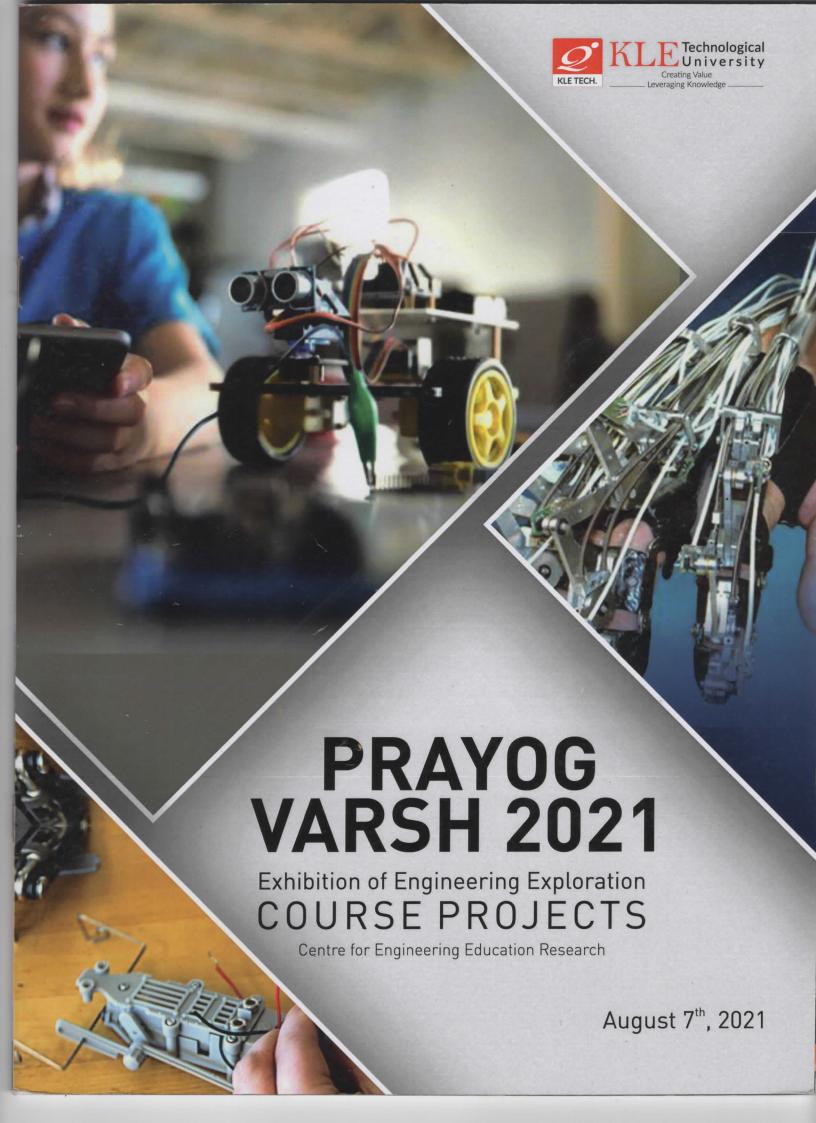


2.3.1 - Student centric methods, such as experiential learning, participative learning and problem-solving methodologies are used for enhancing learning experiences

Following Documents are shared / attached below:

- Courses Designed with hands on learning approach
 - Engineering Exploration First Year Student Projects –Project Booklet Sample
 - Design Thinking for Social Innovation –Sample Project Report



SI. No.

Need Statements

Medicine Dispensing Bot

A hospital needs to automate the process of dispensing medicine to the patients due to the lack of staff and to reduce the human effort. The medicine must be dispensed based on the inputs fed by the doctor as per the prescription.

2 Bio Mimic Bots

An automation and robotics company wanted to conduct the Robothon for engineering college students. For this event, the theme is bio-inspired robotics. Students can build models under this theme, which can resemble bio mechanisms, echolocation, sensitive wings, sustained flight, walking, and jumping.

3 Gesture Controlled Bot

Gesture-based robotics is gaining momentum in industrial applications. AK Industries is in the process of setting up a science museum to showcase this new trend and demonstrate its possibilities.

4 Box Transfer Machine

RM is a packaging industry looking for a solution to transfer the boxes with different sizes, periodically from one point to another.

5 Decorative

A science and automata museum interested in exhibiting interactive and decorative science models in an event. So the museum is looking for nominations.

6 Patterns Drawing Bot

In an art and craft supply store, there is a need for a a machine that can draw different shapes or patterns

7 Automatic Winding Machine

An industry in Hubballi is looking for a miniaturized winding machine that can wrap string, twine, cord, thread, yarn, rope wire, ribbon, and tape.

8 Musical Bots

A school in Hubballi wishes to set up a musical instruments room. To build craze among little kids, the school is looking for some robots that can play musical instruments and entertain the kids.

g Wiping Machine

A tech geek is interested in automating the cleaning tasks at home and looking for mechatronic solutions like wiping the dust off of the laptop screen, TV screen, etc.

10 Interactive Toys

A baby care center needs toys that entertain children

Need Statements

11 Pick & Place Bot

RA is a robotics-based company working on a pick-and-place robot that can pick the objects of various shapes and sizes and places in the required position.

12 Automatic Petri Plate Loading Machine

Biotechnologists need to prepare media on petri plates for culturing of microorganisms or animal cell lines. On average, for the fermentation process, a person needs to prepare 100 plates per day. Automatic petri plate filling machine loads sterilized media into it. The machine has to move petri plates to and from the loading site continuously.

13 Launching Device

PN toy industry is interested in coming up with their new range of toys with a theme of launch or throw. Company is looking at launching or throwing automatically various items

14 Automatic Cup Crusher Machine

A cafeteria/canteen is planning to dispose of its used cups to a disposal unit by crushing the cups to minimize the size of the cups during transportation. Design an automatic machine for the same.

15 Smart Lockers

Garvit jewelry shop in hubballi needs automatic safe lockers to store the jewelry and other ornaments.

16 Rope Walking Bot

There is a need for an automatic machine that can move on the rope and carry some payload.

17 Game Machines

A new shopping mall in Hubballi is interested in having an innovative interactive robotic game in their gaming center. Though the client mentioned the claw machine as an example, they are not very keen on that game machine.

18 Moulding Machines

NH industry needs automatic moulding machine which can give different shapes and structures.

19 Buggy Bot

A kid's toy-making company wants a Buggy Bot that can move on the sand, off-road, rough terrain road.

20 Item sorting machine

An industry in Hubballi is looking for a sorting machine that sorts the items based on shape, size, and material type.

21 Smart disinfection system

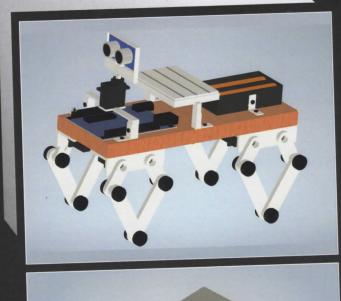
Disinfection of surfaces, door accessories like latches, holders, or lift buttons is essential to control the spread of the pandemic. A startup is looking to develop a solution for disinfection services.

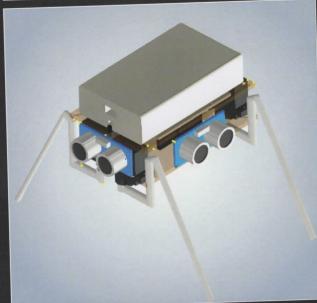
Medicine Dispensing Bot

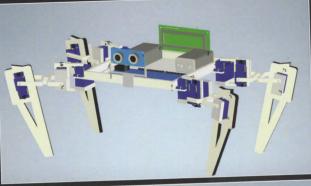


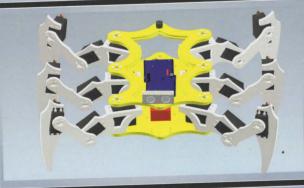
In recent times the use of machines in society for various aspects such as the pharmaceutical industry and medical purposes was increased. The automated medicine dispensing robots are easy to program, simple to operate, and compatible with all valve types and controllers. They are designed and configured specifically for fluid dispensing applications. The students have designed projects to dispense pills, capsules, syrup, and aerosols like nasal sprays. The projects exhibits functions like dispensing, notify after dispensing, and also notify after the stock gets over. The user can control these robots. The students have developed virtual models of the Medicine Dispensing Bot using Autodesk Inventor for modeling and simulation and Tinkercad for circuit designing

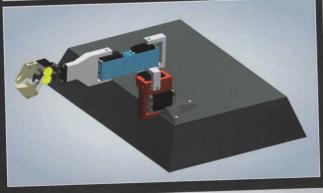
Bio Mimic Bots





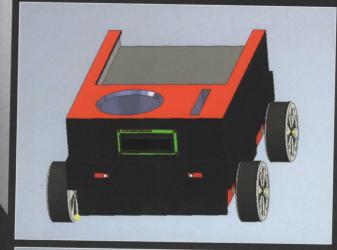




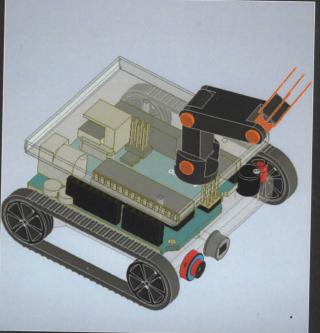


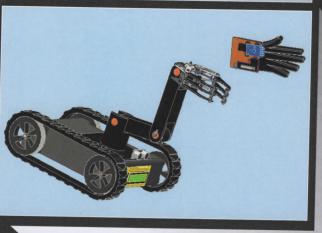
Bio mimic robot designs attempt to translate biological principles into engineered systems, replacing more classical engineering solutions to achieve a function observed in the natural system. The challenges of biomimetic design include developing a deep understanding of the relevant natural system and translating this understanding into engineering design rules. To explore this idea, students have designed robots that mimic the walking of a spider, movement of a human arm, the flapping of wings, etc. The user can control these robots. The students have developed virtual models of the Bio Mimic Bots using Autodesk Inventor for modeling and simulation and Tinkercad for circuit designing

Gesture Controlled Robot









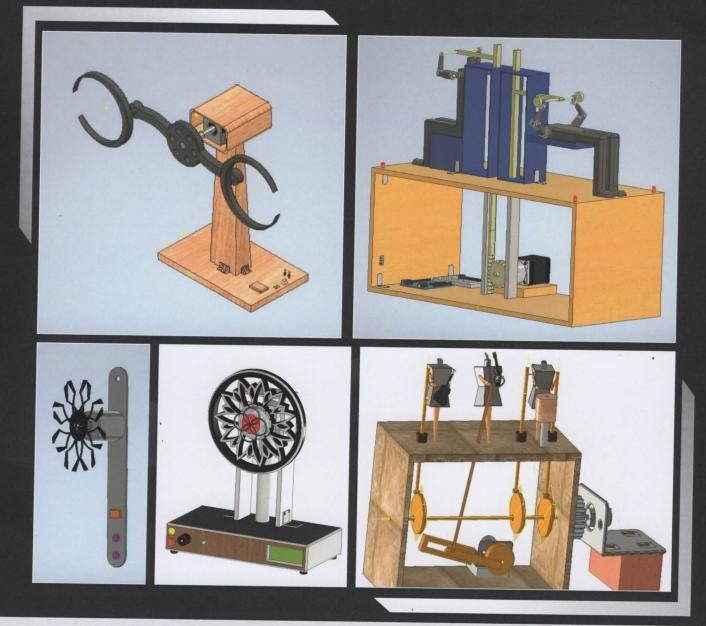
Technology as a boon for development is advancing in many fields, one major field among that is robotics. We can see many kinds of robots around us from self-dispensing bots to Seva robots in bank counters and many more. The gesture-controlled robot is a field used for multiple applications starting from gaming bots for entertainment to sophisticated- highly reactive material handling bots in industries and research centers. Students have designed the virtual prototypes controlled by the gesture of body parts viz. fingers and arms. They have used the Autodesk Inventor Pro© as the modelling-cum-simulation software and the Autodesk Tinkercad for circuit designing to achieve different motions and mechanisms for certain applications

Box Transfer Machine



In any industry, the material handling process plays an important role in the success of the unit. The design and implementation of an optimal handling process are taken into account so that the whole functioning is smooth and free from any lags. This involves the planning of workflow from raw materials to the end dispatching unit. With Automation as the new opportunity to explore, many factory outlets are changing to enhance productivity and reduce the time to market. As part of the project, student teams have designed different conveyor mechanisms to transfer the boxes from one place to the other by using suitable mechatronics systems.

Decoratives



Home or office decoration is a blooming field for interior designers and more and more of the crowd is moving it fancying their homes by bringing in such modernist decoration. The themes are "Automata", "Kinetic Sculpture" and "Shapeshifters" which are being majorly displayed in museums and other exhibitions to present the decorative technologies and the new era of decor. These mainly involve different mechanisms, motions and use compact mechatronic elements to operate the elements. The student teams have designed different decorative models, distinctive motions and displayed the beauty of owning one.

Virtual Exhibition Plan

Inauguration: Date: 07-08-2021 | Time: 8.00 AM to 8.30 AM

Session 1 8.30 AM to 11.00 AM

Occident 1					
SI no	Need Statements	Faculty in charges			
1.	Pick & Place Bot	Mrs. Radhika A.			
2	Automatic Cup Crusher Machine	Dr. Sangeeta B. K.			
3	Automatic Petri Plate Loading Machine	Mr. Sharanappa A.			
4	Automatic Winding Machine	Mr. Prashant N.			
5	Bio Mimic Bots	Ms. Jyoti G.			
6	Box Transfer Machine	Mrs. Rajeshwari M.			
7	Decoratives	Ms. Madhu A.			
8	Game Machines	Dr. Varsha K.			
9	Gesture Controlled Robot	Mr. Ashwin K.			
10	Interactive Toys	Mr. Kaushik M.			
	THE RESERVE OF THE PARTY OF THE				

Session 2 10.10 AM to 11.40 AM

_	Service Control of the last of	Faculty in charges
SI no	Need Statements	The second secon
1	Item sorting machine	Mr. Shivprasad C.
2	Launching device	Mr. Prashant N.
3	Medicine Dispensing Bot	Mrs. Unnati K.
4	Moulding machine	Ms. Jyoti G.
5	Musical Bots	Mrs. Preethi B.
6	Patterns drawing bot	Mr. Vinay T.
7	Rope walking bot	Mrs. Radhika A.
,		Mr. Nandish H.
	Smart Disinfection System	Mr. Girish K.
8		Mr. Doddabasappa M.
9	Smart Lockers	Ms. Madhu A
10	Wiping machine	
		Mr Sanjeev K.
11	Buggy Bot	Mrs. Rajeshwari M.







KLE Technological University, Vidyanagar, Hubballi-580031

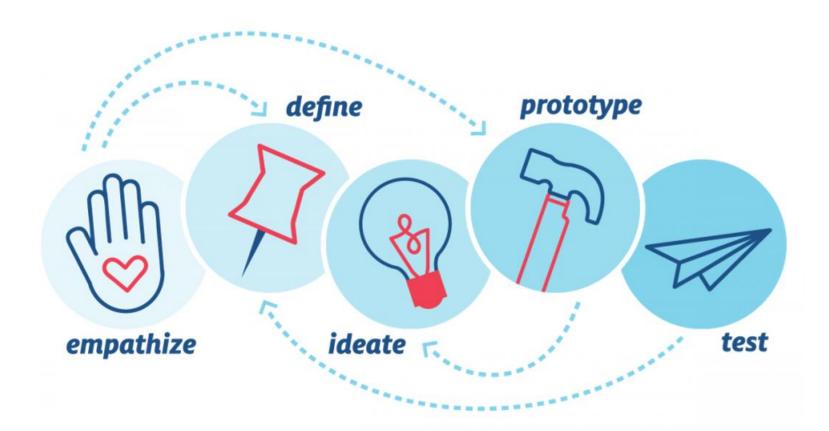


DESIGN THINKING FOR SOCIAL INNOVATION

Division- D1 Year- 2021-2022 Faculty-GIRISH KARIKATTI

Team Members

- 1.Shridhar
- 2.Girish
- 3.Bhoomika
- 4.Keerthi
- 5.Chidanand



EMPATHY



Location - Government school in Kuravina Koppa.

Issue observed - Lack of unavailability of resources in government school.



Location - Government First grade college, Rajnagar Hubli.

Issue observed - Lack of study resources among students.



Location - Vidyanagar , Hubballi

Issue observed - Problem faced by cyclist.





Location - Vidyanagar , Hubballi

Issue observed - illness caused by eating contaminated food.





SOCIAL ISSUE CHOSEN.

 Lack of unavailability of resources in Government Higher primary school of Kuravina Koppa.

STAKEHOLDERS: GOVERNMENT TEACHERS & STUDENT

NAME OF THE STAKEHOLDERS	OCCUPATION	TYPE
1.Madhu 2.Shivraj	STUDENT	PRIMARY
3.Vijayalaxmi	TEACHER	SECONDARY

EMPATHY MAP



EMPATHY MAP (PRIMARY STAKEHOLDER -1)

Say

- 1.Class room is not in good condition and **no hygenity** maintained.
- 2.Lack of concentration on studies.

THINK

1. They thought of informing their problems to the teachers and asked them to write the **letter to higher authorities**.

Do

1.In spite of telling many times about **unavailability of resources** in school to authorities, the authorities **denied their request** so they tried to use writing pad for keeping notes on them while writing.

FFFL

- 1. They felt very helpless.
- 2. The students were disappointed as the higher authorities didn't take any kind of action.

PAIN

- 1.Can't keep notes on the floor as the **floors are not well** maintained.
- 2. Due to **unavailability of resources** they have back pain.
- 3. They expressed their pain as they didn't get better response from higher authorities.

GAIN

- 1. They thought of seeking help from teachers.
- 2. Students were able to interact with teachers.

EMPATHY MAP(PRIMARY STAKEHOLDER-2)

Say

- 1.I am unable to sit properly and I have got a back pain.
- 2.I am unable to concentrate on my studies.

Think

- 1.He thinks that whether the respective authorities are **considering** this as a problem?
- 2.He thinks did the teacher find a solution for this problem?

Do

- 1. The **student tried to** approach other higher authorities but it was fruitless.
- 2.I found it difficult to copy notes from the board as I had to keep my notes on the floor to write my notes.

Feel

- 1.He **feels Disappointed** because he is not doing well in his academics..
- 2.He feels that the school should provide the **basic resources for** the students.

Pain

- 1. Due to the back pain I miss the school customarily.
- **2.**I find it a bit difficult to sit throughout my class.

Gains

- 1. Seeking the **help of his elder sister**, Shivaraj is able to **understand the topic.**
- 2. With the **availability of resources** in the school the students will attend the classes regularly.

EMPATHY MAP (SECONDARY STAKEHOLDER)

Say

- 1.Blackboards are **not in good condition**.
- 2. Students are not **concentrating on studies**.

Think

- 1. Teachers thought of writing letter to higher authorities.
- 2. Teachers thought of providing **good education to students.**

Do

- 1. They informed the higher authorities about poor facilities in school.
- 2. She thought of **solving the issue by herself.**

Feel

1.She felt helpless and **enraged when the authorities ignored** her request.She was disappointed as students were facing back pain and were **not concentrating on studies**.

Pain

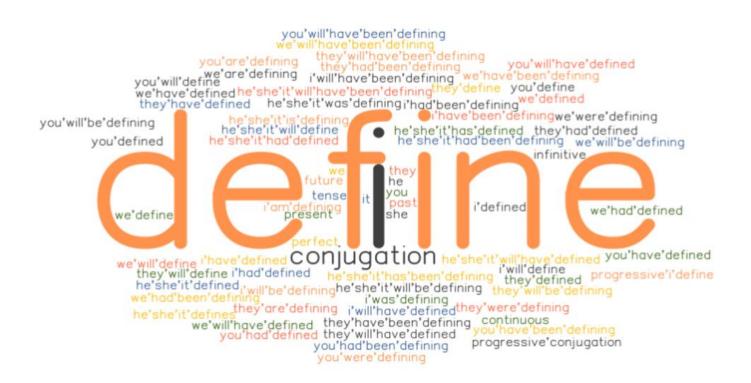
- 1. She has been **looking for help** but is unable to find.
- 2. She herself cannot take any initiation.
- 3. The school look active when there are more number of students. she expressed her pain as many students are irregular to school.

Gain

- 1. She would be happy to see the strength more after **giving** the basic necessities.
- 2.If students are concentrating and interested then she can teach them much more things and the learning would be joyful.

EMPATHY STATEMENT:-

- The social challenge was lack of availability of resources which was leading to back pain for students.
- The stakeholders have said that they are concerned about students studies and health.
- The measures we have suggested is to provide them knowledge of making themselves the required things which they are in need of.



STAKEHOLDER PERSONA:1



DEMOGRAPHICS NAME:**MADHU**

AGE:11

GENDER:Female

FAMILY: Father, Mother, Younger

brother.

MADHU is a 5th standard student studying in Government Higher primary school of Kuravina Koppa.

GOALS/NEEDS

1. Needs a resources.

2. Needs blackboards.

PAIN POINTS

1.Can't sit properly because of unavailability of resources.

2.Can't study.

3.Back issues are also creating problems.

TRAITS/SKILLS

- 1. Has good **grasping power**.
- 2. She is good in cultural activities.
- 3. She has a **great speaking skills**.

STAKEHOLDER PERSONA: 2



DEMOGRAPHICS NAME: SHIVRAJ

AGE:11

GENDER: Male.

FAMILY: Father, Mother,

Elder sister.

GOALS/NEEDS

1.Maintaining proper hygiene in school.2.Need more good resources in school.

SHIVRAJ is a 5th standard student studying in Government Higher primary school of Kuravina Koppa.

PAIN POINTS

- 1.Lack of concentration in studies.
- 2.Back issues are also creating problem.

TRAITS/SKILLS

- 1.He is **good at sports.**
- 2.He is very innovative in art.

SECONDARY STAKEHOLDER PERSONA:



DEMOGRAPHICS

NAME: VIJAYALAXMI

AGE:**48**

GENDER: Female.

FAMILY: Husband, son, daughters and

mother in law.

VIJAYALAXMI is a English teacher in Government Higher primary school of Kuravina Koppa.

PAIN POINTS

- 1. Many students are **not regular to** school.
- 2. She has been looking for help but is unable to find it.

GOALS/NEEDS

- 1. Wants the students to actively come to school.
- 2. Wants to provide all facilities to the students.

TRAITS/SKILLS

- 1. She is a trained and experienced teacher.
- 2. She is very good at her cultural activities.
- 3. She is good at creative ideas.

POV STATEMENT GENERATION.

- 1.Users
- -Students
- -Teachers

- 2.Need for the user.
- -To be educated.
- -Proper resources in school.
- -Teachers who want to educate and mentor students

- 3.Team insights.
- -Quality education
- -Access basic facilities
- -Proper hygiene.

FINAL POV STATEMENT.

"The students of Government school of Kuruvina Koppa are facing problem such as back pain due to the unavailability of resources in the school. Due to which they are losing their concentration on studies and the joy of learning in the school. We can help them by solving this problem."

Ideate



-: SYSTEM PERCEPTION :-

Super Systems	Students F Teachers.	· STudents. · Teachers. · Maintenance. · Stall's.	Students Teachus Stabbs. Developus. Componiu.
Systems	Gusukul Teaching	· Schools	· E- leadnings.
Sub System	Floors Under Trees Open Environ - ment.	Benches Tobles Boards Study (hours SMart Boards	Study from Home. Laptop's. Head phones. Websites.
	Past	Parisent	Future

Deam - 04
Bhoomika
Chidanand
keerti
Shridhas
Girish

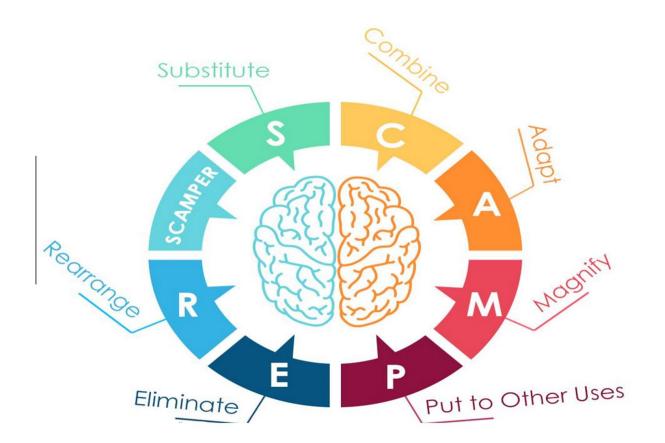


-: BRAIN STROMING :-

- 1. Buying The Benches.
- 2. Getting help from (ommunity sponsorship.
- 3. Painting the walls which can be wied as Boards.
- H. Using non-bio
 degradable wash like
 bottles, cans to se
 create Benches.

- 5. Buying the Study Tables.
- G. Getting Govanme
 -nt support to impro
 -ve the school benches
 by govanment fun
 -ding.
- F.
 Providing smart
 Class to the stude
 -nt.
- 8.
 Providing Study
 Chairs.

- 9. Sticking attractive Imagu on the wall
 - 10. Keeping the class 200m Clean.
- 11. Higher Authorities in the School Should take care of resource Un available.



- SCAMPER TECHNIQUE :-

SUBSTITUTE

we can substitute benches to something else.

COMBINE

People of locality

can be called togs

that to haire funds

for purchasing ben

-ches.

ADAPT TO TECH NOLOGY

Use online learn;
ong through inter

MODIFY | MAXIMI

Minimize the ho-

PUT INTO OTHER USE

Plastic bottly, can and other things.

ELIMINATE

Sticking attroc -tive images on the wall

REWORK | REARRAN - GE | RESTORE

Painting the wall s which can be used as boards.

S. IDEAS AFTER SCAMPER TABLE :

- · Buying the Benches.
- Getting government support to improve the school benches by government funding.
- Painting the walls which can be used as Boards.
- Using non-biodegradoble waste like bottles, cans to recreate whiches.
- · Buying the Study tables.
 - Getting help from community sponsorship.

Jeam - 04 Shvidhaq Chidanand Keerti Bhoomika Girish

-: IDEA EVALUATION :-

Bhoom:ka Chidanand keerti Shridhaa

	11.	3. Low efforts - High impact Implement Now.	After benefits from two sides is healized and this can be the next level.
Degree Of Impact	High :	Using non-biodegradoble wastr like bottles, cans to make Study Tobles.	People of locality can be called together to lacke funds for purchasing benches.
Benefit	Low	Minimize the hours g learning.	· Floor hearning for Students. · Chairs.
		4. Low Effort-low impact keep for lates.	1. High Effort - Wow Impact Discard.
	Dluc	Ease of Efforts	

ot on OnePlus

Bhoomika

S FINALIZED IDEA :

Using non-biodegradable waste like bottles. Cans to recreate study Tables."



Social Challenge: LACK OF UNAVAILABILITY OF RESOURCES IN Team Number: 04
GOVERNMENT SCHOOL.

Division: D(D1)

Finalized Idea/s (Solution)	Specifications		
Using Non-Biodegradable waste lil bottles, cans to Accepte Study Tablu.	· Waste Water Bottle's. · Card boards. · Sticks. · Paints. · Fevriol.		

Team Number: 04
Division: D

Academic Batch: 2021-22 Even

Solutions	User Categories			
Solutions	User 1	User 2	User 3	
Solution-1 details		· Icaches: Are advising the Students in Making Study Table.		
What if questions?	Mhat it this solution wan it work. Malif the cardinald is no Stronges enought to hold the wight	. What is students	· What if parents don't	
Approach could be	.It is acceptable that you Acached out for Solution.	study Table in not forever it is just for some instant of time	. This approach doesn't need much finantes -1 atd.	
"How Might We"	· Living still more ideas to purform better.	the students foods is	· We can make some asu argment to provide the cardboard.	

Team Number: 04

Division: D

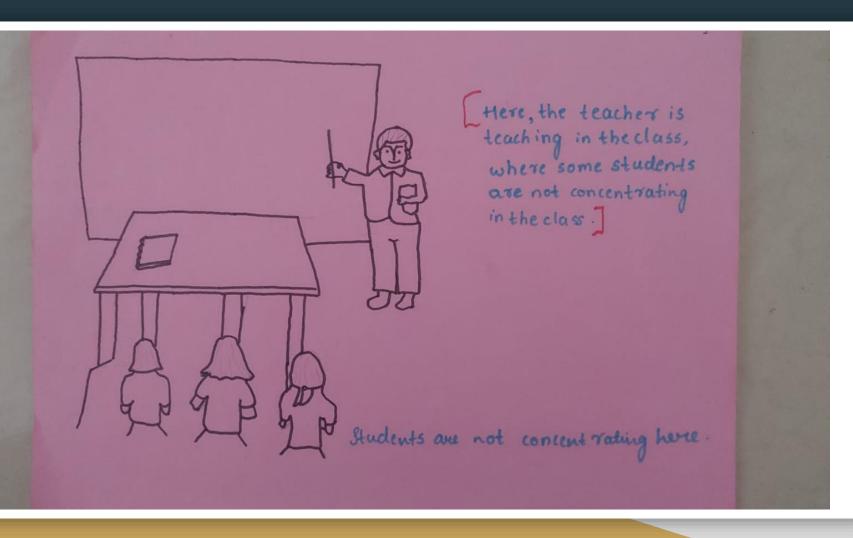
Academic Batch: 2021-22 Even

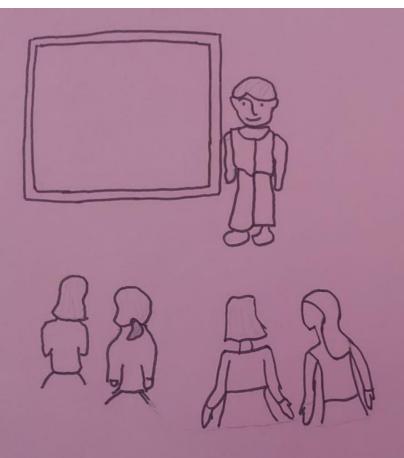
Action Plan:

SI No.	What & How	Who	When	Feedback	Corrective Steps
1	Inform feachers and Students to make their was study tobles.		September 4 th	It is feasible to make best out of waste.	None
2	Request the higher author; 1745 of the school to make Some arrangment to provide tables for students.	Higher authors - tics and two - members.	Sylemby 2nd	Acceptable	first help the students to who are affected by this problem.
3	Make some awangment to get donation for buy ing new benches.	Public and two manbers.	september 20th	Improbability and Expensive.	None.

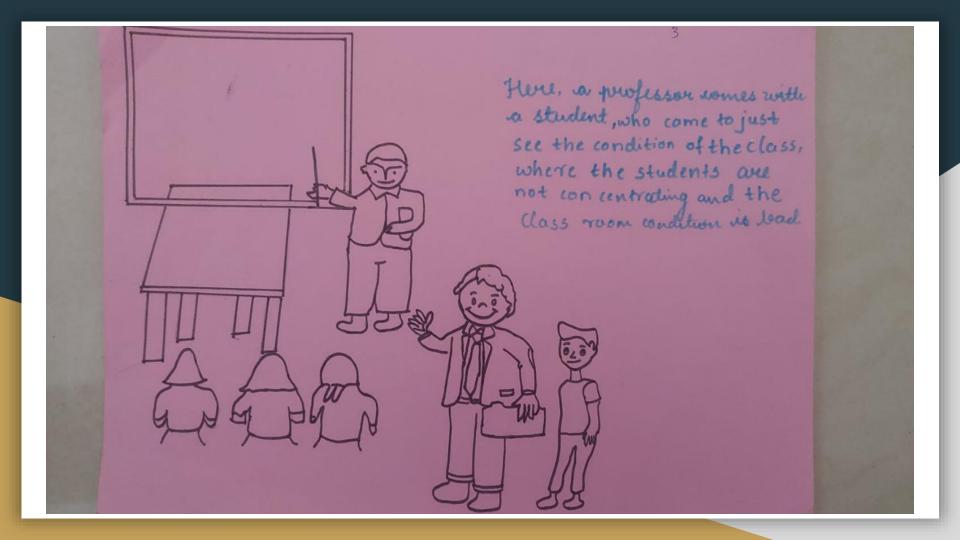
KLE University

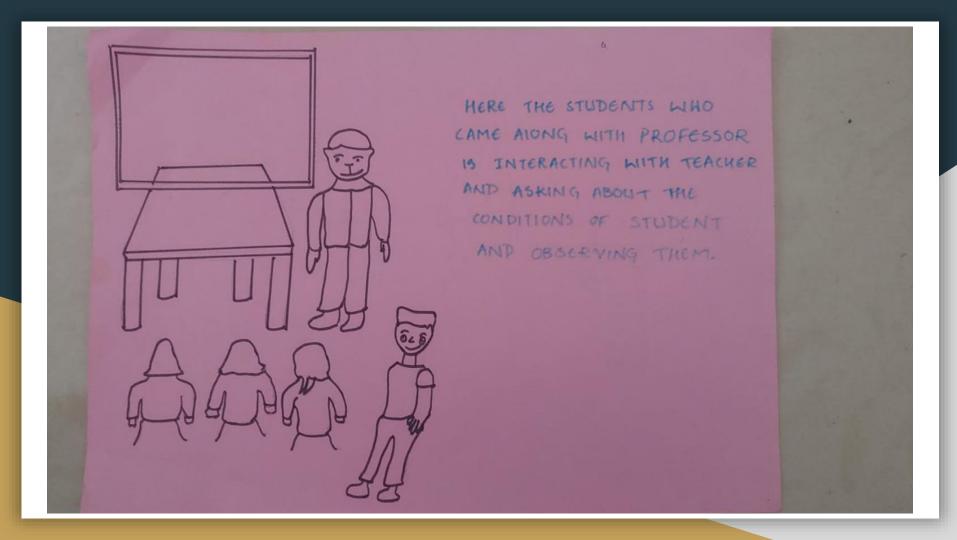
Centre for Engineering Education Research





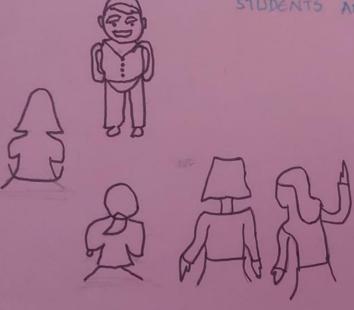
Here, the students are not concentrating because of their own problems facing by them. The teacher is unable to teach the in the class because Students are not concentrating.

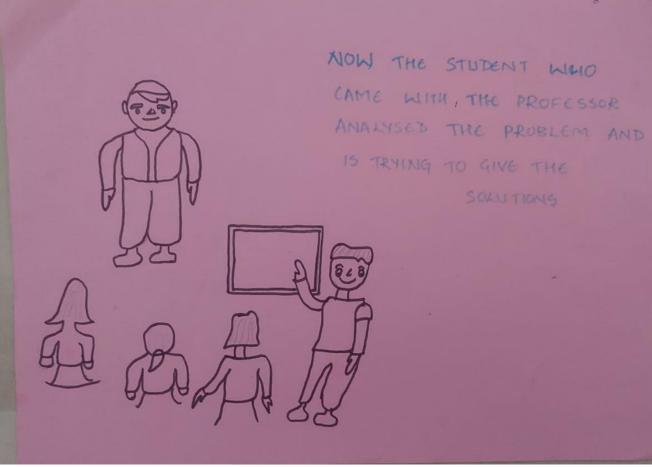




PROFESSOR IS INTERACTING WITH

STUDENTS AND ASKING THEIR PROBLEMS













THANK YOU...

