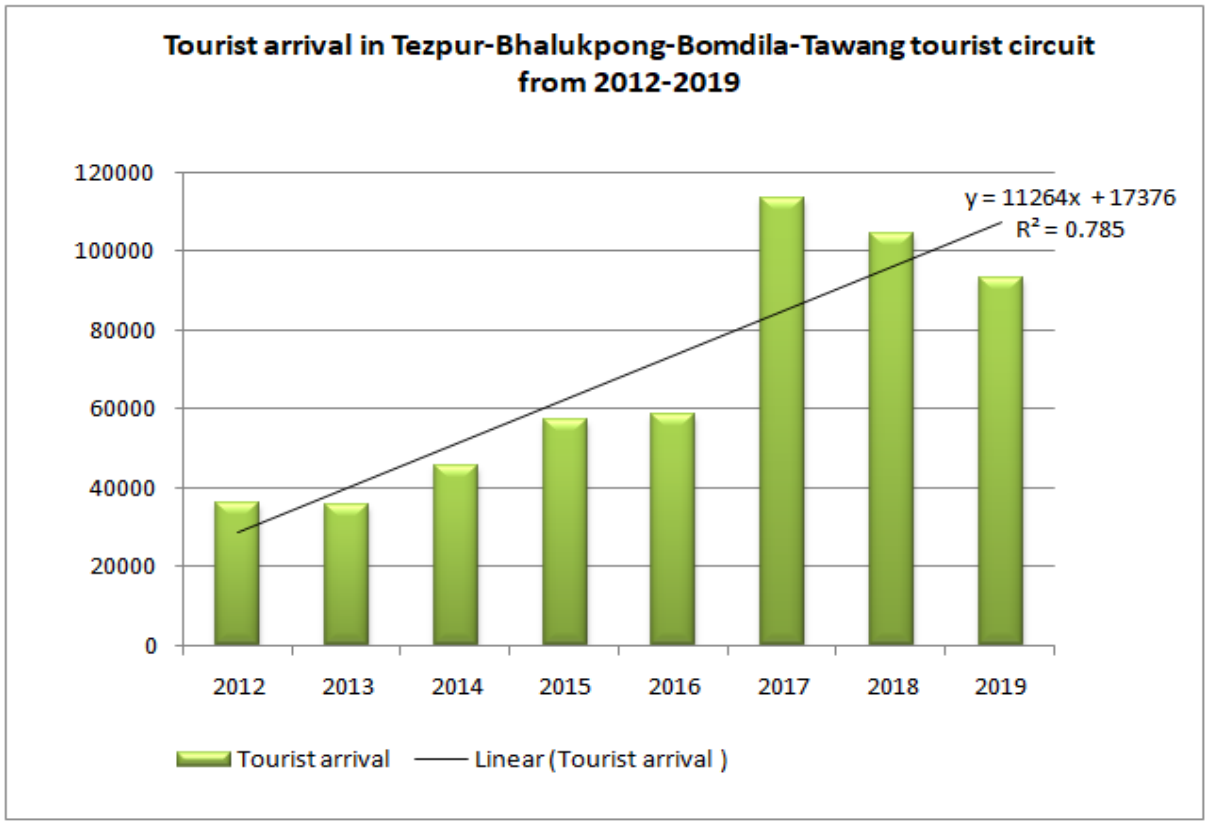
Tourism industry in Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit

Tourism industry is very effective for socio-economic development of Arunachal Pradesh. Tawang has recorded increasing tourist inflow over the years, Tourism Department and staeholder should streamline tourism industry to increase boost economic generation and contribution from tourism (Tirkey & Yaja. 2017)[16]. Service of accommodation contitute an important part in tourism industry. Trained manpower in hotels should be employed to reduce the tourist's expectation gap on service quality in hotels of Tawang (Barua & Goswami. 2017)[17]. Growth of hospitality industry is directly depend on growth of tourism industry in any tourist destination. The trends of tourist inflow in Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit is presented given below:



Source: Compute data.

Figure - 1

From the above Figure – 1, it is clear that tourist arrival in Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit is showing an upward trend with $y = 11264\,x + 17376$ and $R^2 = 0.785$. Thus, it can be concluded that there is a significant growth in the tourist inflow in Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit.

Particulars	Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit from 2012-2019				
	Absolute Total (2012 to 2019)	Tourist Share in Arunachal Pradesh (%)	Mean	S.D	C.V (%)
Domestic	535947	16.64	66993.38	31177.81	43.5%
Foreign	8556	14.76	1069.5	142.1438	12.4%
Total	544503	16.61	68062.88	31129.45	42.8%

Source: Computed data

Table – 3

Tourist arrival in Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit from 2012-2019

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It is observed from the above Table – 3 that the Cofficient of variance (C.V) in respect of domestic tourist 43.5% is higher than foreign tourist 12,4%. Further, it is to be noted that C.V in Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit is higher than State tourist inflow. Thus, it can be concluded that growth rate of tourist inflow in the study area is higher than State average growth.

Hospitality industry in Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit

Accommodation and lodging constitute an important element in the hospitality industry. Growth of tourism has a notable influence on organisational performance of hotel industry (Mucharreira. & et al. (2019)[18]. Technological evolution in the existing hospitality industry has helped to attract large customers (Niranjani & Raji. 2019)[19]. As per NIDHI, Government of India, as of 2021, Arunachal Pradesh has 373 (367 unclassified and 6 classified) hoteliers with 3,743 rooms available for guests of which 134 hoteliers with 1,371 rooms are located in Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit (NIDHI. 2021)[20]. Thus, Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit shares 36% of total hotels in the State. The growth trend of data on hospitality industry in Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit received from the District Administration and Department of Tourism, West Kameng and Tawang district, Arunachal Pradesh are presented in Table - 4.

Category of Tourist	Total as of March 2020	Absolute Growth	Compound Annual Growth Rate (CAGR)	R^2
Hotels & Guest House	98	4	7%	0.944
Home-stays (2016 onwards)	70	8.75	32%	0.947

Source: District Administration and Department of Tourism, West Kameng and Tawang district, Arunachal Pradesh
Note: Registration of homestays started w.e.f. 2016.

Table - 4
Growth trends of Hospitality industry in Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit

From the Table – 4, it is understood that CAGR in respect of Homestays are higher than CAGR of Hotels & Guesthouse i.e. 32% and 7% respectively. Further, R^2 of homestays i.e. 0.947 which is higher than R^2 of hotels and Guesthouse i.e. estimated at 0.944. Since, estimated R^2 is near to 1 which means estimated variable and actual variable are closely together. The growth of tourism industry has a cascading effect on the hospitality industry with an increase in room occupancy and revenue (Kumar, K. 2016)[21]. Thus, we reject Null hypothesis 2 i.e. "The growth of hospitality industry in Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit is not significant" and accept the alternative hypothesis.

VII. SUMMARY OF FINDINGS, CONCLUSIONS & RECOMMENDATIONS

Tourism and hospitality industry in India is one of the key drivers for economic growth. CAGR of tourist inflow in Arunachal Pradesh in respect of domestic tourist inflow is found at 31% and for the foreign tourist, it is estimated at 24% with absolute growth at 7369.4 for the domestic tourist and 163.6 for the foreign tourist. A significant growth in the tourist inflow in Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit is observed with respect to time with $y = 11264\,x + 17376$ and $R^2 = 0.785$. Significantly, the growth rate of tourist inflow in the study area is higher than State average growth. Homestays under the accommodation sector is found to be popular with a CAGR of 32% as compared to hotels 7%, etc. among the new entrepreneur to participate in tourism industry. Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit shares 36% of total hotels in the State. Growth of tourist inflow has a cascading effect on the growth of hospitality industry in the Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit.

The hospitality and tourism industry plays an important role in economic development, employment generation, and improvement of standard of living which make these industry most popular today. Advancement of technology and growing use of technology like artificial intelligence, robots, the internet of things, etc. make these industry more dynamic and sophisticated one. Further, social media due to its vital capability and usage, has found to be influential factors for tourists to choose a particular hotel and destination. Online review at social media platforms like Facebook, Instagram, Youtube, Twitter, etc. on the destination and hotels are some of the influential factors for travellers for decision making and planning. Consequently, the hospitality industry of Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit has to calibrate themselves with these changing business environments to satisfy customers and stay in competition. Significantly, it will reduce operating costs and maximise profits. Tourism and hospitality product are intangible and

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highly perishable in nature. Therefore, proper planning and policy formulation are needed from Government agencies and different stakeholders.

VIII. IMPLICATIONS AND FUTURE SCOPE FOR RESEARCH

This research paper will help Government and non-governmental agencies to understand the role of hospitality industry in promoting tourism industry in Arunachal Pradesh. Since the growth of tourism industry is interlinked with tourist satisfaction on the destination and hotel; thus, this research will help stakeholders in hospitality industry policy formulation and planning. Many research work has been done on tourism in Arunachal Pradesh but no research work has been done on hospitality industry in Arunachal Pradesh so far. This research will assist the stakeholders to get new insights on the role of hospitality industry in the promotion and development of the tourism sector in Arunachal Pradesh in general and the Tezpur-Bhalukpong-Bomdila-Tawang tourist circuit in particular.

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OPTIMIZING & IMPROVING ABB'S GLOBAL FORECAST USING FORECASTING & ANALYTICS ENGINE (A BEST FIT OF STATISTICAL & DEEP LEARNING NEURAL NETWORK EXTRAPOLATED MODELS)

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Abstract - Forecasting is a complex task to predict the future demand. It is a technique that uses historical data as inputs to make informed estimates that are predictive in determining the direction of future trends. It is an important and common data science task in organizations today. Having prior knowledge of any event can help a company tremendously in the formulation of its goals, policies, and planning. However, producing high-quality and reliable forecasts comes with challenges of its own. Forecasting is a complex phenomenon both for humans and for machines. It also requires very experienced time series analysts which as a matter of fact are quite rare.Time series modeling technique using neural networks provides a promising alternative than traditional models, businesses can manually tweak the forecast numbers to the best fit.Forecasting globally at the Country, Hub or Business unit level at scale, requires comparative study of the performances of neural network time series models for forecasting failures and reliability in forward forecasts.Forecasting is one of the most crucial parts of a supply chain and there was no single tool for part level forecasting.The users or demand planners had to glance through multiple files and screens for forecasting at part or consolidated level. And hence we thought the need of having a tool which can efficiently do the forecasts at scale. We designed a Forecasting and analytics tool to generate aggregate forecast at part level. This might be an excellent tool for management to see multiple supply chain KPIs, current inventory, forecast accuracy etc.Reliability testing of the forecast models showed that the proposed results are better performing than traditional models.This can be posed as regression problem and we can use time series to forecast the inventory in advance to maintain supply chain, this will also reduce lot of inventory cost. A solution will also be proposed to identify where to reduce the inventory to the optimum level based on the demand forecast using the machine learning algorithms.

I. INTRODUCTION

Time-series forecasting models are the models that are capable to predict future values based on previously observed values. Time-series forecasting is widely used for non-stationary data. Non-stationary data are called the data whose statistical properties the mean and standard deviation are not constant over time but instead, these metrics vary over time.These non-stationary input data (used as input to these models) are usually called time-series.

A time series is a sequence of observations taken sequentially in time as shown in the adjacent picture.

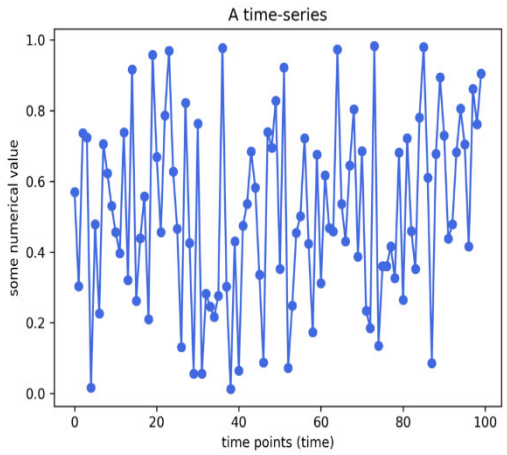


ABB headquartered in Zurich, Switzerland, operates mainly in robotics, power, heavy electrical equipment, industrial automation, and automation technology areas.We oversaw multiple ABB plant locations across the globe some of which were consistently seeing disruptions in their supply chain operations due to Demand projection challenges. They had order misses due to Inventory not being there on time or excess of the same sitting in warehouses and hence blocking assets and capital.

There were many issues which were going to be addressed however some of them having the majority impact have been highlighted below which were addressed by deploying our solution. First and foremost, users had to glance through multiple files and screens for forecasting at part or consolidated level along with no single place to review critical forecasting related parameters like what is the proposed inventory level as per the optimized forecast compared to what is the current inventory levels. Also, reduction potential derived from the recommended forecast models was brought into the picture along with some other factors like the reduced forecast was going to help bring down the inventory levels to the rightsized threshold. We also did the same at a hierarchical integrated business tool view method which would enable the business leaders to view the consolidated data proactively along with getting a list of the outliers if any in their business.

Lack of a screen in which monitoring of parts and their trends can be visualized needed to be enabled, along with viewing the keyparameters of material unavailability in case of under forecasted scenarios.Visibility was also required for forecasting accuracy and supersession of the parts which were some of the important factors for the business to achieve sustainable forecasting. Forecasting techniques which were being used at scale were to be validated for their reliability to check whether is this the right method to forecast as per the business fit.

Problem Statement:
No framework for forecasting of parts was present in-line with the business needs which at some point in the future would require multivariate series to forecast the trend incorporating seasonal and external variables affecting the demand at play. We saw business accessing multiple screens and reports to forecast and optimize for individual parts making forecasting globally and at scale a cumbersome task. A lot of time is consumed in analyzing a single partand with no significant alert mechanism being in-place for individual parts in which critical information regarding key parameters is highlighted which require immediate attention some of which are like Inventory gone below critical level, optimum forecast, and days of inventory on handwould help the business greatly in achieving their respective year end targets is what we found in year exploratory analyses. Multiple parameters like burn rate, SSL, forecast category could not be found present in any reports.

Solution:
To achieve our target for building a Global forecasting tool which can forecast efficiently we came up with a unique Forecasting methodology which suits the demand pattern and variation to get the best possible forecast at scale and by using the right mix of statistical and machine learning models we could take accuracy bar even higher.

To get the best possible forecast we divided our parts into groups basis demand pattern, occurrence, and part value and considered their stationarity as per the time series. FGS, NON FCST and FTMD were the three categories.Then we forecasted each of the same individually using he best fit method derived out of multiple algorithms and then we displayed the final consolidated forecast in our Global Forecasting and analytics dashboard to generate aggregate forecast at each level in the business hierarchy so that you can see the forecast at SKU level or at plant level and drill down as required.

We used statistical modelling for certain parts and a combination of machine learning and deep learning forecastingframeworks in other places. Some of the parts which do not have any demand could not be forecasted using statistical forecasting techniques and a manual forecasting technique was developed for them which dealt on the parts individually to generate customized forecasts for each part, and they will not be discussed in this study.

Further for the remaining set of parts which were stationary, the parameters in each model were tuned accordingly for specific instances to deliver the best possible forecasts and successively evaluated the models using RMSE, MAPE, MSE to choose the desired technique for that SKU. The engine displays all critical and key parameters of a part at a hawk's eye level to mitigate any unforeseen circumstances.

II. RELEVANCY TO ABB

Forecasting is an important aspect of any business and with the right amount of forecast you could keep yourinventory rightsized thereby maintaining the desired service levels. An incorrect forecast leads up to material pile-up or material shortage based on whether it was under or over forecasted. A proper forecast helpsthe business to properly channelize working capital which is the key to sustainably running any business.Due to unavailability of proper tool and mechanism for forecast in place, the same is not being monitored regularly and leads to the problems mentioned above arising out of a poor or improper forecast. Inappropriate planning or forecasting often results in customer order misses, cancelled customer orders and pushout schedules.Eventually ageing inventory from the child warehouses gets transferred back to the mother warehouse.Excess requisitions raised or delinquent ordering and incorrect data from weekly extracts are some other causes which we found are problems arising out of an improper forecast. The tool developed by us is capable of being scaled extensivelyalong with connecting directlythrough cloud data warehouse architecture Celonis which has global ERP data. Using a Realtime global connection, it enables us to refresh data of any plant as and when required, scheduled or automatic.So, we thought this might be an excellent tool for management to see multiple supply chain KPIs, current inventory, forecast accuracy and so on, also it saves precious working capital enabling the same to be utilized in fulfilling the requirements for rightsized inventory. On time orders brings in more customer and hence improves the revenue and business prospects. The tool constantly adapts by improving MAPE (Mean Absolute Percentage Error) & hence improves the forecast. It displays the critical parameters of a part at a hawk's eye level to mitigate the unforeseen circumstances. It is a great unified platform for management to review key parameters at glance and suggest actions. It completely confronts the chances of customer service and late delivery impacts by rightsizing the inventory thereby improving customer

satisfaction and improving on-time delivery numbers.This is an excellent mix of AI & ML reflecting the ABB's global commitment to bring the digitalization in everything we do. Underlined below are the techniques developed and tuned distinctively for forecasting the right mix of parts at scale used in the forecasting engine.

III. FORECASTING METHODOLOGY

1. Prophet

The Prophet library is an open-source library designed for making forecasts for univariate time series datasets. It is easy to use and designed to automatically find a good set of hyperparameters for the model to make skillful forecasts for data with trends and seasonal structure.

Prophet is a tool that has been built to address theissues we mentioned above and provides a practical approach to forecasting "at scale". It intends to automate the common features of business time series by providing simple and tunable methods. Prophet enables the analysts with a variety of backgrounds to make more forecasts than they can do manually.Prophet is a procedure for forecasting time series data based on an additive model where non-linear trends are fit with yearly, weekly, and daily seasonality, plus holiday effects. It works best with time series that have strong seasonal effects and several seasons of historical data. Prophet is robust to missing data and shifts in the trend, and typically handles outliers well.

To use Prophet for forecasting, first, a Prophet () object is defined and configured, then it is fit on the dataset by calling the fit () function and passing the data.The Prophet () object takes arguments to configure the type of model you want, such as the type of growth, the type of seasonality, and more. By default, the model will work hard to figure out almost everything automatically.It also requires the first column converted to date-time objects.The fit() function takes a Data Frame of time series data. The Data Frame must have a specific format. The first column must have the name 'ds 'and contain the date-times. The second column must have the name 'y 'and contain the observations. We can change the column names in the dataset accordingly.

Parameters used are 1. Growth – 'Linear'…., 2. Yearly seasonality = 'Auto', 3. Periods = next 36, 4. Freq = MS, 5. Include history =True

2. SARIMAX:

Seasonal Auto-Regressive Integrated Moving Average with exogenous factors, or SARIMAX, is an extension of the ARIMA class of models. ARIMA models consist of 2 parts: the autoregressive term (AR) and the moving-average term (MA). AR terms views the value at one time just as a weighted sum of past values. The MA part modelsthe same value also as a weighted sumof the past residuals. There is also an integrated term (I) to difference the time series

where p = non-seasonal autoregressive (AR) order, d = non-seasonal differencing, q= non-seasonal moving average (MA) order, P = seasonal AR order, D = seasonal differencing, Q = seasonal MA order, and S = length of repeating seasonal pattern.

We will use this notation from now on. By adding those seasonal AR and seasonal MA components, SARIMA solves the seasonality problem.

SARIMAX extends on this framework just by adding the capability to handle exogenous domain specific variables.

Lag: Lags are simply delays in time steps within a series. Consider a time index t, the lag 1 time index with respect to t is simply t-1, lag 2 is t-2, and so on.

Stationarity: A stationary time series is one that has its mean, variance, and autocorrelation structure unchanging overtime. In other words, it does not have any cycle/trend or seasonality. The ARMA family is built on this concept.

Autocorrelation function (ACF) and Partial Autocorrelation function (PACF): Both these functions measure how correlated the data at time t is to its past values t-1, t-2, … There is one crucial difference, however. The ACF also measures indirect correlation up to the lag in question, while PCAF does not. In practice, their plots are vital for many tasks, especially choosing the parameters for the SARIMAX model.

Next, we proceed to model the time series using the Box-Jenkins procedure.SARIMAX (Seasonal Auto Regressive Integrated Moving Average Exogenous) is a class of models that 'explains' a given time series based on its own past values, that is, its own lags and the lagged forecast errors, so that equation can be used to forecast future values. The AR part of SARIMA indicates that the evolving variable of interest is regressed on its own lagged (i.e., prior) values. The MA part indicates that the regression error is a linear combination of error terms whose values occurred simultaneously and at various times in the past. The I (for "integrated") indicates that the data values have been replaced with the difference between their values and the previous values (and this differencing process may have been performed more than once). The purpose of each of these features is to make the model fit the data as well as possible. Any 'non-seasonal' time series that exhibits patterns and is not a random white noise can be modeled with ARIMA models.

If a time series, has seasonal patterns, then you need to add seasonal terms and it becomes SARIMA, short for 'Seasonal ARIMA'. More on that once we finish ARIMA. p is the number of autoregressive terms, (0 to 3 range), d is the number of nonseasonal differences needed for stationarity (0 to 3 range), and q is the number of lagged forecast errors in the prediction equation (0 to 3 range)

3. Auto- SES:

This method is suitable for forecasting data with no clear trend or seasonal pattern.The application of every exponential smoothing method requires the smoothing parameters and the initial values to be chosen. For simple exponential smoothing, we need to select the values of α and ℓ0. All forecasts can be computed from the data once we know those values. For the methods that follow there is usually more than one smoothing parameter and more than one initial component to be chosen.

We estimated the coefficients of a regression model by minimizing the sum of the squared residuals (usually known as SSE or "sum of squared errors"). Similarly, the unknown parameters and the initial values for any exponential smoothing method can be estimated by minimizing the SSE. The residuals are specified as $e_t = y_t - \hat{y}_{t|t-1}$. Hence, we find the values of the unknown parameters and the initial values that minimize

$$\text{SSE} = \sum_{t=1}^{T}(y_t - \hat{y}_{t|t-1})^2 = \sum_{t=1}^{T} e_t^2.$$

If the goal is prediction, or forecasting, linear regression can be used to fit a predictive model to an observed data set of values of the response and explanatory variables. After developing such a model, if additional values of the explanatory variables are collected without an accompanying response value, the fitted model can be used to make a prediction of the response.

Y = mX + C

Y = Dependent variable (next forecast value)

M = Slope of previous 12months delivery value

C =Intercept of previous 12 months delivery value

4. Holts Winter:

Holt-Winters's forecasting is a way to model and predict the behavior of a time series data model.Holt-Winters is one of the most popular forecasting techniques for time series with purposes such as anomaly detection and capacity planning. It constitutes of a. Average (alpha), b. Trend (Beta) and c. Cyclic pattern (Gamma)

Forecasting always requires a model, and Holt-Winters is a way to model three aspects of the time series: a typical value (average), a slope (trend) over time, and a cyclical repeating pattern (seasonality).

The Holt-Winters method uses exponential smoothing to encode lots of values from the past and use them to predict "typical" values for the present and future. Exponential smoothing refers to the use of an exponentially weighted moving average (EWMA) to "smooth" a time series. If you have some time series xt, you can define a new time series st, that's a smoothed version of xt.

st=αxt+(1−α)st−1

In the late 1950s, Charles Holt recognized the issue with the simple EWMA model with time series with trend. He modified the simple exponential smoothing model to account for a linear trend. This is known as Holt's exponential smoothing. This model is a little more complicated. It consists of two EWMAs: one for the smoothed values of xt, and another for its slope. The terms level and trend are also used.

st=αxt+(1−α)(st−1+bt−1)bt=β(st−st−1)+(1−β)bt−1

The smoothed values are much better at following the original time series with double exponential smoothing. This means we'll get much better forecasts.Ft+m=st+mbt

it's essentially the formula for a line. What if your time series doesn't have a linear trend, but rather some sort of seasonality? For this, you'll need yet another EWMA.

Holt's student, Peter Winters, extended his teacher's model by introducing an additional term to factor in seasonality. Notice how there's another variable L, which depends on the period of the seasonality and must be known in advance.

The three aspects of the time series behavior—value, trend, and seasonality—are expressed as three types of exponential smoothing, so Holt-Winters is called triple exponential smoothing. The model predicts a current or future value by computing the combined effects of these three influences. The model requires several parameters: one for each smoothing (α, β, γ), the length of a season, and the number of periods in a season.

Holt-Winters has a trend component. If we set its parameter to zero, Holt-Winters ignores the trend (slope), so the model simplifies. Now, it's just a bunch of values relative to the average. In our plot,

the values relative to 0.2 are [-0.2, 0.8, -0.2, -0.2, -0.2].

Forecasting with trend is just an enhancement of this. Instead of using a fixed average as the foundation, you must incorporate the slope of the line.

5. Long short-term memory (LSTM):
Long short-term memory (LSTM) is an artificial recurrent neural network (RNN) architecture used in the field of deep learning. Unlike standard feedforward neural networks, LSTM has feedback connections. It can not only process single data points like images, but also entire sequences of data (such as speech or video inputs). LSTM models can store information over a period of time.In order words, they have a memory capacity.

This characteristic is extremely useful when we deal with Time-Series or Sequential Data. When using an LSTM model, we are free and able to decide what information will be stored and what discarded. Long short-term memory (LSTM) is an artificial Recurrent neural network (RNN) architecture used in the field of

deep learning. Unlike standard feed forward neural networks, LSTM has feedback connections. For example, LSTM is applicable to tasks such as unsegmented, connected handwriting recognition, speech recognition and anomaly detection in network traffic or IDSs (intrusion detection systems). A common LSTM unit is composed of a cell, an input gate, an output gate and a forget gate. The cell remembers values over arbitrary time intervals and the three gates regulate the flow of information into and out of the cell. LSTM networks are well-suited to classifying, processing, and making predictions based on time series data, since there can be lags of unknown duration between important events in a time series. LSTMs were developed to deal with the vanishing gradient problem that can be encountered when training traditional RNNs. Relative insensitivity to gap length is an advantage of LSTM over RNNs, hidden Markov models and other sequence learning methods in numerous applications.

We do that using the "gates". The deep understanding of the

We build a multi-layer LSTM recurrent neural network to predict the forecast values

Next, we split the data into training and test sets to avoid overfitting and to be able to investigate the generalization ability of our model.

We normalized the data before model fitting using Min-Max scaler which will help boost the models' performance. We build the LSTM with 50 neurons and 4 hidden layers and assigned 1 neuron in the output layer for predicting the normalized forecast values. We will use the MSE loss function and the Adam

stochastic gradient descent optimizer. We added the first LSTM layer and some Dropout regularization and then a second LSTM layer and some Dropout regularization all the way till the fourth layer along with dropout regularization. And then compile the RNN and fit that along with the training set.

Compiling the RNN:
model.Compile(optimizer='adam',loss='mean_squared_error')
Fitting the RNN to the Training set:
model.fit(X_train, y_train, epochs = 100, batch_size = 32)

6. XGBoost:
XGBoost is a very powerful and versatile model. Its range of application is significant, and it has been applied successfully to many ML classification and regression problems. Even though it was not initially designed to handle time series, many data scientists are nonetheless using it in this case.

XGBoost for Time Series: With the input of timerelatedfeatures such as lags, frequencies, wavelet coefficients, periods, XGBoost is very good at identifying patterns in data, if we have enough temporal features describing the dataset, it will provide decent predictions.

However, XGBoost lacks an essential feature that is critical for time series. Let's analyze the math that underlies this model to understand what is crucially missing for XGBoost to be a good model for time series forecasting.
The math underlying XGBoost: XGBoost is a tree-based model. It stacks as many trees as you want, each additional tree trying to reduce the error of the previous ensemble of trees. The overall idea is to combine many simple, weak predictors to build a strong one.

Where estimation y_i is the prediction, x_i is a vector of features, f_k(x_i) are the values computed for each tree, and K is the total number of trees.

An XGBoost model is essentially an additive model, with respect to each tree. Let's have a look at f_k to understand how tree scores are computed and see what kind of function we are talking about here.

Again, the XGBoost doc gives us the answer, and once again it's quite easy to understand:

q(x) is a function that attributes features x to a specific leaf of the current tree t. w_q(x) is then the

leaf score for the current tree t and the current features x.

Oncewe have trained the model, which is the hardest part of the problem, predicting simply boils down to identifying the right leaf for each tree, based on the features, and summing up the values attached to each leaf.

XGBoost cannot extrapolate: Once again, XGBoost is a very powerful and efficient tool for classification and regression, but it lacks a very critical feature: it cannot extrapolate! Or at least, it cannot extrapolate something trickier than a simple constant. No linear, quadratic, or cubic interpolation is possible.

As we have seen in the previous formulas, XGBoost predictions are only based on a sum of values attached to tree leaves. No transformations are applied to these values: no scaling, no log, no exponential, nothing.

This means that XGBoost can only make a good prediction for situations previously encountered in the training history. It won't capture trends!

Forecast Models		%ile of parts below threshold					
Average MAPE	Accuracy	XGBoost	SARIMAX	LSTM	Prophet	Auto-SES	Holt Winter
>20	Very High	25	5	3	9	7	16
21-50	High	12	11	7	5	12	18
51-75	Medium	19	20	16	23	24	22
76-100	Low	13	17	32	13	23	9
101-150	Poor	7	21	23	29	19	14
>150	Critical	14	26	19	21	15	21
Avg MAPE %		84	69	47	66	72	76

Table – 1 Performance comparision of Neural networks with statistical forecasting models

But it completely fails when trying to extrapolate, as we expected after analyzing the underlying mathematical model. Indeed, as stated above, an XGBoost model cannot predict an event that did not appear in its training to its training.

Why should you bother with interpolation?

Unfortunately, time series, or at least the ones that are worthy of interest, are usually non-stationary. This means that their statistical characteristics — average, variance, and standard deviation — do change with time.
Accurately forecasting this kind of time series requires models that not only capture variations with respect to time but can also extrapolate.

Can we hack XGBoost to overcome this?

With some models, it is sometimes possible to hack the underlying math to expand their scope of application.
You can use simple linear regressive models for modelling and predicting non-linear systems by simply feeding them with non-linear features.

Unfortunately, it's not possible to tweak the formulas used for prediction in the XGBoost model to introduce support for extrapolation. One option to combine the powerful pattern identification of XGBoost with extrapolation is to augment XGBoost with a side model in charge of this.

Another one could be to normalize data to remove non-stationary effects and fall back to the stationary case.

IV.RESULTS AND DISCUSSIONS

To match the best possible forecasting model to individual SKU's we needed a set of validation techniques which would help us in correlating the forecast errors to the models and map their accuracy percentage wise to arrive at the best fit.

MAPE Calculations and Selection:MAPE = ((ABS (Actual value – Predicted value))/Actual value) * 100

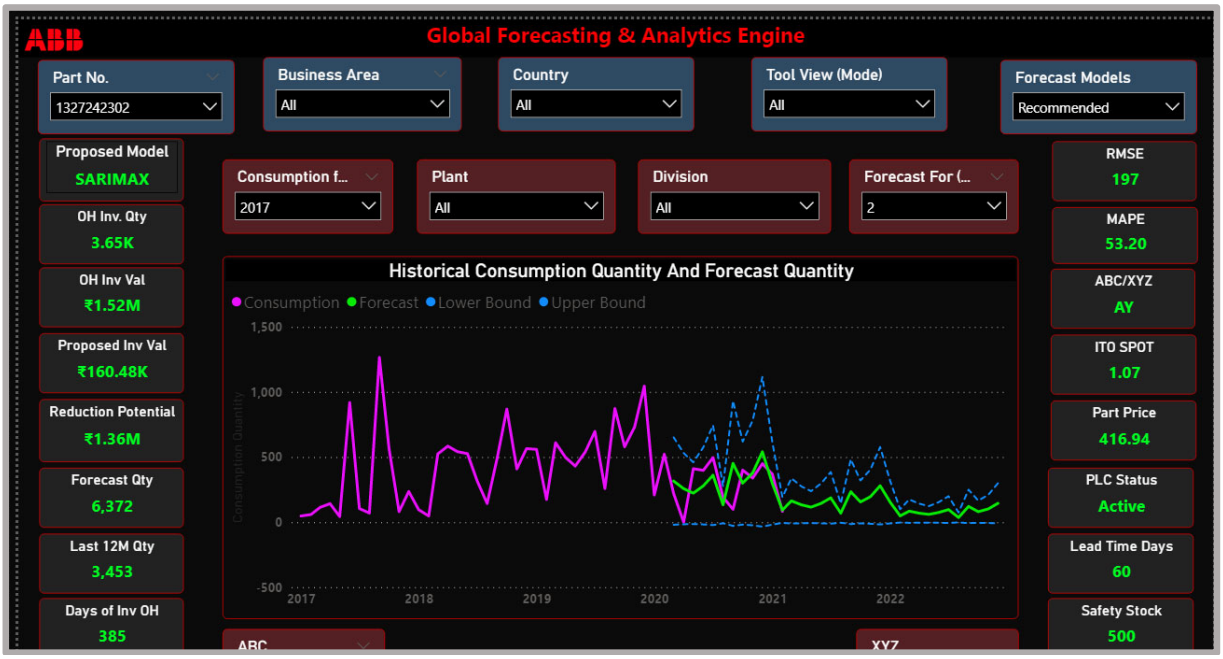
Actual value =considering 12 months previous delivery quantity

Predicted value =forecasting previous 12 months using all mentioned forecasting methods

We calculated MAPE for 12 months for the individual models and thenaveragedit over a yearly period to further drill down in selecting the minimum average.

All of this was done to enable the business leaders to view the consolidated forecast at plant/hub level in a single screen.With highly useful monitoringscreens the tool was able to Forecast as well as detect anomalies pertaining to forecast data at all business levels.It will further be used to track and plan accordingly for achieving optimalforecasting

accuracy across all verticals,monitor criticalities in process and take necessary actions.Since the entire forecast is done using deep learning neural network models adaptability if the tool is highly optimized over time using the consumption pattern and other statistical parameters as inference.The tool generates aggregate forecast at part level. Forecasting for the common user is made extremely simpler using this tool.Option for users to choose between, whether they want their own or the tool recommended forecast.It uses multiple statistical forecasting techniques and finally chooses the one among them with the best forecast accuracy.User doesn't have to browse through multiple screens to generate the best forecast for a part.



MRP Controller – The MRP controller is responsible for material requirements planning and material availability.

Procurement type - Procurement Type is used to determine whether a material is procured in-house, or it can be procured externally, i.e., a planned order or a purchase order needs to be created. The type of procurement completely depends on the material type

ABC Classification - parts classified based on their last 12 months consumption value (US$), A -80%, B-15%, C- 5%.

XYZ Classification - parts classified based on their last 12 M consumption COV, based on demand variation. (XYZClassification COV<0.40 -X, IF<1 – Y or else – Z)

Forecast Recommendation – Manual Review required, Forecast Manually- Remove Outliers, Excess stock on hand-No forecast required.

Forecast recommendation formula:
Rolling forecast 2019- Baseline forecast for the year2019
Rolling forecast 2020 - Baseline forecast for the year 2020
Rolling forecast 2021 - Baseline forecast for the year 2021

Outlier – During forecast outliers' values in each part are replaced with the average delivery value.Outliers are shown in 3,6 and 9 months.

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AN EFFICIENT SPAM DETECTION FOR IOT DEVICE USING MACHINE LEARNING ALGORITHMS

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Abstract -
The Internet of Things (IoT) is a group of millions of devices with sensors and actuators connected via a wired or wireless channel for data transmission. The volume of data released by these devices will increase dramatically in the years to come. In such an environment, machine learning (ML) algorithms can play an important role in ensuring security and biotechnology-based authorization, anomaly detection to improve the usability and security of IoT systems. To overcome this increased volume of data a ML technique is introduced to detect the spam in an IoT. The ML models are evaluated using various metrics with a large collection of inputs features sets. Each ML model computes a spam score by considering the refined input features. The proposed algorithm is to detect the spamicity score of the datasets of IoT devices. The spamicity score depicts the trustworthiness of IoT device under various parameters. The objective of our process is to detect the spam efficiently and to enhance the overall performance for ML algorithms. In proposed system; homespam datasetis taken as input from dataset repository. Then, the collected input data are subjected to preprocessing. By using the machine learning techniques to detect the spam of IoT devices can produce high performance. The dimensionality of the preprocessed data can be reduced by using Principal Component Analysis (PCA). To implement the efficient spam detection, machine learning algorithms such as **Xgboost** can be used**.**

Keywords - IoT, Xgboost, Machine Learning. Spam Detection, PCA.

I. INTRODUCTION

Massive growth and rapid development in the field of Internet of Things (IoT), makes the presence of IoT devices prevalent to smart homes and smart cities.Internet of Things (IoT) enables convergence and implementations between the real-world objects irrespective of their geographical locations.The Internet of things describes physical objects that are embedded with sensors, processing ability, software, and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks.The emergence of machine learning (ML) in various attacks scenarios, IoT devices choose a defensive strategy and decide the key parameters in the security protocols for trade-off between security, privacy, and computation. This job is challenging as it is usually difficult for an IoT system with limited resources to estimate the current network and timely attack status.Data mining is the computational process of discovering patterns in large data sets involving methods at the intersection of machine learning, statistics, and database systems. The overall goal of the data mining process is to extract information from a set of data and transform it into an understandable structure for later use. Data mining is the analysis phase of the "knowledge discovery in databases" process, or KDD. Data mining is finding new information in a large amount of data.It is hoped that the information obtained from data mining will be new and useful. Machine learning (ML) is a type of artificial intelligence (AI) that allows software applications to become more accurate at predicting outcomes without being explicitly programmed to do so. Machine learning algorithms use historical data as input to predict new output values.A spamicity score was awarded to each of the IoT devices by the algorithm, based on the feature importance and the root mean square error score of the machine learning models to determine the trustworthiness of the device in the home network.The proposed algorithm is used to detect the spamicity score of the dataset of IoT devices in the network. A method is proposed for spam detection and principal components analysis were used in the designing of the system. The proposed technique is to achieved high performance, and the method effectively detected the spam. The advantages of using machine learning techniques for our process to detect spam produces high performance, ML techniques like BGLM and Xgboost predicts the results accurately, it avoids sparsity problems and reduces the information Loss and the bias of the inference due to the multiple estimates.

II. LITERATURE SURVEY

Jiwon Choi, Hayoung Jeoung, Jihun Kim, Youngjoo Ko, Wonup Jung, anjun Kim and Jong Kim approached in this paper “Detecting and Identifying Faulty IoT Devices in Smart Home with Context Extraction” they analyse the sensor data to find any iot device missing or reacting again that they move away from correlated sensors already grouped

together, and state transition to find the presence of an abnormal sequence. The system identifies the faulty device by comparing the problematic context with the probable ones. The issue of the system is false positive rate of 6thSense could be high for real-life situations because it regards any activities that do not belong to the existing nine activities as an error. The advantages of proposed system DICE are highly accurate in detecting sensor faults in Smart Homes. DICE achieved an average of 94.9% precision and 92.5% recall. The future work of proposed system is to satisfy the heterogeneous solutions solution effectively detect sensor failure without using redundant homogeneous sensors (1). Korivi Monishhaa, Dr. B. Veeramallu approached in this paper "Using machine learning unsolicited information detection technique for IoT devices" The unsolicited information detection technique is to forestall the phony or unapproved access into the framework. The proposed method uses the impressive REFIT housing data set. The outcomes gained shows the fittingness, proposed plot then again with the current plans. The advantages of the system in light of the led exams, 2 portrayal models show higher spam detection accuracy and graph-based analysis designs create higher precision levels contrasted with those delivered by interaction sequence preparing versions. The goal of our work is to make the weather and enveloping properties of IOT contraptions safer and more reliable in the future (2).

Hussein Alsheakhand Shameek Bhattacharjee approached in this paper "Towards a Unified Trust Framework for Detecting IoT Device Attacks in Smart Homes" For the framework assessment, we use two real datasets that contain a variety of real cyber-attacks and benign traffic from seven different smart home IoT devices. Our assessment aims to investigate the generality of our framework across multiple datasets, with different classes of IoT devices and cyberattacks. Co-Domain DDoS and Leakage: This kind of attack takes advantage of the IP/port forwarding feature that is argued as necessary to support QoS guarantees by ensuring server availability and load balancing. Vulnerable IoT devices increase the risks of attacking smart homes and unauthorized leakage. They believe that security and privacy services in IoT systems can be optimized by our fog trust scoring model deployed as a part of the FIoT middleware in a smart home gateway in future. Through this work, showed that is possible to move towards the unified treatment of detecting cyber-attacks on smart home IoT devices (3).Amritpal Singha, Shalini Batraa approached in this paper "Ensemble based Spam Detection in Social IoT using Probabilistic Data Structures" This paper proposes a semi-supervised technique for spam detection in Twitter by employing ensemble-based framework comprising of four classifiers. The framework is based on using Probabilistic Data Structures (PDS) as Quotient Filter (QF) to query database URL, spam users, spam words databases and Locality Sensitive Hashing (LSH) for similarity search, as classifiers in various stages which provide fast results with less computational effort.The given data, characterized by a collection of relevant features and represented as points in a high-dimensional attribute space, is mapped to binary representation using some hashing technique.One of the major issues in boosting is that maintaining weight for each instance, especially in large datasets, is a tedious task.In future, it can be enhanced by deploying it for other social media platforms like Facebook, LinkedIn, etc. (4)

Aaisha Makkara, Neeraj Kumar approached in this paper "An Efficient Deep Learning-based Scheme for Web Spam Detection in IoT environment" The proposed system has been validated with the 2007 Web spam uk dataset. Before processing, the dataset is pre-exploited using a new technique called over-Split for excess and train by means of under fitting. The set and cross-validation approach was used to optimize the results with an accuracy of 96.96%. Therefore, the proposed scheme surpasses existing techniques. Polarity Rank can be applied to any knowledge propagation problem and construct a discrete analogue of classical regularization theory via discrete analysis. The advantages of the paper are data reduction; knowledge extraction from the process; limit the storage requirements; reducing the cost in terms of time and space complexities; and data understanding. In the future, they are planning to explore more deep learning algorithms to help in detection of spam nodes efficiently and they will also try to handle large scale data by considering data streaming models for different applications. The web spam is detected successfully by achieving the accuracy of around 95.25% (5).

Based Spam Detection in Smart Home IoT Devices Time Series Data Using Machine Learning Techniques" This paper investigates the trustworthiness of the IoT devices sending house appliances' readings, with the help of various parameters such as feature importance, root mean square error, hyper-parameter tuning, etc. The algorithm assigned a spam score to each of the IoT devices, based on the importance of the functionality and the Mean squared error score of machine learning models to determine the reliability of the device in the home network. The proposed algorithm is used to detect the spam score of IoT devices connected to the network. The advantage of using an SMA is that it is straightforward and has a simple average price calculation. Depending on the type of application, the SMA might sometimes not be preferred due to the weight it gives to the old data and is not preferred for some of the applications. The adverse effects of receiving incorrect readings can lead to various issues and the energy management will tend to fail. The challenges faced in a smart home with IoT devices connected to the infrastructure include the lack of

reliable and scalable cloud infrastructure platforms, ensured secure connections, information storage, and a lack of innovative products enabled with edge computing (6).

Sihai Tang, Zhaochen Gu, Qing Yang, Song Fu approached in this paper "Smart Home IoT Anomaly Detection based on Ensemble Model Learning from Heterogeneous Data" They aim to simulate different types of abnormal situations on publicly available smart home datasets, thus exposing our models to probable real-world phenomena and events that can cause anomalies. Experiments are conducted on the processed data and evaluated for accuracy through validation and testing against independent and identically distributed labelled data. Ensemble learner takes advantage of this difference to overcome the need to validate and tune extensively. A distinct advantage in speed and performance when fed with the correct base supervised models. They should face a wide gamut of anomalies in our starting data, our three base models will have a higher likelihood of balancing out the load of anomaly detection instead of heavily weighting the decision of one of the models over the others due to the lack of other suitable anomaly patterns (7). Aaisha Makkar, Uttam Ghosh, Pradip Kumar Sharma approached in this paper "Artificial Intelligence and Edge Computing-enabled Web Spam Detection for Next Generation IoT Applications" The proposed framework provides peripheral intelligence for filtering web data and detects web spam by considering three different levels, e.g., data collection services, advanced IT services and cloud services. Deep learning algorithms are used to validate the proposed system. By evaluating it on a set of data collected in real time, it was found an accuracy of 98.77%. They can conclude, that the data computing happens at the edge of the device, or at the nearest location, where data is generated. It improves the data processing significantly by reducing the data traveling between devices and centralized cloud data centers. The advantages of this paper are leads to increase in network latency and high consumption of Internet bandwidth (8).

Preethi, Sk. Neelofar, T. Chandralekha, S. Rishikanth approached in this paper "An Enhanced Efficient Approach for Spam Detection in IOT Devices Using Machine Learning" Our methods target data anomalies found in Internet of Things (IoT) intelligent devices in general, allowing easy detection of anomalous events based on the stored data. The proposed algorithm is used to detect the spam score of IoT devices connected within the network.The proposed system identifies the spam boundaries of IoT devices utilizing ML models. The IoT dataset utilized for tests is pre-prepared by utilizing highlight designing methodology. This paper decides the utilization of the spamicity score to comprehend the dependability of IoT gadgets in the smart home organization The results obtained illustrate the effectiveness of the proposed algorithm for analysing time series data from IoT devices for spam detection. The biggest advantage of Xgboost is its scalability and quick speed, and it always outperforms the alternative ML models. Precision helps when the prices of false positives are high (9). Dr. Aaisha Makkar, Dr. Neeraj Kumar, Prof. Ahmed Ghoneim approached in this paper "An Efficient Spam Detection Technique for IoT Devices using Machine Learning" Spam detection in the IoT is offered using the Machine Learning framework. Within this framework, five machine learning models are evaluated using various metrics with a large collection of input feature sets. Each model calculates a spam score taking into account the refined input capabilities. This score depicts the trustworthiness of IoT device under various parameters. REFIT Smart Home dataset is used for the validation of proposed technique. The proposed scheme of spam detection is validated using five different machine learning models. An algorithm is proposed to compute the spamicity score of each model which is then used for detection and intelligent decision making. The evaluation is done to compute the accuracy, precision, and recall. In future, we are planning to consider the climatic and surrounding features of IoT device to make them more secure and trustworthy (10).

III. PROPOSED METHODOLOGY

The proposed model is introduced to overcome all the disadvantages that arises in the existing system.We are applying data mining techniques to identify spam for home data. And, thus the prediction process is less time consuming. This system will increase the accuracy of the Supervised classification results by classifying the data-based spam symptoms and others using classification algorithm. It enhances the performance of the overall classification results. In proposed system, *home spam dataset* is implemented as input was taken from dataset repository. Then, the collected input dataare subjected to preprocessing. After that, we have to reduce the dimensionality from the preprocessed data by using the *Principal Component Analysis (PCA)*. Then, we have to implement the machine learning algorithms such as *Xgboost and Bayesian Generalized Linear Model (BGLM).* An algorithm is designed to calculate the spamicity score of IOT device. Based on this spamicity score the trustworthiness of IoT devices is analyzed. Evaluate the performance metrics such as *MSE and RMSE* values.

The proposed system consists of the following modules:

- Data selection
- Data pre-processing
- Dimensionality reduction
- Data splitting

- Classification
- Performance Analysis

3.1. Data selection

The dataset, **home spam dataset** is implemented as input. The input dataset is taken from dataset repository. The dataset which contains the information about the time, use [kW], gen [kW], House overall [kW], Dishwasher [kW], Furnace 1 [kW], Furnace 2 [kW], Home office [kW], Fridge [kW], Wine cellar [kW], Garage door [kW], Kitchen 12 [kW] ,Kitchen 14 [kW], Kitchen 38 [kW], Barn [kW], Well [kW], Microwave [kW], Living room [kW]Solar [kW] , Target.

3.2. Data pre-processing

Data pre-processing is the process of removing the unwanted data from the dataset. Pre-processing data transformation operations are used to transform the dataset into a structure suitable for machine learning. This step also includes cleaning the dataset by removing irrelevant or corrupted data that can affect the accuracy of the dataset, which makes it more efficient. The process of pre-processing to remove

- Missing data removal: In this process, the null values such as missing values and Nan values are replaced by 0. Missing and duplicate values were removed and data was cleaned of any abnormalities.
- Encoding Categorical data: That categorical data is defined as variables with a finite set of label values.

3.3. Dimensionality reduction

In this step, to reduce the dimensionality from the pre-processed data.It is used to clean data sets to make it easy to explore and analyse.

✓ *Principle Component Analysis (PCA).*

3.4. Data splitting

In this step, the pre-processed data are split into Train set (70%) and test set (30%) for decision.

✓ *Train data is used for evaluate the model.*

✓ *Test data is used for predict the model.*

3.5. Classification

In this step, we can implement the classification algorithm.

✓ *Xgboost Linear algorithm*

Xgboost Algorithm: It is a gradient boosting system, which is efficient and scalable. The package includes an effective linear model solver and an algorithm for tree learning. It supports various objective functions such as regression, grouping, and ranking. It works with numeric vectors. It is ten times quicker than existing gradient boosting algorithms.

3.6. Performance Analysis

In this module, analyse the performance metrics

✓ *MSE* - The mean squared error (MSE) is a common way to measure the prediction accuracy of a model. It is calculated as:

$$\mathbf{MSE} = (1/n) * \Sigma (\text{actual} - \text{prediction})^2$$

Where:

- **Σ** – a fancy symbol that means "sum"
- **n** – sample size
- **actual** – the actual data value
- **forecast** – the predicted data value

✓ *RMSE* - The root mean square error (RMSE) is a metric that tells us how far apart our predicted values are from our observed values in a model, on average. It is calculated as:

$$\mathbf{RMSE} = \sqrt{[\ \Sigma(P_i - O_i)^2 / n]}$$

Where:

- Σ is a fancy symbol that means "sum"
- P_i is the predicted value for the i^{th} observation
- O_i is the observed value for the i^{th} observation
- n is the sample size

The MSE and RMSE of Xgboost algorithm are 0.30701and 0.1752197 respectively.

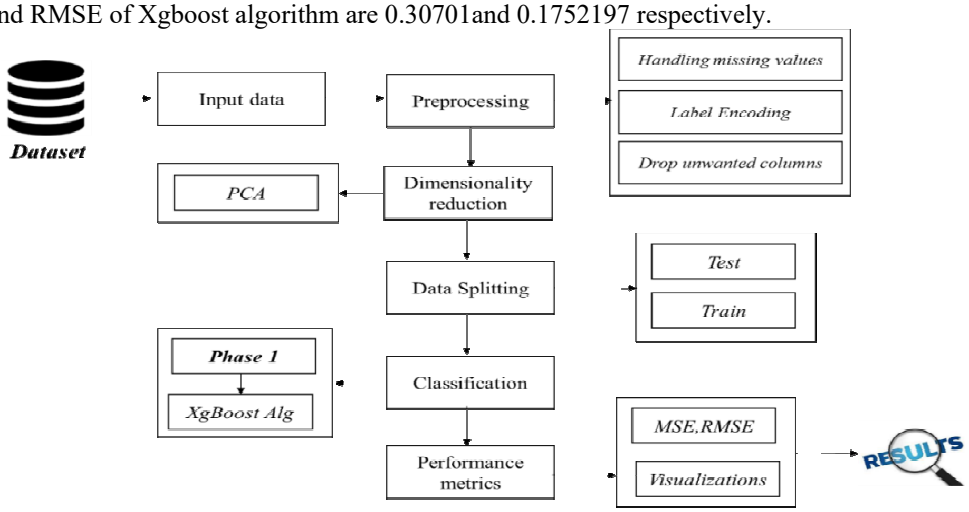

Figure: 2

IV. CONCLUSION

The proposed framework, detects the spam parameters of IoT devices that use machine learning models. The IoT dataset used for experiments, is pre-processed by using feature engineering procedure. By experimenting the framework with machine learning models, each IoT appliance is awarded with a spam score. This refines the conditions to be taken for successful working of IoT devices in a smart home. The future scope is to consider the climatic and surrounding features of IoT device to make them more secure and trustworthy.

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★★★

FORECASTING THE PERFORMANCE OF SOLAR DESALINATION PLANT USING DEEP LEARNING TECHNIQUE

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Abstract -
The need for desalination plants are increasing in order to overcome the demand for freshwater. Solar desalination, a technique that makes use of solar energy to convert saline water into freshwater, is a booming technique in today's world. The performance of solar desalination system can be analysed and forecasted using deep learning techniques. The solar desalination system makes use of solar stills which are used to distil the saline water by heating it with solar energy thereby producing freshwater. Hence, the performance of the desalination plant can be forecasted by predicting the solar still's efficiency. The proposed system makes use of artificial neural network to forecast the performance of tubular solar stills. By predicting the efficiency of solar still, the capital cost involved in building the desalination plant can be reduced. The data from the experimental field is employed here to predict the performance of tubular solar stills.

Keywords - Solar Stills, Water Desalination, Deep Learning, Neural Networks

I. INTRODUCTION

The demand for fresh water has increased from 20 to 30% and it is expected to continue increasing at the similar rate until 2050 because of the raising demands in industries and domestic sectors. Hence there is an urge to develop a system that can meet the demand. Water desalination technology can help in the current situation in which the mineral components are taken away from saline water and makes it fresh water. About 71% of the earth is covered with water and sadly 97% of that water is found in the oceans. Hence desalination can be used to convert sea water into freshwater. Water desalination is the process of removing excess salts and minerals from the saline water. The feed water is processed and two streams of water are produced from it - fresh water and highly concentrated salt water called brine solution. The fresh water obtained from this process can be used for drinking, irrigation and other domestic purpose. The water desalination technology can be broadly classified into membrane desalination and thermal desalination. Membrane desalination is the process by which salts and minerals are removed from water as it passes through a semi-permeable membrane. Thermal desalination is the process which involves changing saline water into vapour which is free from salt and other minerals. This vapour when condensed, becomes fresh water.

Water desalination is the process of converting saline water into fresh water by removing the excess salts from it. The feed water is processed and two streams of water are produced from it - fresh water and highly concentrated salt water called brine solution. The fresh water obtained from this process can be used for drinking, irrigation and other domestic purpose. The water desalination technology can be broadly classified into membrane desalination and thermal desalination. Membrane desalination is the process by which salts and minerals are removed from water as it passes through a semi-permeable membrane. Thermal desalination is the process which involves changing saline water into vapour which is free from salt and other minerals. This vapour when condensed, becomes fresh water.

Thermal desalination can further be classified into three types: multi-stage flash distillation, multi-effect distillation and vapour compression distillation. In Multi-stage flash distillation the saline feed water is fed through multiple chambers. The water is heated and compressed to a high temperature and high pressure in these chambers. As the water progressively passes through the chambers, the pressure is reduced, which makes the water to rapidly boil. The vapour, which is fresh water, is produced in each chamber from boiling and then is condensed and collected. The principal behind the multi-stage flash distillation is same as the principle in multi effect distillation process but instead of using multiple chambers of a single vessel, MED uses successive vessels. The water vapour that is formed when the water boils is condensed and collected. Vapour compression distillation can sometimes be used with other thermal desalination process like MED or MSF. VCD uses heat from the compression of vapour to evaporate the feed water. VCD is used only for small amount of water that could be used for a particular organization or community like hotels, parks. Thermal desalination techniques are better than many aspects as it does not require pre-treatment of feed water. The cost of thermal desalination techniques is lesser when compared to the membrane desalination. The quality of the fresh water is very high in thermal

desalination as the fresh water is obtained through the process of distillation. By considering all the above benefits, thermal desalination technique has been employed in the proposed system.

The emerging technology in thermal desalination is solar desalination. In general, solar desalination is all about removing the amount of salts from seawater by making use of solar energy in order to produce pure water. In the desalination unit, the water gets heated by the sun and then converts the liquid into water vapour. Once it starts to get heated, the vapour rises to a great extent and comes to the top of the unit.After this, the water vapour gets collected on the lid. Then, it condenses back to as freshwater in a separate container. The salt amount won't get changed into vapour and will remain in the same unit. This desalination plant is ideal for purification but it takes time in the entire process and produces low water per day. This happens because of the low operating temperature at which this plant works. The quantity of water that gets produced in the desalination plant will be directly proportional to the device's /surface area. Most popular form of solar desalination is desalinating with the use of solar stills and there are different types of solar stills. The proposed system predicts the performance of tubular solar still (TSS). Tubular solar still mainly consists of tubular cover and a water basin. The tubular cover makes sure that the water basin is completely exposed to the solar radiation so that the shadow effect can be overcome. By doing so, the yield of the desalination plant is high. In our system, artificial neural networks are used to predict the performance of the tubular solar still which further reduces the capital cost of the system.

II. LITERATURE REVIEW

In "Artificial intelligence for predicting solar still production and comparison with stepwise regression under arid climate", the author estimated solar still production by employing back propagation artificial neural network model with two transfer function and by using the data obtained from experimental field work. Ambient temperature, relative humidity, wind speed, solar radiation, feed flow rate, temperature of feed water, and total dissolved solids in feed water are all taken as input features. The experiment was carried out with several ANN architectures with varying number of hidden neurons to identify which architecture would work well. The results showed that the ANN model with one hidden layer having eight neurons which employed the hyperbolic transfer function outperformed. This ANN architecture's performance is then compared with the performance of stepwise regression (SWR). ANN model produced more accurate results compared to SWR model in all modelling stages. Mean values for the coefficient of determination and root mean square error by ANN model were 0.960 and 0.047 L/m2/h, respectively. Relative errors of predicted SSP values by ANN model were about ±10%. In "Productivity Modelling Enhancement of a Solar Desalination Unit with Nanofluids Using Machine Learning Algorithms Integrated with Bayesian Optimization", the author employed four machine learning models namely, artificial neural network (ANN), random forest (RF), support vector regression (SVR), and linear SVR in order to find the best model that can forecast the double solar still performance effectively. The tuning of ML models is optimized using the Bayesian optimization algorithm (BOA) is used to tune the ML models to get the optimal performance of all models. Egyptian climatic conditions dataset is used to forecast the performance of DSSS. The results reveal that ML models can be a powerful tool to forecast DSSS performance. Among them, RF is the most potent ML model obtaining the highest determination coefficient (R2) and the lowest absolute error percentage of 0.997% and 2.95%, respectively. Furthermore, the experimental results also show that the mean value of accumulated (daily) freshwater productivity from DSSS is 4.3 Lm_2.
Instantaneous thermal efficiency (ηith) of a solar still, which in one of the essential design constraint of a solar still, was predicted in this paper "Comparison of ANN, MVR, and SWR Models for Computing Thermal Efficiency of Solar Still" using meteorological and operational data. The research was carried out with the following ML models-artificial neural network (ANN), multi-variate regression (MVR), and stepwise regression (SWR). The input features to all the 3 ML model includes: Julian day, ambient temperature, relative humidity, wind speed, solar radiation, feed water temperature, brine water temperature, total dissolved solids of feed water, and total dissolved solids of brine water. The ANN architecture has 12 hidden neuron and one output neuron which is the thermal efficiency. The results showed that ANN outperformed all the 3 models with the mean coefficient of determination of about 13% and14% more accurate than those of the MVR and SWR models, respectively. In addition, the mean root mean square error values of 6.534% and 6.589% for the MVR and SWR models, respectively, were almost double that of the mean values for the ANN. The performance of stepped solar stills and the normal solar still were compared and a forecast of hourly yield of water is given in this paper "Utilization of LSTM neural network for water production forecasting of a stepped solar still with a corrugated absorber plate". The solar stills are used to desalinate the water to produce fresh water using solar energy. Solar water distillers or solar stills are usually used in remote areas where there is limited access to freshwater. Most stills are simple black bottomed vessels filled with water and topped with clear glass or plastic. Sunlight that is absorbed by the black material speeds the rate of evaporation. The

evaporation is then trapped by the clear topping and funneled away. Most pollutants do not evaporate, so they are left behind. Statistical methods were used to measure the performance of conventional and stepped solar stills. The study shows that the yield of water obtained from solar stills are about 128% higher than the conventional one. Long short term memory neural networks are used to forecast the hourly yield of both the stills. The forecasting accuracy of the proposed model was evaluated using different statistical measures. The R2, RMSE, MAE, EC, and OI values are 0.9752, 0.0066, 0.0044, 0.9172, and 0.9131 for the conventional solar still; and 0.9976, 0.0021, 0.0018, 0.9973, and 0.9897 for the stepped solar still. The performance can further be increased by using latent heat storage materials (Nano-PCM) to prevent the heat losses from the bottom and sidewalls and mixing nanoparticles in the absorber paint for higher absorption of solar energy.

In this paper "Productivity enhancement of stepped solar still integrated MEMS light sensors for solar tracker",the author proposed a method to increase the efficiency of a stepped solar still to the amount of time the solar still is perpendicular to the sunlight by using the Micro-Electro-Mechanical Systems (MEMS) light sensors for solar tracking. The sun tracking is a device inserted into the solar still that follows the sun across the sky, so that the maximum solar irradiance is transmitted through the glass cover of the still which increases the yield.The results obtained indicate that the use of MEMS light sensors for solartracking are used to makes a solar still to be predictable and it equally increases its efficiencyin terms of distillate yield and overall performance. It is seen that the daily productivity of the stepped solar still with track is higher than that of the stepped solar still without track by 19%.

In "Prediction of tubular solar still performance by machine learning integrated with Bayesian optimization algorithm", the author described a convenient approach to predict the performance of tubular solar still, one of the efficient solar stills, utilizing machine learning techniques. The tubular cover of this solar still makes the water basic to be ever-exposed to the solar-radiation which improves the yield of the solar still. Three machine learning models were developed such as artificial neural networks, random forest and traditional multi linear regression. Bayesian optimization algorithm were employed for optimization of these ML models and Egyptian climatic dataset was used in this paper. The results showed that ANN model outperformed all the 3 models. The prediction performance of random forest, artificial neural network and multilinear regression were calculated as 0.9758, 0.9614, 0.9267 for determination coefficients, and 5.21%, 7.697%, 10.911% for mean absolute percentage error, respectively. With the help of bayesian optimization algorithm, the performance of artificial neural network was significantly improved by 35%. "Passive solar high-yield seawater desalination by modular and low-cost distillation" proposed an approach to overcome the unsatisfactory performance of the current passive solar desalination devices. A passive multi stage and low cost solar distiller is used here to efficiently increase the yield of freshwater. These stages are made of two hydropholic layers that are separated by hydrophobic microporous membrane. Theoretical models showed that this system can improve the yield of fresh water doubly when compared to the conventional ones. The communities in an isolated region are highly benefited with this system.

In order to overcome the difficulty in achieving high yield in single solar still, a method was proposed in the paper "Performance estimation of a mini-passive solar still via machine learning". Mini passive polystyrene based single slope stills was designed and they are employed here for the desalination of brackish water. Regression models were used with dimensional reduction and dataset expansion.

In "ANN Modeling and experimental study of the effect of various factors on solar desalination" a study investigated a novel method for increasing desalinated water mass in solar desalination plants. For this purpose, solar panels and a cylindrical parabolic collector (CPC) were used to raise basin water temperature. The effect of different components of basin solar still on freshwater mass was also investigated. The aluminum basin has been associated with maximum water desalination among the different materials constituting a basin. The effects of different colors (e.g. black, brown, and red) on the basin, as well as different water depths (5, 10, and 15 mm), were also explored.The highest amount of freshwater in the black aluminum basin at a 5-mm water depth was2.97 kg/day. ANN modeling was employed to validate the experimental data, indicating good compliance of experimental data with ANN prediction. According to the results of the simulation with varying numbers of neurons (n ¼ 2–25), the highest and lowest agreement between experimental data and ANN prediction data were related to 24 and 10 neurons, respectively. Under optimum conditions, R2 and %AAD error were 0.993 and 2.654, respectively.

The most popular machine learning model, artificial neural network is employed to predict the performance of a special kind of solar still in this paper, "Machine learning prediction approach for dynamic performance modeling of an enhanced solar still desalination system". An enhanced solar still designed earlier was considered for performance prediction here. Three types of ANN namely, Feedforward (FF), backpropagation (BP), and radial basis function (RBF) are examined. The first part is to find the uncertainity evaluation and the second part is the error analysis to identify the best ANN model among the three models. The third part is the

evaluation of the prediction accuracy of the best found ANN model. According to the results, by having the coefficients of determination of 0.963111 and 0.977057, FF and RBF types are the best ANN structures for estimation of the hourly water production and water temperature in the basin, respectively.

III. PROPOSED METHODOLOGY

The proposed system makes use of artificial neural network to forecast the performance of the solar still's yield.The proposed system consists of the following modules:

- Data selection
- Data preprocessing
- Data splitting
- Build the model

3.1 Data selection

The input data was collected from the experimental field of Chengdu. The dataset consists of temperature of all chambers of the solar still, yield of fresh water and solar radiation under four varying atmospheric pressure.

3.2 Data preprocessing

In the pre-processing stage, the data is processed so that it could be fed to the neural network. The first step is clearing the dataset of null values. All the records consisting of null values are dropped from the dataset. Next step is to drop the unwanted columns from the dataset because dropping the unwanted columns can improve the accuracy of the neural network.Since the features of the dataset consists of values having varying ranges, it is always essential to scale the dataset. So, the next step is to scale the dataset using standard scalar. After all these pre-processing steps, the data is ready to be fed into the neural network.

3.3 Data Splitting

In addition to the data required for training, test data are needed to evaluate the performance of the algorithm in order to see how well it works. Data splitting is the act of partitioning available data into two portions, usually for cross-validator purposes. One Portion of the data is used to develop a predictive model and the other to evaluate the model's performance. In this system, 80% of the dataset is considered to be the training data and the remaining 20% to be the testing data.

3.4 Building the model

An ANN model is built and its accuracy is measured using RMSE and coefficient of determination.An ANN model is built with four hidden layers and one output layer.The determination coefficient and RMSE of ANN built are 0.9729 and 0.2695 respectively.

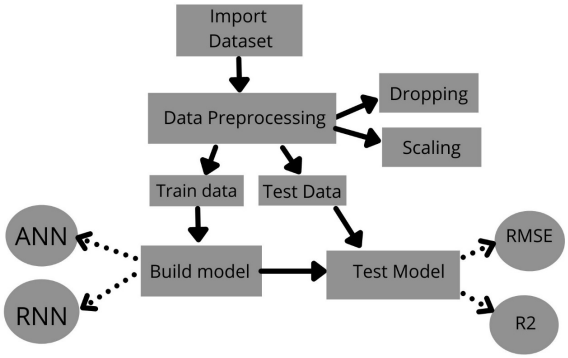

Fig. 1 Architecture Diagram of the proposed system.

IV. CONCLUSION

In order to overcome the water scarcity problem, solar desalination is an effective solution. Solar stills used for solar water desalination can be forecasted to reduce the cost involved in building the solar desalination plant. ANN is implemented in the proposed to measure the performance of the tubular solar tills and the dataset is obtained from the experimental field of china. The determination coefficient and RMSE of ANN built are 0.9729 and 0.2695 respectively. The future scope is to improve the dataset with more data.

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A STUDY TO ASSESS THE EFFECT OF PRETREATMENT WITH ROCURONIUM BROMIDE IN REDUCTION OF ETOMIDATE INDUCED MYOCLONUS DURING ANESTHETIC INDUCTION

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Abstract -

Introduction: Induction agents are drugs that, when given intravenously in an appropriate dose, cause rapid loss of consciousness. They are also used to maintain anesthesia by intravenous infusion, as the sole drug for short procedures done under local anesthesia and to provide conscious sedation in intensive care unit.
Materials and Methods: This study is a prospective, randomized, double blind study conducted in hospitas attached to Bangalore medical college & Research Institute, Bangalore. A written informed consent was obtained from all patients included in the study. As per protocol, clearance was taken from institutional ethical clearance. The incidence of myoclonus in the non pretreatment group was estimated to be 80% based on previous studies. To detect a 50% difference in the incidence of myoclonus at a confidence interval of 95% and keeping a power of 80%, a minimum of 35 patients in each group was required.
Results: In the Rocuronium group, 40% had Myoclonus and in Saline group, 75% had Myoclonus. There was significant difference in Myoclonus incidence between two groups. Odds ratio was 4.5. I.e. Incidence of Myoclonus was 4.5 times higher in Saline group than in Rocuronium group. For Grade 1 Myoclonus, odds ratio was 1.92. There was no significant difference in Grade 1 Myoclonus between two groups. For Grade 2 Myoclonus, odds ratio was 3.733. I.e. Grade 2 Myoclonus was 3.733 times higher in Saline group compared to Rocuronium group. There was significant difference in Grade 2 Myoclonus between two groups. For Grade 3 Myoclonus, odds ratio was 14.4. I.e. Grade 3 Myoclonus was 14.4 times higher in Saline group compared to Rocuronium group. There was significant difference in Grade 3 Myoclonus between two groups.
Conclusion: Pretreatment with priming dose (0.06mg/kg) of rocuronium bromide modifies the induction of anaesthesia with etomidate by reducing the incidence of myoclonic movements and preserves the advantages of etomidate: cardiovascular stability, minimal respiratory depression and cerebro-protective effects.

Keywords - Induction agents, Rocuronium, Myoclonus, Etomidate.

I. INTRODUCTION

Induction agents are drugs that, when given intravenously in an appropriate dose, cause rapid loss of consciousness. They are also used to maintain anesthesia by intravenous infusion, as the sole drug for short procedures done under local anesthesia and to provide conscious sedation in intensive care unit.[1]
Etomidate is an intravenous anaesthetic, a carboxylated imidazole derivative widely used for induction and maintenance of anaesthesia. It is characterized by hemodynamic stability, minimal respiratory depression and cerebro-protective effects. The effect of increased coronary perfusion along with negligent sympathetic response makes it an ideal induction agent of choice in all ischemic heart disease patients.[2]
Etomidate as a hypnotic agent was introduced into clinical practice in 1972and is still widely used due to its several advantages, extremely stable hemodynamic profile, minimal histamine release, cerebral protection, and pharmacokinetics enabling rapid recovery after either a single dose or a continuous infusion. The effect of etomidate on cardiac output, myocardial oxygenation and its wide therapeutic index is approximately 6 fold greater than thiopentone and propofol.[3]
However, it is associated with some disturbing side effects, such as pain on injection, postoperative nausea and vomiting, adrenal suppression, superficial thrombophlebitis and myoclonus.[4]
Pain on injection, superficial thrombophlebitis and hemolysis associated with etomidate induction were related to the vehicle propylene glycol[2], the vehicle has been changed to a fat emulsion (Etomidate-Lipuro). With the new solvent, pain on injection, venous irritation and hemolysis were virtually abolished, however, the incidence of myoclonus during induction was not affected by the solventand 50-80% of patients who did not receive premedication experience myoclonus.The mechanism of etomidate induced myoclonus appears to be disinhibition of subcortical structures that normally suppress extrapyramidal motor activity.[5]
There are few studies which have evaluated the effects of rocuronium on myoclonus after etomidate injection.[6]
This study is aimed to investigate the effects of pretreatment with priming dose of rocuronium on the incidence and severity of myoclonus during anesthesia induction with etomidate.

II. MATERIALS AND METHODS

This study is a prospective, randomized, double blind study conducted in hospitas attached to Bangalore medical college & Research Institute, Bangalore. A written informed consent was obtained from all patients included in the study. As per protocol, clearance was taken from institutional ethical clearance.

Study group: The incidence of myoclonus in the non pretreatment group was estimated to be 80% based on previous studies. To detect a 50% difference in the incidence of myoclonus at a confidence interval of 95% and keeping a power of 80%, a minimum of 35 patients in each group was required.

To increase the validity of the study, we included 40 patients in each group with total sample size of 80.

Inclusion criteria:

- ASA physical status classes I and II.
- Age between 18 and 60 years
- Patients who gave written informed consent

Exclusion criteria:

- Patient not willing to participate in the Study.
- Patients with cardiovascular and respiratory disease.
- Patients with chronic abuse of alcohol and psychotropic agents.
- Patients with hepatic, renal disease and epilepsy.
- Patients with adrenal disease.
- Pregnant and lactating women.

Data collection was undertaken during the period December 2017 and May 2019.

A thorough pre anesthetic assessment was done for all patients the day before surgery. No special investigations were done pertaining to study. Patients were evaluated for any systemic diseases. Basic investigations like hemoglobin, total and differential count, ECG, chest X-ray, urine routine were carried out for all patients. The procedure for general anaesthesia and study was explained to the patients. After obtaining informed written consent from the patients, participation consent and surgeon's consent, 80 patients were randomized using numbers generated from www. Random . org website and assigned to one of the two groups.

Control group: Group S [Saline group]-40 patients

Study group: Group R [Rocuronium group]-40 patients

Patients were advised to fast from night before the day of surgery. They were given tablet alprazolam 0.5mg and tablet ranitidine 150mg previous night.

On the day of surgery, anaesthesia workstation and monitors were checked. Appropriate size endotracheal tubes, working laryngoscope with medium and large sized blades, stylet and working suction apparatus were kept ready before the induction of general anesthesia. Emergency drug tray consisting of atropine, adrenaline, ephedrine were also kept ready for any eventuality.

Once the patients "nil peroral status was confirmed, patients were shifted to operating room (OR). After placing patient in supine position on OR table, an intravenous line was secured. Standard monitoring devices like pulse oximeter (SpO_2), non-invasive blood pressure (NIBP),echocardiogram (ECG),Neuromuscular junction (NMJ) and end tidal carbon dioxide ($ETCO_2$)monitorswere connected. Baseline hemodynamic parameters were assessed.

All patients were pre-oxygenated with 100% oxygen for 3 minutes before induction of anaesthesia and all patients were premedicated with Inj glycopyrrolate 0.01mg/kg IV. The study syringes were prepared by an anaesthetist not involved in the procedure. Patient and anaesthesia provider were not aware of the study drug. Thus both the observer and the patient were blinded. Group R patients received 0.06mg/kg of Rocuronium Bromide diluted to 5ml IV over 30 seconds and the group S patients received 5ml of normal saline over 30 seconds. Oxygen supplementation through mask was given during this period. After 3 minutes of the study drug, Inj etomidate 0.3mg/kg was administered over 30 seconds. Immediately pain on injection and myoclonus evaluation was done. After 2 minutes of etomidate induction, Inj. fentanyl 2µg/kg and inj midazolam 0.05mg/kg was administered, and tracheal intubation facilitated with inj. vecuronium 0.1mg/kg. Anesthesia is maintained as per institutional protocol.

After the surgery, residual neuromuscular block was reversed using inj. Neostigmine 0.05mg/kg and inj glycopyrrolate 0.01mg/kg. Trachea was extubated after adequate recovery of muscle power.

Patients were monitored post-operatively.Patients with nausea or vomiting in the postoperative period received inj. Ondanseton 4mgIV as rescue antiemetics.

Parameters measured:-

1) Heart rate (HR), oxygen saturation (SpO2), systolic blood pressure (SBP), diastolic blood pressure (DBP), mean arterial pressure (MAP), end tidal carbon dioxide (ET CO_2), before premedication, before pretreatment, after premedication, after pretreatment and after etomidate at 5 minutes interval till the completion of surgery.

2) Pain evaluation, myoclonus evaluation, time to extubation (from stoppage of inhalational agent to extubation of trachea) and recovery profile (from stoppage of inhalational agent to opening of eyes) were evaluated accordingly.

3) Immediate post-operative HR, SpO2, SBP, DBP, MAP, RR, nausea and vomiting will be monitored every half hourly for 2 hours.
4) Adverse effects such post-operative nausea , vomiting (PONV) if any were observed.

Statistical Analysis: In our study, all the data needed was extracted onto the paper case information proforma and then converted into electronic data base in excel software. The variables were checked for accuracy and completeness before entry.Results on continuous measurements are presented on Mean±SD(Min-Max) and results on categorical measurements are presented in number (%). Significance is assessed at 5% level of significance.

III. RESULTS

The present study was undertaken in 80 ASA 1 and ASA 2 patients of both sex aged between 18-55 years, scheduled for elective surgeries under general anaesthesia. The patients were divided into 2 groups, Group S (saline) and Group R (rocuronium).

	Group			
	Rocuronium		Saline	
	Mean	SD	Mean	SD
Age (yr)	35.22	11.16	37.10	9.60
Weight (kg)	56.61	10.80	56.55	9.80
Height (cm)	157.87	7.44	156.52	8.50
BMI	22.77	4.36	23.13	3.72

Table 1: General profile of subject's comparison between two groups

In our study, Mean age of subjects in Rocuronium group was 35.22 ± 11.16 years, in saline group was 37.10 ± 9.60 years

Mean weight of subjects in Rocuronium group was 56.61 ± 10.80 Kgs, in saline group was 56.55 ± 9.80 Kgs.
Mean Height of subjects in Rocuronium group was 157.87 ± 7.44 cms, in saline group was 156.52 ± 8.50 cms.
Mean BMI of subjects in Rocuronium group was 22.77 ± 4.36, in saline group was 23.13 ± 3.72.

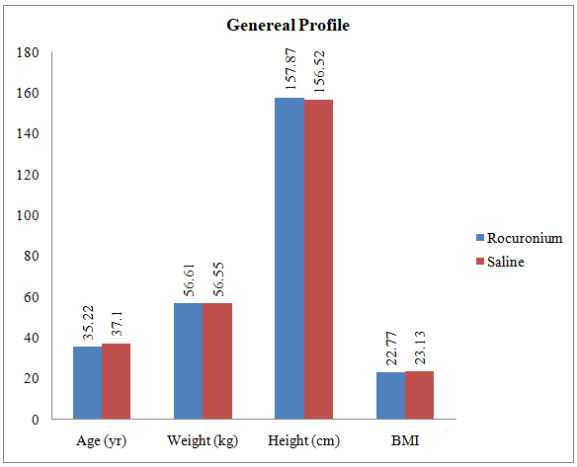

Figure 1: Bar diagram showing General profile of subjects comparison between two groups

		Group			
		Rocuronium		Saline	
		Number	%	Number	%
ASA grade	1	36	90.0%	28	70.0%
	2	4	10.0%	12	30.0%

$\chi 2 = 5$, df = 1, p = 0.025*

Table 2: ASA grade comparison between two groups

In Rocuronium group, 90% had ASA grade 1 and 10% had ASA grade 2, in Saline group, 70% had ASA grade 1 and 30% had ASA grade 2.

		Group			
		Rocuronium		Saline	
		number	%	number	%
MP grade	1	8	20.0%	10	25.0%
	2	29	72.5%	27	67.5%
	3	3	7.5%	3	7.5%

$\chi 2 = 0.294$, df = 2, p = 0.863

Table 3: MP grade comparison between two groups

In Rocuronium group, 20% had MP grade 1, 72.5% had grade 2 and 7.5% had grade 3, in Saline group, 25% had MP grade 1, 67.5% had grade 2 and 7.5% had grade 3. There was no significant difference in MP grade between two groups.

	Group				p value
	Rocuronium		Saline		
	Mean	SD	Mean	SD	
Duration of surgery	97.37	37.19	111.94	33.34	0.084

Table 4: Duration of surgery comparison between two groups

Mean duration of surgery in Rocuronium was 97.375 ± 37.192 min and in saline group was 111.94 ± 33.34 min. There was no significant difference in duration of surgery between two groups.

		Group					
		Rocuronium		Saline		Total	
		number	%	number	%	number	%
Myoclonus grading	0	24	60.0%	10	25.0%	34	42.5%
	1	5	12.5%	4	10.0%	9	11.2%
	2	9	22.5%	14	35.0%	23	28.7%
	3	2	5.0%	12	30.0%	14	17.5%

$\chi 2 = 14.106$, df =3, p = 0.003*

Table 5: Myoclonus grading comparison between two groups

In Rocuronium group, 60% had grade 0, 12.5% had grade 1, 22.5% had grade 2 and 5% had grade 3. In Saline group, 25% had grade 0, 10% had grade 1, 35% had grad 2 and 30% had grade 3. There was significant difference Myoclonus grading between two groups.

		Group				p value
		Rocuronium		Saline		
		number	%	number	%	
Myoclonus grading	Total Incidence	16	40%	30	75%	
	Absent	24	60.0%	10	25.0%	0.0015*
	Grade 1	5	12.5%	4	10.0%	0.3921
	Grade 2	9	22.5%	14	35.0%	0.018*
	Grade 3	2	5.0%	12	30.0%	0.0003*

Table 5: Incidence of Myoclonus comparison between two groups

In the Rocuronium group, 40% had Myoclonus and in Saline group, 75% had Myoclonus. There was significant difference in Myoclonus incidence between two groups. Odds ratio was 4.5. I.e. Incidence of Myoclonus was 4.5 times higher in Saline group than in Rocuronium group.

For Grade 1 Myoclonus, odds ratio was 1.92. There was no significant difference in Grade 1 Myoclonus between two groups.

For Grade 2 Myoclonus, odds ratio was 3.733. I.e. Grade 2 Myoclonus was 3.733 times higher in Saline group compared to Rocuronium group. There was significant difference in Grade 2 Myoclonus between two groups.

For Grade 3 Myoclonus, odds ratio was 14.4. I.e. Grade 3 Myoclonus was 14.4 times higher in Saline group compared to Rocuronium group. There was significant difference in Grade 3 Myoclonus between two groups.

		Group					
		Rocuronium		Saline		Total	
		Count	%	Count	%	Count	%
Pain on injection grading	0	31	77.5%	23	57.5%	54	67.5%
	1	8	20.0%	12	30.0%	20	25.0%
	2	1	2.5%	5	12.5%	6	7.5%

$\chi 2 = 4.652$, df =2, p = 0.098

Table 6: Pain on injection grading comparison between two groups

In Rocuronium group, 77.5% had grade 0, 20% had grade 1 and 2.5% had grade 2. In Saline group, 57.5% had grade 0, 30% had grade 1 and 12.5% had grad 2. There was no significant difference Pain on injection grading between two groups.

	Group				p value
	Rocuronium		Saline		
	Mean	SD	Mean	SD	
Time for loss of palpebral reflex(sec)	42.03	18.25	45.22	8.58	0.319

Table 7: Time for loss of palpebral reflex comparison between two groups

Mean Time for loss of palpebral reflex inRocuronium group was 42.03 ± 18.25 min and in saline group was 45.22 ± 8.58 sec. There was no significant difference in Time for loss of palpebral reflex between two groups.

	Group				p value
	Rocuronium		Saline		
	Mean	SD	Mean	SD	
Baseline	91.68	19.77	85.65	13.03	0.112
After Premed	88.88	16.79	85.83	11.75	0.349
After Pretreatment	88.90	20.69	83.87	10.98	0.183
5min	92.23	18.97	91.32	18.03	0.828
10min	95.20	22.89	87.80	11.73	0.073
15min	89.62	16.12	85.38	12.72	0.198
20min	90.64	16.41	85.05	13.07	0.098
25min	89.54	17.56	85.35	12.37	0.223
30min	90.23	17.00	84.15	11.91	0.069
35min	**92.62**	**16.68**	**83.90**	**10.81**	**0.007***
40min	89.82	16.21	84.40	12.31	0.100
45min	89.13	16.16	83.80	12.77	0.109
50min	88.24	15.89	84.13	13.23	0.221
55min	88.16	16.34	82.90	12.55	0.118
60min	87.36	15.81	81.97	12.69	0.107
1hr5min	83.70	14.21	82.23	12.55	0.643
1hr10min	84.90	16.28	84.54	12.88	0.917
1hr15min	80.58	14.54	85.20	11.90	0.187
1hr20min	81.65	15.89	86.20	13.69	0.250
1hr25min	80.65	15.24	83.67	13.86	0.456
1hr30min	81.74	12.86	83.74	12.72	0.584
1hr35min	83.25	11.77	87.07	13.30	0.312
1hr40min	86.35	13.62	89.32	13.74	0.473
1hr45min	83.06	17.80	86.91	11.68	0.426
1hr50min	84.85	14.89	89.53	11.98	0.333
1hr55min	83.64	13.76	87.06	13.61	0.523
2hr	81.33	12.87	88.76	11.48	0.145
2hr5min	80.56	14.66	86.79	13.64	0.311
2hr10min	81.11	14.98	90.57	15.45	0.162
2hr15min	80.43	18.38	88.40	8.88	0.250
2hr20min	84.40	22.80	85.00	7.84	0.946
2hr25min	84.20	24.25	85.63	10.07	0.884
2hr30min	80.40	19.55	85.50	10.21	0.545
2hr35min	81.75	23.07	84.63	10.13	0.764
2hr40min	75.50	25.68	91.50	13.43	0.177
2hr45min	77.50	25.09	94.00	17.56	0.252

Table 8: Intraoperative heart rate (HR) comparison between two groups at different time intervals

In the study there was significant difference in mean Intraoperative Heart rate between two groups at 35 min. At this interval mean HR was significantly higher in Rocuronium group compared to saline group. There was no significant difference in mean HR between two groups at other intervals.

In our study there was significant difference in mean Intraoperative SpO2 between two groups at 50min and 60 min. At these intervals mean SpO2 was significantly higher in Saline group compared to Rocuronium group.

There was significant difference in mean Postoperative SpO2 between two groups at 1hr and 2hr. At these intervals mean SpO2 was significantly higher in Saline group compared to Rocuronium group. Mean SpO2 maintained above 99% at all times.

There was no significant difference in mean SpO2 between two groups at other intervals.

There was no significant difference in mean SBP between two groups at all intervals.

In the study there was significant difference in mean Intraoperative DBP between two groups at Baseline, after premed, after pretreatment, 5min, 10 min, 15 min and 25min. At these intervals mean DBP was significantly higher in Saline group compared to Rocuronium group. Mean DBP maintained above 70 mmHg at all times.

There was no significant difference in mean DBP between two groups at other intervals.

In the study there was significant difference in mean Intraoperative MAP between two groups at after premed, after pretreatment, 5min, 10min, and 15 min. At these intervals mean DBP was +significantly

higher in Saline group compared to Rocuronium group. Mean MAP maintained above 85mmHg at all intervals.

There was no significant difference in mean MAP between two groups at other intervals.
In the study there was significant difference in mean Intraoperative EtCo2 between two groups at 5 min to 25 min, 40 min, 50 min, 1hr10min, 1hr15min and 1hr20min. At these intervals mean EtCo2 was significantly higher in Saline group compared to Rocuronium group.
There was no significant difference in mean EtCo2 between two groups at other intervals.

In the study there was no significant difference in mean RR at Postoperative respiratory rate (RR) between two groups.
Mean Time taken for onset (TOF-0) in Rocuronium group was 3.75±0.776 and in Saline group was 4.1±0.777 min. There was significant difference in mean time for onset between two groups.

Mean Duration (TOF-3) in Rocuronium group was 51.35±4.179 and in Saline group was 50.55±4.361 min. There was no Significant difference in mean duration between the two groups.

Mean recovery profile in Rocuronium group was 351.20 ± 187.21 min and in Saline group was 245.23 ± 119.38 sec. There was significant difference in mean recovery profile between two groups.
Mean Time To Extubation in Rocuronium group was 368.88 ± 189.77 min and in Saline group was 265.77 ± 123.30 sec. There was significant difference in mean Time To Extubation between two groups.

Post operative nausea grade was significantly higher in Rocuronium group at ½ hr and 1½hr compared to Saline group. At other intervals there was no significant difference in Post operative nausea between two groups.
In the study there was no significant difference in post operative vomiting grade between two groups from 0 hr to 2 hrs.

		Group			
		Rocuronium		Saline	
		Count	%	Count	%
Drugs	Nil	30	75.0%	31	77.5%
	Ondansetron	10	25.0%	9	22.5%

$\chi 2 = 0.069$, df =1, p = 0.793

Table 9: Drugs comparison between two groups at different time intervals

In Rocuronium group, Ondansetron was used in 25% of subjects and in Saline group, Ondansetron was used in 22.5%. There was no significant difference in drugs used between two groups.

IV. DISCUSSION

Induction of general anesthesia initially began with gases or vapours, which was anunpleasant experience for patients. The introduction of intravenous anaesthetic agentswas a milestone in the development of anesthesia[1].Etomidate is an intravenous anaesthetic, a carboxylated imidazole derivative widely used for induction and maintenance of anaesthesia. The beneficial properties of etomidate include hemodynamic stability, minimal respiratory depression, cerebral protection, rapid recovery after a single dose or continuous infusion[2]. However it has limitation of inducing myoclonus. Myoclonus is observed in 50-80% of patients after etomidate administration. Etomidate could induce myoclonic movements as a side effect in unpremedicated patients during induction of anesthesia with unknown mechanism. Myoclonus has made etomidate an undesirable drug to many anesthesiologists[3,4,5,6].
Our study was a prospective randomized double blind controlled study carried out at hospitals attached to Bangalore Medical College and Research Institute, Bengaluru. 80 ASA I and II patientsundergoing elective surgery were randomized into 2 groups of 40 patients in each.Group R patients received 0.06mg/kg of Rocuronium Bromide diluted to 5ml IV over 30 seconds and the group S patients received 5ml of normal saline over 30 seconds as pretreatment. Patients in our present study were middle aged (42.5 ± 17.3 years old) and not very sick (ASA I–II). Although it is speculated that a young age could influence the incidence of myoclonus, we have found no such influence of age on the incidence of myoclonic movements after etomidate administration. As the power analysis of the present study was based on the assumption that 50% of patients would experience myoclonic movements, the finding of such movements in almost half of the patients in the control group implies that the present investigation is well designed and reflects the estimate of a population parameter. In the light of the observation of a 30% reduction in the incidence of myoclonus in our study, we assume that our results could be of clinical value.
In our study, the demographic data were comparable for age, sex, weight. BMI, ASA grade, type of surgeries and duration of surgeries in both the groups.

A study conducted by Salman N and group to compare the efficacy of pretreatment with dexmedetomidine 0.5µg/kg IV over 60s and midazolam 0.25mg/kg on etomidate induced

myoclonus, it was observed that both agents did not cause severe myoclonus. There was no statistically significant difference in mild and moderate myoclonus between the two groups.[16]

In our study no significant difference in recovery profile and time to extubation wasobserved between the two groups.

Low-dose priming with rocuronium could effectively suppress etomidate-induced myoclonus. This study provides valuable clinical data to be used in many hospital settings. By using low-dose rocuronium as premedication, etomidate as a valuable drug could be properly used in induction of anesthesia without myoclonus as a prominent adverse effect.

V. CONCLUSION

Pretreatment with priming dose (0.06mg/kg) of rocuronium bromide modifies the induction of anaesthesia with etomidate by reducing the incidence of myoclonic movements and preserves the advantages of etomidate: cardiovascular stability, minimal respiratory depression and cerebro-protective effects.

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REVIEW OF ORGANIZATIONAL CLIMATE AND EMPLOYEES WORK PERFORMANCE IN LIQUOR INDUSTRY IN INDIA

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Abstract -

Organizational climate represents the condition of the organization's culture and the most common management issue faced by organization in this present day is search for creative flexible work environment that promotes job satisfaction and innovation. Being drained by fiscal constraint, downsizing, and outsourcing requires organization to change dynamics in the workforce that is accommodating. As today's businesses continue to struggle to survive or acquire sustainable competitive advantage, it is important for organizations to better understand the factors that influence employees and important employee-oriented work outcomes. The growing significance placed on understanding employees and their behavior within the organization has produced a great deal of interest in investigating employee perceptions of climate within the organization.

Liquor industries are operating in a highly competitive scenario and they are bound by strict compliance and excise norms and law. There are a lot of restrictions imposed by the government on advertisement and promotion of liquor and even surrogate advertisement is controlled to a great extent. In this scenario, liquor industries rely heavily on their manpower for higher productivity in order to get an edge over competition and it is pertinent to note that they need to differentiate themselves from each other. The Organizational climate varies from organization to organization and from time to time in the case of same organization. Organization climate may have positive and negative effect on employee behavior and in return organizational performance. For organizations, the 'climate' may be regarded in absolute terms and measured by instruments, but is 'felt' differently by individuals. The absolute climate may suit one person and not another. "What it's like to work here" or 'How I feel when I work here". Climate is worthwhile to understand and measure because there are organizational and human benefits a 'good' climate, and powerful disadvantages of many kinds of bad climate. So it is necessary that the management of corporations should strive to create a congenial organizational climate in the organizations to improve the economic condition of the country.

Keywords - Organizational Climate, Work Performance, Liquor Industry, Dimensions of Organizational Climate, Determinants of Organizational Climate, Organizational Climate Questionnaire (OCQ).

I. INTRODUCTION

1. Organizational Climate

Organizational Climate can be defined as the shared perceptions, feelings and attitudes organizational members have about the fundamental elements of the organization which reflect the established norms, values and attitudes of the organization's culture and influence individuals' behavior either positively or negatively. (Castro, M., & Martins, N., 2010).

Basically, the organizational climate reflects a person's perception of the organization to which he belongs. It is a set of unique characteristics and features that are perceived by the employees about their organizations which serves as a major force in influencing their behavior.

Organizational climate can also be termed as the quality of working environment. A healthy or-ganizational climate is created by factors influencing employee's perceptions, which include leadership quality, the decisions making process and recognition of employee's efforts. Every organization is uniquely different in its structural characteristics. Thereby each organization deals with its member, influenced through policies as on allocations of resources, communication pattern, reward & penalty and leadership & decision making procedure. The feelings, attitudes and behavior of its members as influenced by the adopted organizational policy, results in the creation of a unique organizational climate.

Many a times the term Organizational culture and Organizational climate are used interchangeably, but there is a clear distinction between the two terms. Organizational culture is defined as a set of shared values and norms held by employees that guide their interactions with peers, management, and clients whereas Organizational climate represent employees' perceptions of organizational policies, practices, and procedures, and subsequent patterns of interactions and behaviors that support the same. Thus climate can be understood as a surface manifestation of culture. It is more behaviorally oriented

In his book Organizational Climate and Culture (1990) Benjamin Schneider clearly states the differences between Climate & Culture summarized below:

Organizational Climate

- How members feel about the organization
- Comes from shared perceptions and attitudes about the organization's daily functioning

- Generally, a short-term experience, depending on a network of personalities in an organization
- Changes as people come and go
- Organizational culture
- A longer lasting and more complex set of shared experiences than climate
- Consists of shared attitudes, values, goals, and practices that characterize the larger institution over time
- Deeply rooted in long-held beliefs customs, and practices
- Leaders use culture to let people know they are part of something bigger than just themselves.

II. WORK PERFORMANCE

Work performance is an individual output in terms of quality and quantity expected from every employee in a particular job. Individual performance is most of the time determined by motivation and the will and ability to do the work. Work performance of an employee is the sum of all the work related activities expected of an employee and how well those activities arebeing executed. It has been indicated that when employee feels happy about work related tasks then their performance is increased and they execute tasks in better way. Performance is the outcome of work in an efficient way with considerable obligation for organization without interrupting any law and organizational goals. Job performance is one of the most important dependent variables and has been in studies for a very long times. Borman and Motowidlo stated that there are two types of employee behavior that are necessary for organizational effectiveness: task performance and contextual performance. Task performance means behavior that directly results in producing goods or service, also activities that provide indirect support for the organizations core technical processes (Werner, 2000). Contextual performance means the activities that contribute to the social and psychological core of the organization and is beginning to be viewed as equally important to task performance.

III. LIQUOR INDUSTRY IN INDIA

India's alcohol industry is the third largest in the world with a value of $35 billion. Other than India being the largest consumer of Whiskey in the world, Wine is becoming extremely popular especially among women in India and there is 22.8% growth in the Vodka's demand. The market is created by the demand and supply of products and millennia's have changed the liquor industry's demand and increased it to multiple folds. Growing income leading to rising spending power mixed with access to alcohol at restaurants and liquor stores is the reason for such a remarkable increase in demand.

The industry is divided into three categories: Indian Manufactured Foreign Liquor (IMFL), beer, and homemade liquor. Whiskey dominates the IMFL category, and India has the largest whiskey industry in the world. India-based United Spirits Limited's McDowell's No. 1 is the most prominent whiskey. Its Royal Challenge and Bagpiper are also popular. Other prevalent whiskeys include French Pernod Ricard's Imperial Blue, Seagram's Blender's Pride, and Royal Stag and Japanese Beam Global's Teacher's. Rum is the second most common spirit in India. India-based Mohan Meakin Ltd.'s Old Monk is popular. Gin and vodka also comprise the IMFL category, growing in demand among urban youth and women. Bermuda-based Bacardi's Bombay Sapphire gin and U.K.-based Diageo's Smirnoff vodka are top products. Revenue in the Alcoholic Drinks market is expected to grow annually by 7.9% (CAGR 2018-2021).

"India Whisky Market Outlook, 2023" report suggests that consumption of alcohol in India will reach 16.8 billion liters by the year 2022and the following points add to the market trends and development:

Change in consumer preferences to premium products: The customer has become more aware and evolved with the quality of alcohol it consumes. The drinking habits of people have changed, which is why the demands are growing. Even companies are trying their best to take advantage of the demand through their supply.

Changing the packaging of products: The alcohol industry is doing it's bit to keep the customers engaged and active by changing its packaging and adding different flavors as per customer's choice. The liquor industry has changed the packaging to recyclable and reusable products to reduce packaging prices and easy for the customers to carry.

Change perception towards consumption of alcohol: Now no celebration is complete without tossing glasses of alcohol, be it family gathering or professional parties. The perception towards the consumption of alcohol has changed and the millennial especially is too casual about the habit of consuming alcohol.

Increasing Stress in Life: The continuous work pressure, imbalanced life has led to the stressful life of the millennial and this is taken as a reason why consumption of alcohol has increased and the demand is created in the market.

Increasing parties and the presence of Alcoholic products in them: Reports state: 33% of the total population in India is made up of millennial (aged 20-39 years old) according to our 2018 projections, which will help boost beer consumption, as drinking increasingly becomes part of social interactions.

IV. LITERATURE REVIEW

In the 21st century, organizations are confronting more difficulties than ever before. These obstacles are not one of a kind to a particular industry or organization, but rather influence all organizations, regardless of their structure or size. Organizational climate specifically is always challenged by the increasing number of changes affecting organizations (Nair, 2006). To survive and compete their rivals, organizations are continually looking to enhance their execution.

Brown and Leigh (1996) believe that organizational climate is ending up more imperative than ever before due to organizations need to guarantee that those people who increase the value to the standard will need to remain in the organization and will need to keep pouring their exertion into their work to the advantage of the organization.

Researchers have been keen on seeing how employees' view of the work environment impact their level of employment fulfillment in the studies of Mayo's (1933) at Western Electric. These studies found that environmental elements impact worker efficiency and confidence.

Bisconti and Solomon (2003) stated that an organizational climate that permits a high level of autonomy and supports relationships among companions, supervisors and subordinates brings about more fulfilled workers.

Organizations that can create environments that employees see as benign and in which they can accomplish their maximum capacity are viewed as a key source of competitive advantage (Brown & Leigh, 1996). Organizational climate can accordingly be viewed as a key variable in effective organizations.

Organizational climate can be viewed as an illustrative idea that mirrors the regular view and understanding of all individuals with respect to the different components of the organization, for example, structure, frameworks and practices (McMurray, 2003). Hence, organizational climate essentially basically alludes to the experience of employees in the organization.

The idea of organizational climate centers bases on discernment. Brown and Brooks (2002) describe climate as the "feeling in the air" and the "atmosphere that employees perceive is created in their organizations due to practices, procedures and rewards." Based on these clauses, obviously the individual view of employees in the organization affects the climate.

Despite the fact that people contrast in the method they perceive, analyze and interpret information, the climate introduce in the organization is an aggregate view or recognition (Dormeyer, 2003) as climate is the individual's perceptual or psychological description (Al-Shammari, 1992).

Measuring Organizational Climate

Organizational climate measures attempt to assess organizations in term of dimensions that are thought to capture or describe perceptions about the climate. Different definitions of organizational climate as mentioned earlier show a general disagreement among researchers on what actually constitutes the climate construct. As a result, several researchers tried to construct their own dimensions that form organizational climate, which eventually will produce several types of climate. Basically, according to Ainuddin and Ling (1998), different organizations with different practices and procedures will have different climate constructs since organizational climate deals with inter-perceptions of employees toward their own organization. Perceptions about climate can be measured by questionnaires such as that developed by Litwin and stringer (1968) which covers eight categories:

1. Structures – feelings about constraint and freedom to act and the degree of formality or informality in the working atmosphere;
2. Responsibility – the feeling of being trusted to carry out important work;
3. Risk – the sense of riskiness and challenge in the job and in the organization;
4. Warmth – the existence of friendly and informal social groups;
5. Support – the perceived helpfulness of managers and co-workers;
6. Standards – the perceived importance of implicit and explicit goals and performance standards; the emphasis of doing a good job;
7. Conflict – the feelings that managers and other workers want to hear different opinion;
8. Identity – the feeling that you belong to a company; that you are valuable member of a working team.

A review of a number of questionnaires was carried out by Koys and De Cotiis (1991), which produced the following eight typical dimensions of organizational climate:

1. Autonomy – the perception of self-determination with respect to work procedures, goals and priorities;
2. Cohesion – the perception of togetherness or sharing within the organization setting, including the willingness of members t provide material risk;
3. Trust – the perception of freedom to communicate openly with members at higher organizational levels about sensitive or personal issues, with the expectation that the integrity of such communications will not be violated;
4. Resource – the perception of time demands with respect to task competition and performance standards;
5. Support – the perception of the degree to which superiors tolerate member's behavior, including

willingness to let members learn from their mistakes without of fear of reprisal;
6. Recognition – the perception that members' contributions to the organization are acknowledged;
7. Fairness – the perception that organizational policies are non-arbitrary or capricious;
8. Innovation – the perception that change and creativity are encouraged, including risk-taking into new areas where the member has little or no prior experience.

Research at IBM showed the increasing importance of workplace climate on employee job satisfaction, creativity, motivation and retention. Recognizing the importance of workplace climate, that eventually decides the success and failure of the organization has prompted IBM to make adjustments and P. Yukthamarani Permarupan et al. / Procedia - Social and Behavioral Sciences (2013) set best practices which in turn has helped the organization to stay on top and become one of the major corporation in the world (Nair, 2006). Limelight on enhancing employee performance needs to be at the top of every organization's agenda. Nurturing a positive workforce climate is no longer seen as a simply an attractive option; it is a business vital. Climate has a tangible effect on employees' motivation. A good working climate boosts employee morale, loyalty and productivity. There are 6 different dimensions of climate (established by Hay Group as in Nair, 2006) as below in Table 1

Dimension	Item
Clarity	• Knowing what is expected from you; • Understanding how those expectations relate to the goals of the organization.
Standards	• Emphasis that management puts on improving performance; • Degree to which challenging but attainable goals are set; • Extent to which mediocrity is not tolerated.
Responsibility	• Feeling that you have authority delegated to you; • Feeling that you can do your job without being micromanaged; • Accountability.
Flexibility	• Degree to which you feel there are no unnecessary rules or procedures; • Feeling that new ideas are easy to get accepted.
Rewards	• Being recognized for good work; • Degree to which recognition is directly related to levels of performance.
Team Commitment	• Feeling proud and expressing pride in belonging to the organization; • Trusting that everyone works towards a common objective; • Working positively together and cooperating across organizational structures.

Table 1: Dimension and Items for Organizational Climate

Types of Organizational Climate

Besides constructing various measurements of organizational climate, different scholars also formed numbers of organizational climate types, which show different kind of work atmosphere perceived by staff. Using Organizational Climate Description Questionnaire (OCDQ) with eight dimensions of organizational climate, Halpin and Croft (1963), conducted their own research among school managers and teachers of elementary schools in Chicago, while Alavi and Jahandari (2005) conducted it among university staff in Iran. Both studies by Halpin and Croft (1963) and Alavi and Jahandari (2005) produced the same types of climate, which consisted of six types of climate, range according to the rate of their openness, as follows:

1. Open: This has characteristics of high motivation for personnel, while the manager and the personnel have honesty and sincerity in their behavior. The personnel work well with each other and are committed to their duties because the manager's leadership is realistic.
2. Autonomous: There is no necessity for close supervision (emphasis on production) or a set of rules and regulations
3. Controlled: The emphasis is on the duties of the personnel, but little emphasis on the personnel's relationships
4. Familiar: A loving environment but without attention to the efficiency
5. Paternal: With emphasis on commandments and continuous supervision
6. Closed: Within closed organizational climate, the manager has a close supervision (emphasis on production). Disappointment and indifference are seen in the personnel.

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PREPARATION AND EVALUATION OF POLY HERBAL GEL CONTAINING EXTRACT OF AEGLE MARMELOS, CALENDULA OFFICINALIS, FENUGREEK AS AN ANTIMICROBIAL AGENT

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Abstract -
Background: -Ayurveda is most traditional and oldest Indian healing systems. The beliefs behind Ayurveda are that it has no side effects prevent unessential problems and provide a healthy and long life. Ayurveda means the use of natural resources to remove the main cause of disease. Herbal remedies have been around the world for a long time and have been used in ancient Chinese, Greek, Egyptian, and Indian medicine for various medicinal purposes.
Aegle Marmelos (Bael) leaf extract is taken twice daily to treat ophthalmia, ulcers, and intestinal worms, among other ailments. Poultice made from bael leaf is used in the treatment of eye conditions. Leaf juice has a variety of therapeutic applications, with the most notable being the treatment of diabetes.
Fenugreek is used to cure red spots around the eyes, as well as to soften the throat and chest and to give relief from coughing. To the use of this plant in the form of infusion, powder, pomade, and decoction have been extremely popular in Iranian traditional medicine. The plant may be used to wash one's vaginal linings. This plant is used as an emollient in the lack of appetite, treatment of pellagra, and gastrointestinal problems, as well as a general tonic
Calendula officinalis leaves are used to treat varicose veins on the outside of the body by infusing them. In Europe, the leaves are diaphoretic and resolvent in nature, while the blooms are employed as an emmenagogue, and antispasmodic stimulant in the Canada and United States. The flowers were decocted and served as a posset drink when smallpox and measles were common in England, and the fresh juice was used to treat jaundice
There is a various type of plants that have medicinal property and they are widely used in the treatment of diseases related to skin. They are also used because of their antibacterial activity. The use of gel on the affected areas offers significant benefits in the immediate release of the drug directly into the affected site when compared to ointement and cream.
Today, the “rejuvenation” of Ayurvedic Poly Herbal Formulations has occurred worldwide, due to their comparative effectiveness, fewer side effects and better acceptance than allopathic medicines.
Objective: -This study is done for the preparation and evaluation of poly herbel gel Containing extract of the leaves ofAegle Marmelos, Calendula Officinalis, and Fenugreek.
Materials and Methods: -In the present study we prepared gel formulations (formulations 1 to 5) which comprised of extract of the leaves ofAegle Marmelos, Calendula Officinalis, and Fenugreek. The base was prepared by using carbapol 940, propylene glycol- 400, ethanol, methyl paraben, propylparaben, EDTA, triethanolamine and required amount of water in a quantity sufficient to prepare 25 g. The prepared formulations were screened for their antimicrobial activity by agar well diffusion technique against *S. aureus*. The formulations were also evaluated for appearance, pH, viscosity, spreadability, extrudability.
Result: -The results of the studies revealed that all formulation from F1 – F5 under study showed better zone of inhibition as compared with the base. However, formulation F2 exhibited maximum activity against the selected strains which may be attributed to its greater amount of herbal extracts as compared to other formulation.
Conclusion: -In this study we have found that these formulations Showes antimicrobial activity and can be used safely on human skin.

Keyword - AegleMarmelos, Calendula Officinalis, Fenugreek, Poly herbal Gel.

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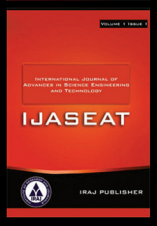

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in the "3rd International Conference on Engineering and Advancement in Technology" held on 8th & 9th July 2022.

Dr. S.Vijayakumar, M.Tech., Ph.D
Vice-Chairman
IEEE Product Safety Engineering Society

Dr. Maram Ashok
Professor & Principal
Malla Reddy Institute of Engineering and Technology

Dr. Y. Rajasree Rao
Convener - ICEAT
Dean Academics, MRIET

K.Janani, M.Tech.,
Advisor, ICEAT

ICT4SD 2021
Summit Cum Awards

6th INTERNATIONAL CONFERENCE ON

ICT FOR SUSTAINABLE DEVELOPMENT

GOA, INDIA | 5 - 6 AUGUST 2021

Certificate

This is to certify that

PRAVEENKUMAR S. M.

digitally participated in 6th International Conference on Information and Communication Technology for Sustainable Development (ICT4SD 2021) held during August 5 - 6, 2021. The conference was held through digital platform ZOOM.

He / She also presented a paper titled

Real-Time Multi-Object Tracking of Pedestrians in a Video using Convolution Neural Network and Deep SORT

The paper has also been selected for publication in the (ICT4SD) conference as per fulfilment of guidelines issued by Springer.

We wish the authors all the very best for future endeavors.

BHARAT PATEL	SHYAM AKASHE	AMIT JOSHI	MIHIR CHAUHAN
Conference Chair	TPC Chair	Organizing Secretary	Program Secretary

GR FOUNDATION | KNOWLEDGE CHAMBER OF COMMERCE AND INDUSTRY | Springer | SPRINGER NATURE | Goa Chamber of Commerce & Industry | GR SCHOLASTIC | INTER VIT | ifip 60 YEARS

G R SCHOLASTIC LLP

Receipt No :	234

RECEIPT

Date :	04.08.2021

Received with thanks the sum of INR: Twenty-One Thousand Eight Hundred And Fourty

Mode of Payment : Online Payment

ICT4SD Ref. No : 202122584

M/S : Praveenkumar S M

INR	₹ 21840/-

Sixth International Conference on ICT for Sustainable Development
Date : August 5th - 6th, 2021
Conference Venue : Hotel Vivanta Panji, Goa

For, G R SCHOLASTIC LLP

G R SCHOLASTIC LLP
G/R Scholastic
G R SCHOLASTIC LLP

Authorized Signature

CERTIFICATE

OF PARTICIPATION

ZEMCH 2021
8th Zero Energy Mass Custom Home International Conference
26-28 October 2021
United Arab Emirates University, Al Ain, UAE

THIS CERTIFICATE IS AWARDED TO

Ar. Rohini Maligi

Has Presented a Paper entitled : Re-envisioning Indian informal market places towards resilient and sustainable development-A Case of Durgadbail Hubballi, India

In the 8th **Z**ero **E**nergy **M**ass **C**ustom **H**ome (ZEMCH 2021) International Conference in Dubai, United Arab Emirates, from the 26th to 28th of October 2021.

Prof. Kheira Anissa Tabet-Aoul
ZEMCH2021 Conference Chair,
United Arab Emirates University, UAE

Dr. Masa Noguchi
ZEMCH President,
University of Melbourne, Australia

UAEU جامعة الإمارات العربية المتحدة United Arab Emirates University

ZEMCH NETWORK

KLE TECH.

KLE Technological University

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School of Architecture

To,

The Registrar,
K.L.E. Technological University,
Hubli-31

Date: 7/10/2022

Respected Sir,

Subject: Regarding International Conference and Research Paper Publication

We have submitted and presented our research Full Paper titled "Re-envisioning Indian Informal Market places towards resilient and sustainable development – A Case of Durgadbail, Hubballi, India" for Zero Energy Mass Custom Home 2021 International Conference (ZEMCH-2021) held on 26th to 28th October 2021. The proceedings of the conference are published in the Open Access Proceedings (ISSN 2652-2926) with Scopus indexation. Full paper has been accepted and published. The author fees for the conference paid is 440 AED approximately Rs. 9,100/-.

Kindly reimburse the paid fees and do the needful.

Regards

Prof. Rohini Maligi
Prof Deepa Mane
Prof Gitanjali Rao
School of Architecture
KLE Technological University, Hubballi

Forwarded to the Registrar for consideration & approval.

Head, School of Architecture
KLE Technological University
BVBCET Campus, Hubballi-31.

REGISTRAR

7/10

Enclosed:About the conference, TransactionReceipt of Author Conference Participation Fees

Sunith medma.
17/10/22

11/10 BP. Peon BP Sir.

UNIVERSITÀ DEGLI STUDI FIRENZE

IEREK
RESEARCH & KNOWLEDGE ENRICHMENT

Certificate of Appreciation

This certifies that

Kalpeshkumar Patel

has presented with a research paper titled

Restructuring the Public Transportation of Hubballi Dharwad by Bus Rapid Transit System

in the international conference titled Urban Planning & Architectural Design for Sustainable Development (UPADSD) 6th Edition, from the 14th - 16th of September, 2021.

Prof. Francesco Alberti
Professor at the Department of Architecture (DiDA), University of Florence, Florence Italy.

Dr. Mourad S. Amer
Architect, B5c, DSc, MSc, PhD
IEREK CEO

KLE Technological University
Creating Value
Leveraging Knowledge

School of Architecture

To,
The Registrar,
K.L.E. Technological University,
Hubli-31

Date:07/10/2022

Respected Sir,

Subject: Regarding International Conference and Research Paper Publication

I have participated and given a presentation on my research titled "Restructuring the Public Transportation of Hubballi Dharwad by Bus Rapid Transit System" for Urban Planning and Architectural Design for Sustainable Development International Conference (UPADSD) 6th Edition held on 14th to 16th September 2021. The proceedings of the conference will be published. The author fees for the conference paid is 250 Euros approximately Rs. 22,500/-.

Kindly reimbursed the paid fees and do the needful.

Forwarded to The Registrar for Consideration and Approval

Regards

Kalpeshkumar Patel
Associate Professor, KLETECH

Dr. Vinaya Hiremath
Prof & Head, SOA KLETECH

Head, School of Architecture
KLE Technological University
BVBCET Campus, Hubballi-31.

REGISTRAR

Enclosed: About the conference, Certificate of Appreciation, Receipt of Author Conference Participation Fees

Sunitha. Madam
17/10/22

11/10 RAP

7/10

Pech RAP sign

Date: 22nd June 2022

To,
The Registrar,
KLE Technological University,
Vidyanagar,
Hubli

Dear Sir,
Sub: Expenditure claim for attending IIA NATCON 2021 at Novotel, HiTech City, Hyderabad

From 14th May to 16th May 2022, Faculty Kalpeshkumar Patel attended IIA NATCON 2021 Conference at Novotel, Hi Tech City, Hyderabad

Following are expenses incurred

#	Particulars	Amount
1	Registration Fees	2500-00
2	Travelling – Train Ticket –Hubballi to Kachiguda – 13th May 2022	1109-00
3	Travelling – Train Ticket –Kachiguda to Hubballi – 16th May 2022	978-00
4	Travelling from Hi Tech city, Madhapur to Kachiguda Station - 16th May 2022	1135-00
5	Voucher for Daily Allowance Rs. 500 x 4 days (13, 14 , 15 & 16 May 2022)	2000-00
	Total	**7,722-00**

In words Rupees Seven Thousand, Seven Hundred and Twenty Two only

Kalpeshkumar Patel

Head, School of Architecture
KLE Technological University
BVBCET Campus, Hubballi-31.

Pay as per the norms

Enclosed – Permission Letter & Bills
Note: The amount to be transferred to the account of Kalpeshkumar Patel.

27/06/22

MIT CAMPUS HOSTELS

Manipal, Karnataka-576 104

Sl. NO 19853

ROOM ALLOTMENT SLIP
FOR PARENTS / GUESTS

Date: 30/6/22

Name : Laxmikant R. PATIL Telephone No:

Room No.: XV - SAC Type: 826

Purpose : DST Workshop Machine learning

From : 27/6/22 To: 29/6/22 No. of Days: 3

Charges per day: Rs.: ₹500 Total Charges: Rs.: 1500/-

Guest Signature with date

HOSTELS * 576 104 * MANIPAL

Warden

Care taker

MIT CAMPUS HOSTELS

Manipal, Karnataka-576 104

Sl. No 1985

ROOM ALLOTMENT SLIP
FOR PARENTS / GUESTS

Date: 29/6/22

Name : Dr. V. S. Hombal; Mrs. Telephone No:

Room No.: XV - Block - 828 Type: SAE

Purpose : DST Work shop Machine learning

From : 27/6/22 To: 29/6/22 No. of Days: 3

Charges per day: Rs.: 500 Total Charges: Rs.: 1500/-

Guest Signature with date

Care taker

MIT HOSTELS MANIPAL-576104

Warden

MANIPAL
ACADEMY of HIGHER EDUCATION
(Deemed to be University under Section 3 of the UGC Act, 1956)

e-Receipt

Registration No:	RMITMA0287_000055
Order ID:	O_ATMITMA0287_000076
Transaction ID:	11000104028959
Receipt No:	recMITMA0287_000031
Date:	01 Jun 2022
Institution/Department:	KLE Technological University Hubballi
Name:	Laxmikant R Patil
Application No:	RMITMA0287_000055
Fee amount(in figures):	2360.00
Fee amount(words):	Two Thousand Three Hundred Sixty Only
This is a computer-generated document and it does not require a signature	

MAHE Conference & Workshop

RECEIPT

Receipt No: **CR00026685**

Date: **06/07/2022**

Received From: **Dr V S Hombalimath**

NR **Two Thousand Three Hundred Sixty Only**

On Account of: **Dr V S Hombalimath, KLE Technological University, Hubballi-Reg fee for DST SERB sponsored workshop on machine learning & control**

Ref Type	Ref No	Ref Date	Bank Desc	Branch Name	Amount INR
CA	MMT/IMPS/218713032755	06/07/2022	ICICI BANK LIMITED	MANIPAL	2360.00

ORIGINAL

DEVAN

MANIPAL ACADEMY OF HIGHER EDUCATION
MANIPAL
576104

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

Department of Instrumentation and Control Engineering

CERTIFICATE OF PARTICIPATION

This is to certify that

Dr Laxmikant R Patil
KLE Technological University Hubballi

has Participated the DST-SERB and ISSE Manipal Chapter sponsored three-day workshop on

"Machine Learning Concepts for Modeling and Control of Nonlinear Systems"

organized by **Department of Instrumentation and Control Engineering,**
Manipal Institute of Technology, Manipal, between June 27-29, 2022.

HEAD
DEPT. OF BIOTECHNOLOGY
K.L.E. TECHNOLOGICAL,
UNIVERSITY, HUBBALLI-31.

Dr. Thirunavukkarasu Indiran
Convenor

Dr. Shreesha. C
HOD-ICE

Dr. (CDR). Anil Rana
Director-MIT

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

Department of Instrumentation and Control Engineering

CERTIFICATE OF PARTICIPATION

This is to certify that

Dr V. S. Hombalimath

KLE Technological University, Hubballi

has Participated the DST-SERB and ISSE Manipal Chapter sponsored three-day workshop on

"Machine Learning Concepts for Modeling and Control of Nonlinear Systems"

organized by **Department of Instrumentation and Control Engineering,**

Manipal Institute of Technology, Manipal, between June 27-29, 2022.

HEAD
DEPT. OF BIOTECHNOLOGY
K.L.E. TECHNOLOGICAL,
UNIVERSITY, HUBBALLI-31.

Dr. Thirunavukkarasu Indiran
Convenor

Dr. Shreesha. C
HOD-ICE

Dr. (CDR). Anil Rana
Director-MIT

KLE Technological University

Earlier known as
B. V. B. College of Engineering & Technology

Date: 16-06-2022

To,
The Registrar,
KLE Technological University,
Hubblli.

Subject: Permission for attending DST- SERB Sponsored workshop on **"Machine Learning Concepts for Modelling and Control of Nonlinear Systems"** organized by MIT, Manipal.

Respected Sir,

With reference to the above cited subject, we request you to kindly grant permission to attend DST- SERB Sponsored workshop on "Machine Learning Concepts for Modelling and Control of Nonlinear Systems" organized by Manipal Institute of Technology, Manipal, scheduled on 27th –29th of June,2022. This workshop will help in introducing the concepts of Machine Learning for the Modelling of nonlinear systems and various control applications in the field of Biochemical Engineering.

Details of approximate expenditure is as follows:

Sr.No.	Faculty Name	Designation	Registration Fees
01	Dr.L.R.Patil	Associate Professor	Rs.2360=00 X 2
02	Dr.V.S.Hombalimath	Associate Professor	**Total=Rs. 4720/-**

Approximate Expenditure details

Sr.No	Particular	Total Amount
01	DA (2 Faculty X Rs.500/- per day X 3days)	3,000/-
02	Travel allowance (Rs.2000/- X 2 Person: To & Fro)	8,000/-
03	Lodge (Rs.1000/- per day X 3 days X 2 Rooms)	6,000/-
04	Local Conveyance	1,200/-
	Total (Approximate)	**Rs.22,920/-**

Workshop brochure is attached with this for your kind reference. Kindly grant us the permission to attend the same.

Request to consider, as the workshop will be helpful for course delivery for - Bioprocess control & also for research. Regards.

Thanking you.
Yours faithfully,

Dr..L.R.Patil

Dr. V.S. Hombalimath

Dr. B.S. Hangund
HOD, Dept of Biotechnology

Beengund

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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Karibasappa K G**
School/Department/Center: **School of Computer Science & Engineering**
Conference Name: **IEEE 3rd International Conference on Emerging Technologies-2022**
Title of the paper: **Comparitive Analysis of Optimization Techniques on Multiclass SVM**
Paper Category: **REU**
Conference serial number: **03**
Area of Conference: **Emerging trends on Technology(Machine Learning, Data Science)**
Conference is in the top % in Scopus/Web of Science: **50** , Quartile – Q3
Name of the host Institute/Organization: **Belagavi-Karnataka**
Date & Timings: **28-05-2022**
Mode of Travel:
Registration Amount: **7500**
Estimated Amount for TA: **0**
Estimated Amount for DA: **0**
Total Amount: **7500**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign: Karibasappa K G

Forwarded by HoD

Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Ref no. 1244220000619(6

Jain College of Engineering
Belagavi, India

IEEE BANGALORE SECTION

3rd International Conference of Emerging Technology (INCET 2022)

27th – 29th May 2022

Certificate

This is to certify that Dr./Prof./Mr./Ms. ***Neha J Deshpande*** *has presented paper entitled* ***Comparative Analysis Of Optimization Techniques On Multi-class SVM*** *in 3rd International Conference of Emerging Technology (INCET 2022) during 27th to 29th May 2022.*

Dr. Krupa Rasane
Convener INCET 2022

Dr. J. Shivakumar
General Chair - INCET 2022

Jain College of Engineering
Belagavi, India

IEEE
BANGALORE SECTION

3rd International Conference of Emerging Technology
(INCET 2022)

27th – 29th May 2022

Certificate

This is to certify that Dr./Prof./Mr./Ms. **Karibasappa K.G** *has presented paper entitled* **Comparative Analysis Of Optimization Techniques On Multi-class SVM** *in 3rd International Conference of Emerging Technology (INCET 2022) during 27th to 29th May 2022.*

Dr. Krupa Rasane
Convener INCET 2022

Dr. J. Shivakumar
General Chair - INCET 2022

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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Shashidhara Vyakaranal**

School/Department/Center: **School of Computer Science & Engineering**

Conference Name: **12th INTERNATIONAL CONFERENCE ON COMPUTING, COMMUNICATION AND NETWORKING TECHNOLOGIES**

Title of the paper: **OPTIMIZING RECURRENT NEURAL NETWORK USING NEUROMODULATION**

Paper Category: **IREF**

Conference serial number:

Area of Conference: **Information and Communication Technologies**

Conference is in the top % in Scopus/Web of Science: 75% Q3

Name of the host Institute/Organization: **Kharagpur**

Date & Timings: **07-07-2021**

Mode of Travel: **Online**

Registration Amount: **9100**

Estimated Amount for TA:

Estimated Amount for DA:

Total Amount: **9100**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Account No: 124420100373 15

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15

Research and Development

Application for presenting paper at conferences by Faculty

ick mark against the relevant information)

r presenting paper at the conference : International ☑ within India ☐ outside India

me of the Faculty: **Manjula Pawar**

ıool/Department/Center: **School of Computer Science & Engineering**

nference Name: **ICTCS 2021**

le :he paper: **Distributed and Scalable Healthcare Data Storage using Blockchain and KNN classification**

ıer Category: **Others**

ıference serial number:

a of Conference: **Blockchain Technology**

ıference is in the top % in Scopus/Web of Science: 4th quartile, 2.5

ıe of the host Institute/Organization: **Jaipur**

e & Timings: **18-12-2021**

le of Travel:

istration Amount: **13800**

nated Amount for TA: —

nated Amount for DA: —

l Amount: **13800**

ils on previously presented papers at Conferences For the Period: One Year

ended Conference & Paper details within India	Attended Conference & Paper details outside
ICTCS 2021 Jaipur	

mmendations by Head: The paper is indexed by Scopus/ Web of Science

erences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

rences Outside-India:

ıved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Bank: Canara Bank. BVB campus

Account No: 124622000 8239

IEEE
BANGALORE SECTION

International Conference on Intelligent Technologies (CONIT 2021)

25th – 27th June 2021

Certificate

This is to certify that Dr./Prof./Mr./Ms. **Manjula K. Pawar** *Affiliation KLE Technological University, Hubballi has presented Secure and Scalable Decentralized Supply Chain Management Using Ethereum and IPFS platform in 2021 International Conference on Intelligent Technologies (CONIT) during 25th to 27th June 2021.*

Dr. Basavaraj Anami
General Chair

Dr. Yerriswamy T
Convener

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19

Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **Padmashree Desai**
School/Department/Center: **School of Computer Science & Engineering**
Conference Name: **International Conference on Intelligent Technologies (CONIT 2021)**
Title of the paper: **Adversarial Network for Photographic Image Synthesis from Fine-grained Captions**
Paper Category: **UG Student**
Conference serial number:
Area of Conference: **Intellegent Technologies**
Conference is in the top % in Scopus/Web of Science: 75.1, Q3
Name of the host Institute/Organization: **Hubballi**
Date & Timings: **25-06-2021**
Mode of Travel: **online**
Registration Amount: **12350** - Combined Registration for 2 papers ① & ②
Estimated Amount for TA: **0**
Estimated Amount for DA: **0**
Total Amount: **12350**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Padmashree Desai
A/C. 12442180000810
IFSC Code : CNRB0011244.

IEEE
BANGALORE SECTION

International Conference on Intelligent Technologies (CONIT 2021)

25th – 27th June 2021

Certificate

This is to certify that Dr./Prof./Mr./Ms. ***Padmashree Desai*** *Affiliation KLE Technological University has presented Adversarial Network for Photographic Image Synthesis from Fine-Grained Captions in 2021 International Conference on Intelligent Technologies (CONIT) during 25th to 27th June 2021.*

Dr. Basavaraj Anami
General Chair

Dr. Yerriswamy T
Convener

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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: **Padmashree Desai**

School/Department/Center: **School of Computer Science & Engineering**

Conference Name: **First International Conference on Artificial Intelligence, Computational Electronics and Communication System (AICECS 2021)**

Title of the paper: **Next frame prediction using ConvLSTM**

Paper Category: **UG Student**

Conference serial number:

Area of Conference: **Artificial Intellegence**

Conference is in the top % in Scopus/Web of Science: 75-1.04.

Name of the host Institute/Organization: **Manipal**

Date & Timings: **28-10-2021**

Mode of Travel: **virtual mode**

Registration Amount: **8000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **8000**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Credit to.

A/c. 12442180000810.

IFSC : CNRB0011244.

First International Conference on Artificial Intelligence, Computational Electronics and Communication System (AICECS 2021)
28th - 30th, October 2021

Manuscript 058
(Peer Reviewed)

IOP: Journal of Physics Conference Series

CERTIFICATE

This Certificate is presented to

Padmashree Desai , KLE Technological University, Hubballi

for presenting the research paper entitled " Next frame prediction using ConvLSTM " in the First International Conference on Artificial Intelligence, Computational Electronics and Communication System (AICECS 2021), organized by Department of Electronics and Communication Engineering, Manipal Institute of Technology, Manipal during 28th – 30th, October 2021. This paper has been submitted to be published in IOP: Journal of Physics, a conference proceedings journal by the Institute of Physics, United Kingdom.

Dr. G. Subramanya Nayak	Dr. Tanweer	Dr. Pramod Kumar	Dr. Shounak De	Dr. Priyanka Desai Kakade
Professor & HOD ECE	General Chair	General Chair	General Chair	Organizing Chair

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16

Research and Development

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ **within India** ☐ **outside India**

Name of the Faculty: **vidya_handur**

School/Department/Center: **School of Computer Science & Engineering**

Conference Name: **Sixth International Conference on Information and Communication Technology for Competitive Strategies (ICTCS-21)**

Title of the paper: **Artificial Bee Colony Optimization for load Balancing in Distributed Computing System- A Survey**

Paper Category: **Others**

Conference serial number:

Area of Conference: **Information and Communication Technology**

Conference is in the top % in Scopus/Web of Science: 4th quartile, 75

Name of the host Institute/Organization: **Jaipur**

Date & Timings: **17-12-2021**

Mode of Travel: **Online**

Registration Amount: **12000**

Estimated Amount for TA: —

Estimated Amount for DA: —

Total Amount: **12000**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

commendations by Head: The paper is indexed by Scopus/ Web of Science

onferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

nferences Outside India:

proved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Bank : Canara Bank, BVB Campus
Account Number : 1244220000 2580

SmartCom 2021

Sixth International Conference on

SMART TRENDS FOR COMPUTING & COMMUNICATION

Certificate

This is to certify that

Vidya S. Handur, Santosh L. Deshpande

has contributed a paper titled

Artificial Bee Colony Optimization based load balancing in distributed computing systems - A Survey

in Sixth International Conference on Smart Trends in Computing and Communications (SmartCom 2021) held during December 17-18, 2021. The conference was held through digital platform ZOOM.

The paper has also been selected for publication in the (SmartCom) conference as per fulfilment of guidelines issued by Springer.

We wish the authors all the very best for future endeavors.

Dr. KC Santosh
Conference Chair, SmartCom 2021

Dr. Nilanjan Dey
TPC Chair, SmartCom 2021

Dr. Amit Joshi
Organising Secretary, SmartCom 2021

GR FOUNDATION | INTER VIT | ifip 60 YEARS | Springer | SPRINGER NATURE | KNOWLEDGE CHAMBER OF COMMERCE AND INDUSTRY

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43

Research and Development

Application for presenting paper at conference by faculty

(Please mark against the relevant information)

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: Indira Bidari

School Department/Center: School of Computer Science & Engineering

Conference Name: 2021 International Conference on Industrial Electronics Research and Applications (ICIERA)

Title of the paper: Hybrid Convolutional Neural Network with Change Detection on Hyperspectral Imagery

Paper Category: Others

Conference serial number:

Area of conference: Hyperspectral Imagery

Conference is in the top % in Scopus/Web of Science: 10 %, Q4.

Name of the host Institute/Organization: Delhi

Date & Timings: 20-12-2021

Mode of Travel:

Registration Amount: 5000

Estimated Amount for TA: 0

Estimated Amount for DA: 0

Total Amount: 5000

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign

Forwarded by HoD

SCHOOL OF COMPUTER SCIENCE & ENGINEERING
KLE Technological University
HUBBALLI-580 031

Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Doc No# : 12442180004465

MAHARAJA AGRASEN INSTITUTE OF TECHNOLOGY
MAIT
उद्यमेन हि सिध्यन्ति
कार्याणि न मनोरथैः

International Conference on Industrial Electronics Research and Applications (ICIERA - 2021)

IEEE
Delhi Section

Certificate of Presentation

This is to certify that

Abhishek Thm

has successfully presented a paper entitled

Hybrid Convolutional Neural Network with Change Detection on Hyperspectral Imagery

in International Conference on Industrial Electronics Research and Applications (ICIERA-2021), organized by Department of Electronics & Communication Engineering at Maharaja Agrasen Institute of Technology, New Delhi, INDIA from December 22nd-24th, 2021.

Prof. Sunil Kumar
Conference Chair

Prof. Neelam Sharma
Patron

Dr. Nand Kishore Garg
Chief Patron

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39

Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: **Somashekar Patil**

School/Department/Center: **School of Computer Science & Engineering**

Conference Name: **12th International Conference on Computing Communication and Networking Technologies**

Title of the paper: **A Hybrid Bio-inspired Algorithm for Routing in Software Defined Networks**

Paper Category: **Others**

Conference serial number: 51525

Area of Conference: Communication & Networking

Conference is in the top % in Scopus/Web of Science: — IEEE Quartile 3 V, 754.

Name of the host Institute/Organization: IIT, Kharagpur

Date & Timings: **08-07-2021**

Mode of Travel: —

Registration Amount: **5000**

Estimated Amount for TA: —

Estimated Amount for DA: —

Total Amount: **5000**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
COCONET'20, Energy Efficient VM Management in OpenStack based Private Cloud	
COCONET'20, Energy Efficient VM Management in OpenStack based Private Cloud	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

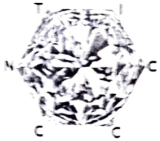
Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Account No : 1244 2180006078



IEEE
Kharagpur Section

THE TWELFTH INTERNATIONAL CONFERENCE ON COMPUTING, COMMUNICATION AND NETWORKING TECHNOLOGIES

July 6 - 8, 2021, Indian Institute of Technology - Kharagpur,
Kharagpur, West Bengal, India.

This is to certify that Prof./Dr./Mr./Ms./

Mohammad Moin, Narayan G and Somashekar Patil

of

KLE Technological University

has presented a paper on

A Hybrid Bio-inspired Algorithm for Routing in Software Defined Networks

in the Twelfth International Conference on Computing, Communication and Networking Technologies, held at Indian Institute of Technology, Kharagpur, India, in association with IEEE Kharagpur Section, held during July 6 - 8, 2021.

Conference Chair / Co-Chair

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Research and Development

Application for presenting paper at conferences by Faculty

(Pick mark against the relevant information)

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: **Indira Bidari**

School Department/Center: **School of Computer Science & Engineering**

Conference Name: **2021 International Conference on Industrial Electronics Research and Applications (ICIERA)**

Title of the paper: **Hybrid Convolutional Neural Network with Change Detection on Hyperspectral Imagery**

Paper Category: **Others**

Conference serial number:

Area of Conference: **Hyperspectral Imagery**

Conference is in the top % in Scopus/Web of Science: 10 %, Q4.

Name of the host Institute/Organization: **Delhi**

Date & Timings: **20-12-2021**

Mode of Travel:

Registration Amount: **5000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **5000**

Details on **previously presented papers at Conferences For the Period: One Year**

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign

Forwarded by HoD

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HUBBALLI-580 031

Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Acc No# : 1244218000 4465

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कार्याणि न मनोरथैः

International Conference on Industrial Electronics Research and Applications (ICIERA - 2021)

IEEE
Delhi Section

Certificate of Presentation

This is to certify that

Abhishek Thm

has successfully presented a paper entitled

Hybrid Convolutional Neural Network with Change Detection on Hyperspectral Imagery

in International Conference on Industrial Electronics Research and Applications (ICIERA-2021), organized by Department of Electronics & Communication Engineering at Maharaja Agrasen Institute of Technology, New Delhi, INDIA from December 22nd-24th, 2021.

Prof. Sunil Kumar
Conference Chair

Prof. Neelam Sharma
Patron

Dr. Nand Kishore Garg
Chief Patron

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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: **Narayan D G**

School/Department/Center: **School of Computer Science & Engineering**

Conference Name: **12th International Conference on Computing Communication and Networking Technologies**

Title of the paper: **SLA Violation Detection and Compensation in Cloud Environment using Blockchain**

Paper Category: **UG Student**

Conference serial number: IEEE-51525

Area of Conference: Networking

Conference is in the top % in Scopus/Web of Science: — 75-1. Quartile 3.

Name of the host Institute/Organization: IIT, Kharagpur,

Date & Timings: **08-07-2021**

Mode of Travel: —

Registration Amount: **5000**

Estimated Amount for TA: NA

Estimated Amount for DA: —

Total Amount: **5000**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	**Attended Conference & Paper details outside**
Symposium on Emerging Topics in Computing and Communications (SETCAC'20) - SETCAC'20, Performance Evaluation of Cross-layer routing Metrics for Multi-radio Wireless Mesh Network	
Symposium on Emerging Topics in Computing and Communications (SETCAC'20) - SETCAC'20, Performance Evaluation of Cross-layer Routing Metrics for Multi-radio Wireless Mesh Network	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Account No: 124122000003447

THE TWELFTH INTERNATIONAL CONFERENCE ON COMPUTING, COMMUNICATION AND NETWORKING TECHNOLOGIES

July 6 - 8, 2021, Indian Institute of Technology - Kharagpur,
Kharagpur, West Bengal, India.

This is to certify that Prof./Dr./Mr./Ms./

Aditya Pandey, Narayan G and Shivaraj Kengond

of

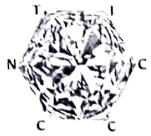
KLE Technological University

has presented a paper on

SLA Violation Detection and Compensation in Cloud Environment using Blockchain

in the Twelfth International Conference on Computing, Communication and Networking Technologies, held at Indian Institute of Technology, Kharagpur, India, in association with IEEE Kharagpur Section, held during July 6 - 8, 2021.

Conference Chair / Co-Chair



THE TWELFTH INTERNATIONAL CONFERENCE ON COMPUTING, COMMUNICATION AND NETWORKING TECHNOLOGIES

July 6 - 8, 2021, Indian Institute of Technology - Kharagpur, Kharagpur, West Bengal, India.

This is to certify that Prof./Dr./Mr./Ms./

Ashish Magadum, Atish Ranjan and Narayan G

of

KLE Technological University

has presented a paper on

DeepQoSR: A Deep Reinforcement Learning based QoS-Aware Routing for Software Defined Data Center Networks

in the Twelfth International Conference on Computing, Communication and Networking Technologies, held at Indian Institute of Technology, Kharagpur, India, in association with IEEE Kharagpur Section, held during July 6 - 8, 2021.

Conference Chair / Co-Chair

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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: **Pooja Shettar**

School/Department/Center: **School of Computer Science & Engineering**

Conference Name: **12th International Conference on Computing Communication and Networking Technologies**

Title of the paper: **A Hybrid Approach for Detection of DDoS Attacks using Entropy and Machine Learning in Software Defined Network**

Paper Category: **IREF**

Conference serial number: 51525

Area of Conference: Communication & Networking

Conference is in the top % in Scopus/Web of Science: - IEEE, Quartile 3 (; 75%)

Name of the host Institute/Organization: IIT, Kharagpur

Date & Timings: **08-07-2021**

Mode of Travel: —

Registration Amount: **5000**

Estimated Amount for TA: —

Estimated Amount for DA: —

Total Amount: **5000**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
2021 International Conference on Computer Communication and Informatics (ICCCI -2021), Intrusion Detection System using MLP and Chaotic Neural Networks	
2021 International Conference on Computer Communication and Informatics (ICCCI -2021), Intrusion Detection System using MLP and Chaotic Neural Networks	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Shettar
Faculty Sign

Forwarded by HoD

Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Account No : 1244220000 8470

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Certificate

It is certified that

POOJA SHETTAR

has presented the 'Technical Paper' entitled

INTRUSION DETECTION SYSTEM USING MLP AND CHAOTIC NEURAL NETWORKS

in the 11th INTERNATIONAL CONFERENCE ON COMPUTER COMMUNICATION AND INFORMATICS 2021 held from 27-29 January 2021.

Conference Chair

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AN AUTONOMOUS INSTITUTION
Chinniyampalayam, Coimbatore- 62

2727 COUNSELLING CODE

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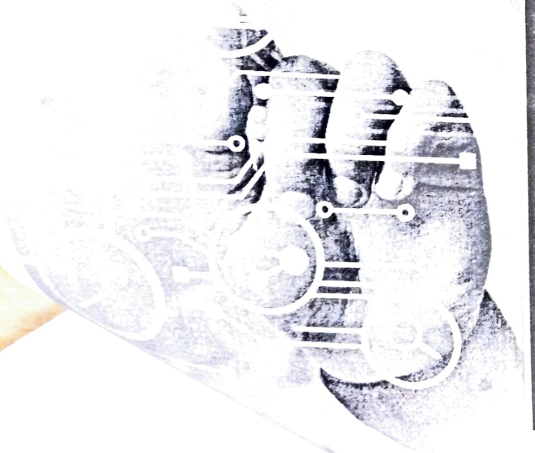

Certificate

It is certified that

POOJA SHETTAR

has presented the 'Technical Paper' entitled

DDOS ATTACK DETECTION SYSTEM USING APACHE SPARK

in the 11th INTERNATIONAL CONFERENCE ON COMPUTER COMMUNICATION AND INFORMATICS 2021 held from 27-29 January 2021.

Conference Chair

SRI SHAKTHI
INSTITUTE OF ENGINEERING AND TECHNOLOGY
AN AUTONOMOUS INSTITUTION
Chinniyampalayam, Coimbatore- 62

2727
COUNSELLING CODE

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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper **at the conference : International** ☑ **within India** ☐ **outside India**

Name of the Faculty: **Indira Bidari**

School/Department/Center: **School of Computer Science & Engineering**

Conference Name: **2021 International Conference on Industrial Electronics Research and Applications (ICIERA)**

Title of the paper: **Deploying Machine Learning Inference on Diabetic Retinopathy in Binary and Multi-class Classification**

Paper Category: **Others**

Conference serial number:

Area of Conference: **Machine Learning**

Conference is in the top % in Scopus/Web of Science: 10 %, Q4

Name of the host Institute/Organization: **Delhi**

Date & Timings: **23-12-2021**

Mode of Travel:

Registration Amount: **5000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **5000**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

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Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: **Indira Bidari**

School/Department/Center: **School of Computer Science & Engineering**

Conference Name: **2021 International Conference on Industrial Electronics Research and Applications (ICIERA)**

Title of the paper: **Deploying Machine Learning Inference on Diabetic Retinopathy in Binary and Multi-class Classification**

Paper Category: **Others**

Conference serial number:

Area of Conference: **Machine Learning**

Conference is in the top % in Scopus/Web of Science: 10%, Q4

Name of the host Institute/Organization: **Delhi**

Date & Timings: **23-12-2021**

Mode of Travel:

Registration Amount: **5000**

Estimated Amount for TA: **0**

Estimated Amount for DA: **0**

Total Amount: **5000**

Details on previously presented papers at Conferences For the Period: **One Year**

Attended Conference & Paper details within India	Attended Conference & Paper details outside

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

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Approved by Dean R&D

Conferences Outside India:

Approved by:

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Acc. No #: 12442180004465

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International Conference on Industrial Electronics Research and Applications (ICIERA - 2021)

IEEE Delhi Section

Certificate of Presentation

This is to certify that

Indira Bidari

has successfully presented a paper entitled

Deploying Machine Learning Inference on Diabetic Retinopathy in Binary and Multi-class Classification

in International Conference on Industrial Electronics Research and Applications (ICIERA-2021), organized by Department of Electronics & Communication Engineering at Maharaja Agrasen Institute of Technology, New Delhi, INDIA from December 22nd-24th, 2021.

Prof. Sunil Kumar
Conference Chair

Prof. Neelam Sharma
Patron

Dr. Nand Kishore Garg
Chief Patron

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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☑ within India ☐ outside India

Name of the Faculty: **Shashidhara Vyakaranal**

School/Department/Center: **School of Computer Science & Engineering**

Conference Name: **International Conference for Convergence of Technology (I2CT)**

Title of the paper: **2D Image Reconstruction using Differentiable Plasticity**

Paper Category: **IREF**

Conference serial number:

Area of Conference: **Data Science, Machine Learning, Energy Harvesting, Artificial Intelligence, Machine Learning , Internet of Things (IoT), Localization, Convergence in Technology, and Security**

Conference is in the top % in Scopus/Web of Science: p1 75% Q3

Name of the host Institute/Organization: **Pune**

Date & Timings: **02-04-2021**

Mode of Travel: **Online**

Registration Amount: 8100

Estimated Amount for TA:

Estimated Amount for DA:

Total Amount: 8100

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
International Conference for Convergence of Technology (I2CT), 2D Image Reconstruction using Differentiable Plasticity	

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

Acc No: 1244201003 7315

6th International Conference for Convergence in Technology (I2CT)

IEEE BOMBAY SECTION

2nd – 4th April 2021

Certificate

This is to certify that Dr./Prof./Mr./Ms. Shashidhara B Vyakaranal Affiliation SoCSE, KLE Technological University has participated in 6th International Conference for Convergence in Technology (I2CT) during 2nd to 4th April 2021.

He / She presented a technical paper titled 2D Image Reconstruction using Differentiable Plasticity.

Dr. Chanakya Kumar Jha
General Chair -I2CT

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Research and Development

Application for presenting paper at conferences by Faculty

(Tick mark against the relevant information)

For presenting paper at the conference : International ☐ **within India** ☑ **outside India**

Name of the Faculty: **Rajashekharaiah K M M**

School/Department/Center: **School of Computer Science & Engineering**

Conference Name: **International Advanced Computing Conference**

Title of the paper: **Transfer Learning using Variational Quantum Circuit**

Paper Category: **Others**

Conference serial number: **11**

Area of Conference: **Advanced Computing**

Conference is in the top % in Scopus/Web of Science: Scopus Indexed. 10%, Q4

Name of the host Institute/Organization: Malta, University of Malta.

Date & Timings: **19-12-2021**

Mode of Travel: **online presentation**

Registration Amount: 10,500/-

Estimated Amount for TA:

Estimated Amount for DA:

Total Amount: **0**

Details on previously presented papers at Conferences For the Period: One Year

Attended Conference & Paper details within India	Attended Conference & Paper details outside
	International Advanced Computing Conference, Transfer Learning using Variational Quantum Circuit

Recommendations by Head: The paper is indexed by Scopus/ Web of Science

Conferences within India:

Faculty Sign | Forwarded by HoD | Approved by Dean R&D

Conferences Outside India:

Approved by:

HoD | Dean Academics | Dean P & D | Dean R&D

ACC No: 1244218000 4837

L-Università ta' Malta

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TIMES OF INDIA GROUP

11th IACC 2021

11th INTERNATIONAL ADVANCED COMPUTING CONFERENCE

CERTIFICATE OF PARTICIPATION

This is to certify that KMM Rajashekharaiah

From School of Computer Science and Engineering, K L E Technological University, Hubballi

has presented a paper titled

Transfer Learning using Variational Quantum Circuit* *in*

11th International Advanced Computing Conference **(IACC 2021)**

On 18th & 19th December 2021

Suneet

Dr. Suneet Kumar Gupta
Publication Co-Chair

International Advanced Computing Conference
ज्ञानम् परमम् ध्येयम्

Deepak Garg

Dr. Deepak Garg
Conference General Co-Chair