



Innovation Activities (AY: 2019-20)

List of Events organized and the details:

S. No.	Event	Date	Page No.
1	36-hr Hackathon held on 'Robotic Process Automation'	23 rd – 24 th December 2019	02
2	Innovative Projects list AY:2019-20	December 2019	14
	a) Water Leakage Detection system	"	15
	b) Sign to speech conversion using smart glove	"	
	c) A fully automated lawn mower using solar energy	"	
	d) Automated Titrator	"	17
	e) Scrap Collecting Robot	"	18
	f) Eco-friendly Blackboard Eraser System	"	19
3	Chatthra Vishwakarma Awards (CVA)	October 7 th 2019	



GEETHANJALI COLLEGE OF ENGINEERING AND TECHNOLOGY

Department of Electronics and Communication Engineering

36-Hr Hackathon held on ‘Robotic Process Automation’



Geethanjali College of Engineering and Technology
CHEERYAL (V), KEESARA (M), Medchal DIST-501301, Telangana

Report on
36-Hr Hackathon held at
Geethanjali College of Engineering
On the theme
‘Robotic Process Automation’



In Association with J-HUB - JNTUH
23rd – 24th Dec 2019

Convener
Dr. Anil Kumar Puppala

Co- Convener
Mr. Phani Kishore

Principal
Prof Dr.Susarla Udaya Kumar



Pre-Hackathon:

A separate website <https://geethanjaliapp.com/rpa/> was created to disseminate the information about the Hackathon on the theme ‘Robotic Process Automation’ that was hosted at Geethanjali College of Engineering and Technology (GCET). The above URL was also made available at the college website.

<http://www.geethanjaliinstitutions.com/engineering/announcements.html>

[GCET also conducted another Smart India Hackathon’s ‘internal Hackathon’ as mandated by AICTE on the same day. There was another separate weblink <https://geethanjaliapp.com/sih/> and separate Google form for registrations of students who participated in the internal hackathon on problem statements listed in sih.gov.in website.]

The website(s) had a provision to receive registrations through ‘Google forms’. [Process flow chart](#) for the registrations is given in Annexure 1 and is posted in the respective websites. [Problem statements](#) posted by local industry and also given by the departments of Geethanjali College of Engineering were posted in the website (Annexure – VI)

The registration forms required a description of the idea which included: Problem statement, proposed solution, market evaluation, prospective customer feedback etc., to be made as a .PPT. [A template](#) of which was made available during registrations through the websites (Annexure – II)

Cash prizes worth Rs.50,000/-for the first, second and third winners in both the hackathons were announced by the management as follows.

First Prize: 12,000/- INR;

Second Prize 2nd Prize: 8,000/- INR

Third Prize 3rd Prize: 5,000/- INR

Bootcamp:

Bootcamp on “Artificial Intelligence and Machine learning” was conducted on Sunday 22nd Dec 2019 in association with ‘Smart Bridge Educational Services Pvt. Ltd. 96 students had attended the bootcamp. Student representations from Chaitanya Bharathi Institute of Technology (CBIT), KKR & KSR (KITS) College Guntur and Geethanjali College of Engineering from all the departments were there.

[Annexure III is the attendance sheet of Bootcamp.](#)



Some of the pictures of Boot Camp

Hackathon:

There were a total of thirty three (33) teams registered online (Excel sheet - [Annexure - IV](#)). However three more teams had registered at the registration desk on the day of Hackathon. Total registrations were thirty six for the Hackathon on Robotic Process Automation.

Table: Teams and their colleges

College Name	No. of teams
Mahindra Ecole Centrale, Hyderabad	1
KKR & KSR (KITS) Guntur, Andhra Pradesh	1
VNR VJIET	1
Anurag College	1
Sreenidhi College of Engineering	1
VJIT	1
Geethanjali College of Engineering and Technology	30

Participants were asked to sign a consent form (Annexure V) to see that discipline is maintained during the event and was also used to assign team numbers.

During the Hackathon Inaugural Function

It started at 9:45AM. The convener of the Hackathon briefed about the number of registrations received and the arrangements made. Prof Masahiro Sasaki of Institute of Applied Physics,



Department of Electronics and Communication Engineering

University of Tsukuba, Japan graced the occasion as Chief Guest. Chairman of the college Mr. Ravinder Reddy expressed happiness that GCET is conducting 36 Hr Hackathon in collaboration with JHub, almost immediately after it has hosted an International conference on multifunctional materials and wished that ideas originating out of these events should lead to projects that help the society at large. Prof Dr. R. S. Raju, Dean R&D of GCET has congratulated the incubation team and JHub, JNTUH for conducting the Hackathon with the aim of nurturing the innovativeness among the students. Prof Sasaki stressed the importance of collaborations, not only between universities across the globe but also between individuals and events like these, which help students understand the significance of working in teams. The inaugural function ended at 10:15 AM.

The complete duration of 36 Hrs was divided into four phases:

1. Ideation Phase.
2. Design Phase.
3. Implementation Phase
4. Final Pitching Phase

Ideation started at four different venues with internal jury members nominated by the principal, suggesting changes/modifications/improvements to the student ideas. The jury laid importance on the aspects of innovation & technology, usability, feasibility, team & presentation. Judging criteria is attached as Annexure VII.





Mentor from Microsoft India Ltd Mr. Ashish Agarwal had starting at 2:00PM, visited all the teams and gave suggestions/improvements to the teams up to 8:00PM. Meanwhile, a second review was started by internal faculty at 4:00PM going to their respective desks 7:30PM. Post Dinner, intermediate targets fixed by the internal jury were explained to the teams. By 11:30PM, almost all the teams had frozen their design. Meanwhile, some of the teams requested few components to be procured, which were sourced from laboratories of GCET.



Internal committee comprising of Dr.Aruna Bharathi (Prof, Dept of EEE), Mr. Sandeep (Asst Prof, ECE), Ms. Jyothirmayee (Assoc Prof ECE), Ms. Srilakshmi (Assoc Prof ECE), Mr. Subramaniam (Assoc Prof ECE), Mr. Harsha Praneet (Assoc Prof CE), Ms. Kousalya (CSE), Mr. Sivaramakrishna (CSE), Dr. Harish Pulluri (Assoc Prof EEE), Prof Ashok Sharma (CSE) and the convener Dr. Anil Puppala (Prof EEE) formed in to three teams at 10:00 PM and went through all student teams suggesting improvements and guiding the teams until 2:00AM. A camp-fire from 2:00AM to 3:00AM renewed the energy levels of the participants, staff and faculty!

After returning from a brief rest and freshening up, Prof Aruna Bharathi, Dr. Harish Pulluri, Mr. Subramaniam, Mr. Sandeep, Dr.Puppala, Ms. Kousalya, Mr. Harsha Praneeth Mr. Siva Ramakrishna continued their mentoring to students until 7:00AM. All the teams took a break to freshen up and had breakfast by 8:30AM.

Dr.Syam Kumar (ME), Dr.Devaiiah (ME), Dr. Vijay Bhaskar (ECE), Dr.SriHari (ECE) Prof. Somasekhara Rao (ECE), Dr. Swathi Veldanda (CSE), Ms. Sri Lakshmi (CSE) started the final evaluation of the teams at 9:00AM as per the judging criteria and shortlisted ten teams. Nominees of JHub as jury members - Mr. Rama Krishna Chevuturu, Mr. Surendra Mohan started their evaluation of the teams shortlisted under ‘Robotic Process Automation’ at 2:00PM by going to the respective teams and finalized the following winners/winning ideas.

Prize	Name of the idea	Team	Contact Details of Team lead	Phone	College
First	Security system with face Recognition using opencv and voice assistance	Jyotishwara Prasad	ajyotish2000@gmail.com		Geethanjali College of Engineering and Technology
		RajaShekar Reddy	shekar.2025@gmail.com		
		Y Nikhil Komal Kumar	ynikhi005@gmail.com		
		DeneshwaraSai	iladenesh99@gmail.com		
Second	Scrap collecting Robot	<ul style="list-style-type: none"> VinjamUmakanth Alwala Suryanarayana Goud E Naveen G Vinay kumar 	umakanth.vinjam99@gmail.com	8309535112	Geethanjali College of Engineering and Technology
Third	MonstoGrains	<ul style="list-style-type: none"> Sia Yuva Teja L Nishit Reddy B Chaitanya P Dheeraj Reddy 	yuvas2001@gmail.com	7893021106	Vidya jyothi institute of technology



Valedictory Function:

The valedictory ceremony started at 5:00 PM on 24th Dec with interaction/feedback from the students from other engineering colleges. Convener Dr.Puppala, presented a report of the winning ideas of both the hackathons (Robotic Process Automation and Smart India internal Hackathon). Mr. Surendra Mohan, spoke at length on ‘automation’ and the tools that are currently being used in the industry and suggested that the students keep abreast with them. Mr. Rama Krishna opined that Robotic Process Automation (RPA) is an underrated missing block that is gaining huge traction today for comprehensive automation solutions for wide-ranging use cases by augmenting Data Analytics & AI on one end and IoT & Mobility on the other side. Cash prizes worth 50,000/- INR, as announced by the management, were awarded by Principal Prof Dr. Udaya kumarSusarla, Mr. Surendra Mohan, Mr. Ramakrishna and by the convener to the winners. Mr. YVN Phani Kumar (Co-Convener of the event) has proposed ‘vote of thanks’ by expressing gratitude to JHub, college management, principal, administrative officer and the legion of student volunteers (Annexure- and the photography club (dopy-team) of Geethanjali college for covering the event. Principal has appreciated the special efforts of the students Mr. Gokul (CSE – III year) and Mr. Aravind (ME – Final year) for designing the websites and logos & banners respectively.

Other Facilities:

A request for Police patrol vehicle by the GCET was kindly considered by Circle Inspector, Keesara Police station and was provided the same. Temporary rest areas were provided for boys and girls in two separate blocks renting about 100 beds. Mr. Ramanjaeyulu (CSE) and Mr. Naresh (CSE) took care of the food. Administrative officer Mr. Naveen Ram reviewed the arrangements at the canteen, resting areas. Mr. Srikanth Gangapuram (Assoc Prof EEE Dept) ensured that there was un-interrupted power supply. Mr. Dharmveer, Mr. Kamalakar Reddy ensured that there was wireless internet connection at the venue. Student volunteers did a tremendous job in assisting the jury, participants, faculty and the entire event. The list of the volunteers is attached as [Annexure VIII](#)



Students who attended and took part in 30hr vacation held on 23-24th Dec 2019 at Creeptanjali College of Engg from ECE Dept. ECE-3C ECE (3E)

V. Umrikant	- 17R11A04E4	R. Sindhuja	- 17R11A04D6
G. Vinay Kumar	17R11A04B2	D. Bethana	17R11A04A5
A. Suryanarayana Goud	17R11A04A7	P. Rajini	17R11A04C3
E. Navin	17R11A04A8	Saanya	17R11A04C1
<u>ECE-2C</u> Kavya. K	18R11A04B9		
Parashitha. S	18R11A04D1		
Preethi. K	18R11A04B5		
Maasya. G	18R11A04A8		
Rithika. G	18R11A04B0		
Sanjay Kumar	17R11A04P2		
Prashanth	17R11A04M1	} ECE-3E	
M. Rohith	17R11A04M7		
N. Doyu Rakshak	17R11A04M9		
V. Lasya	17R11A04P3		
K. Pooja	17R11A04N7		
M. Krishna Tejashwini	17R11A04M4		
K. Aishwarya	17R11A04L9		
P. Himasri	18R15A0439		
V. Sharath	18R11A04P6 - ECE 2E		
Y. Saketh	18R11A0446		
V. Sapalashruti	18R11A0444	} ECE - 2A	
B. Uma Devi	19R15A0403		

Dr. Ruppala
30th Dec 19
2019
Scanned by CamScanner



S5

- 1) P. Siree Sushma 17R11A04N2 ECE-3E
- 2) P. Sreevani 17R11A04N0 ECE-3E
- 3) B. Sharon Blessy 17R11A04K6 ECE-3E

S7

- 1) T. Sai Chandana 17R11A04P0 ECE-3E
- 2) V. Pravalika 17R11A04P5 ECE-3E
- 3) G. Vaishravi 17R11A04L2 ECE-3E
- 4) K. Ravali 17R11A04M0 ECE-3E

S8

- 1) Sai Sankethana 17R11A0451 ECE-3B
- 2) Bharani 17R11A0465 ECE-3B
- 3) Pooja H.R 17R11A0458⁽¹⁴⁸⁾ ECE-3B
- 4) Sahithi K 17R11A0469 ECE-3B
- 5) Akanksha V 17R11A0450⁽¹⁵⁰⁾ ECE-3B


S15

- 1) G. Nithish 17R11A04L3 ECE-3E
- 2) R. Eswar Sai 17R11A04N9 ECE-3E
- 3) R. Keethana 17R11A04N8 ECE-3E
- 4) K. Shailaja Reddy 17R11A04L7 ECE-3E
- 5) T. Yulraj witha 17R11A04P7 ECE-3E
- A. Sai Srinivasan 17R11A04K4 ECE-3E
- CH. Yeshwanth Reddy 17R11A04K9 ECE-3E

Dr. R. Srinivas
19/2/24




B. Vaishnavidevi	17R11A04F3	ECE-3D
N. Srilekha	18R11A0478	ECE-2B
G. Akhila	18R11A0463	"
G. Chellam	18R11A0466	"
K. Varshini Krishna	18R11A04M8	ECE-2E
G. Harshith	18R11A04MD	ECE-2E
P. Satya Harsha	19R11A04P1	ECE-2E
V. Shivani Reddy	18R11A04P7	ECE-2E
Y. Srija	18R11A04P8	ECE-2E
B. SaiTeja	17R11A0498	ECE-3C
B. Divya Sai Sathwik	17R11A04A0	ECE-3C
L. Rashmi	17R11A04B0	ECE-3C
M. Barath	17R11A04C5	ECE-3C
P. Stavani	17R11A04J1	ECE-3D
M. SaiTeja Sree	17R11A04C2	ECE-3C
P. G. Soni	17R11A04D2	ECE-3C
M. Kaethika	17R11A04C8	ECE-3C
P. Jadhavi	17R11A04D4	ECE-3C
K. Nanya Sree	17R11A0474	ECE-3B
K. Bhavana	17R11A0472	ECE-3B
K. KAVYA SHREE	17R11A04L8	ECE-3E
M. Mounika	18R15A0425	ECE-3C
M. Navaneetha	18R15A0421	ECE-3C


Dr. Srinivas
Pg 3 of 4



G. Manisha	18R15A0431	ECE-3C
S. Bharathi	18R15A0408	ECE-3A
S. Santhosh	18R15A0436	ECE-3D
B. Sreenadh	18R15A0437	ECE-3D
M. Vinaybabu	18R15A0432	ECE-3D
A. Raviteja	17R11A0467	ECE-3D
G. Rajashekar	17R11A0490	ECE-3D
S. Surekha	18R15A0428	ECE-3C
S. - Ambika.	17R11A0407	ECE-3C
B. Manjula	18R15A0426	ECE-3C
G. Achana.	17R11A04B1	ECE-3C


Dr. Ruppala
pg 4 of 4



Geethanjali College of Engineering and Technology

CHEERYAL (V), KEESARA (M), Medchal DIST-501301, Telangana

Students are hereby informed that, department of Cyber Crimes Hyderabad Police, in collaboration with Association of Women Entrepreneurs of Hyderabad is organizing a 36 Hr Hackathon on "Cyber Crimes, Crime against Women, Road Safety & Awareness, Social Media Monitoring & Tackling Fake News/Images/Videos". IIT Hyderabad, IIIT Hyderabad and Amazon Web Services are a part of this Hackathon. Geethanjali is one of the select few colleges who are invited to participate in this Hackathon on 14th and 15th Dec 2019 at Dr. Ambedkar Open University premises at Jubilee Hills.

Apart from the above, GCET is organizing another 36 Hr Hackathon on the theme "Robotic Process Automation" on 23-24th Dec. Students are encouraged to choose problem statements from www.sih.gov.in

Each department of our college has assigned mentors to assist/mentor students who would like to participate. There will be an internal evaluation of the ideas in our college on 10th Dec 2019. Students are encouraged to participate by giving ideas for better policing so that our surroundings become safer.

The following are the mentors assigned in each department.

Table with 4 columns: Department, Faculty assigned, Department, Faculty assigned. Rows include Civil Engg, CSE, ECE, EEE, ME, and Freshman Engineering with their respective faculty members.

Dr. Anil Kumar Puppala of EEE Dept and Mr. YVN Phani Kishore, of CSE Dept shall coordinate the efforts in this regard.

Principal



Innovative Projects (2019-20) and details:

S.No	Title of the project	Student Names	Student Roll No.	Year	Guide
1	Water Leakage Detection system	M.Srilekha, Charan Kalyan, S.Ramya, S.Ruchiswa	18R11A0478 18R11A0466 18R11A0488 18R11A0490	II	Prof.O.V.P.R.Shivakumar
2	Sign to speech conversion using smart glove	Deme Aishwarya, Vemula Snigdha Manthri Swamy	16R11A0455 16R11A0492 17R15A0421	IV	M.Anand
3	A fully automated lawn mower using solar energy	M Swathi ,Ramidi Prasanna Lakshmi ,Vemulapally Rakesh	16R11A0468 17R15A0415 17R15A0413	IV	Ch.Sandeep
4	Automated Titrator	G.Abinav,	19R11A04M0	II	P.Naresh Kumar
5	Scrap Collecting Robot	Vinjam Umakanth, Alwala Suryanarayana Goud, E.Naveen, G.Vinay Kumar	17R11A0E2	III	R.V.N.R.Suneel Krishna
			17R11A0497 17R11A04A8 17R11A0B2	III	
6	Eco-friendly Blackboard Eraser System	Eshwar Hemanth	16R11A0429	IV	Prof.O.V.P.R.Shivakumar



Water leakage detector

In today's world, water resources are being constantly exploited, many people are unaware about the amount of water they have been using. Another main reason for water wastage is water pipeline leakages.

Majority of the excessive water usage is on residential areas and commercial complexes.

The idea of this project is to help the user to understand their water usage and also to notify them of any leakages in the pipeline.

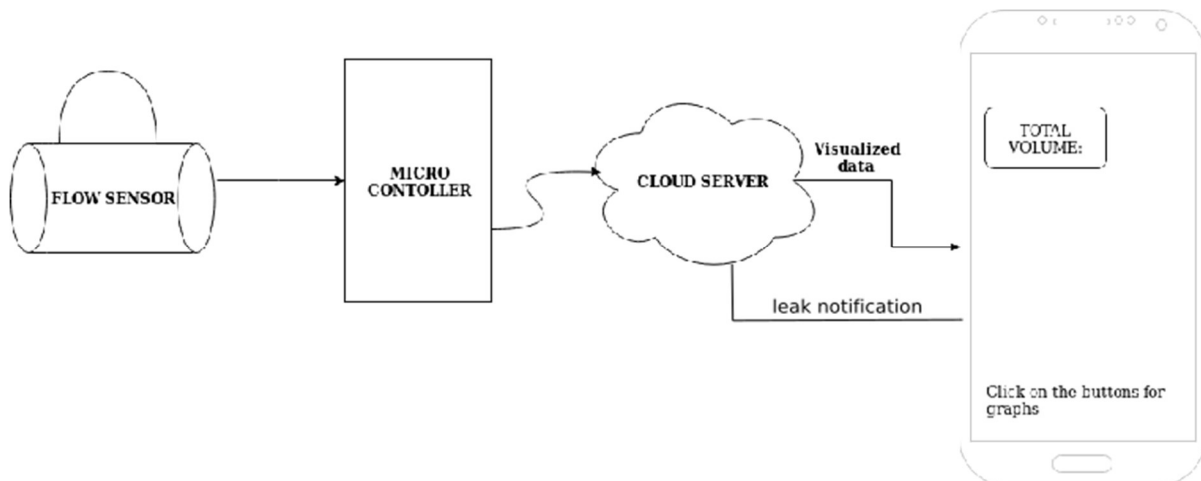
Our Plan is to collect the data of volume of water flowing at the two node points in the pipe and then if there is any decrease in the volume of water then there might be a potential water leak in that pipe. We will be displaying the volume of water used and pipeline leakage notification on a web application.

Scope Of The Project :

- This system is suitable for households and commercial complexes (like malls, cinema halls, offices etc.,)

Working:

Flow diagram of the system

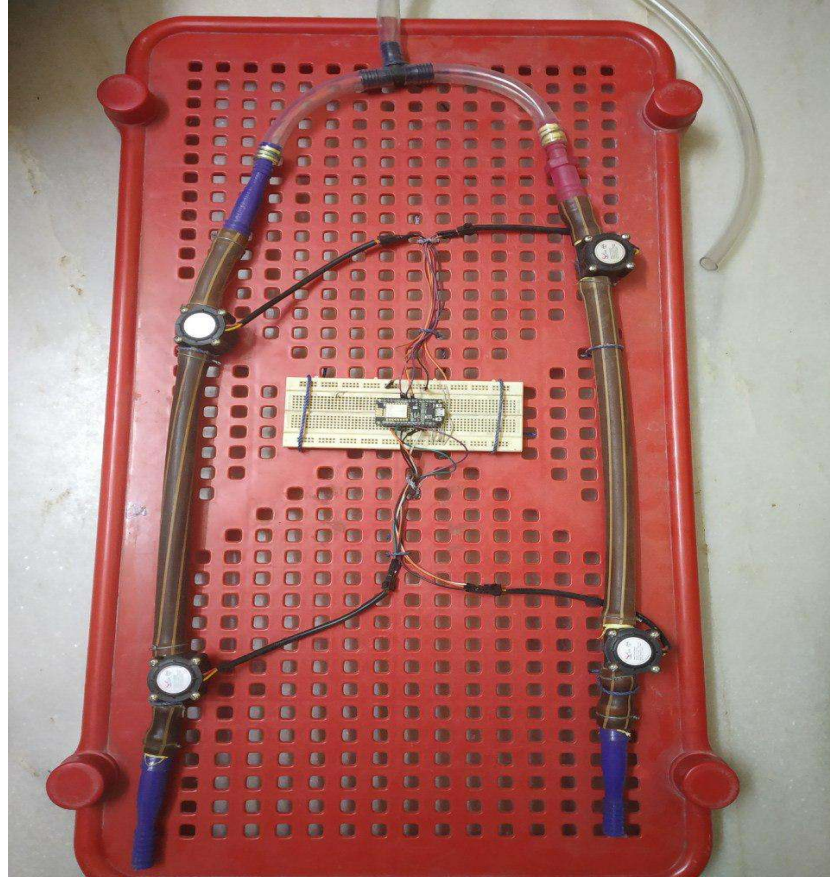


In this approach we use the flow sensors (YF-S201) to measure the flow of water through each pipe section. This data is then sent to the cloud server(ThingSpeak) where the data is visualised in the form of graphs. This data is then displayed on an mobile app(MIT App).

If there is a difference in the amount of volume used between two flow meters then there is a leakage in that pipe. If the leak is detected then a notification will be sent to the user.



A Working Prototype of the Project:





AUTOMATED TITRATOR

Abstract: This prototype enables to precisely control reaction conditions, reducing the risk of human error and giving you greater confidence in your results. The software tracks every variable of the experiment, giving you a proper end point. We hope to this system that it performs given task without any worries.

Firstly, a gear motor of sufficient RPM along with a PWM driver which is CYTRONMD10C, which indeed makes the motor to move clockwise, counter-clockwise. A wooden base and a binding wire to fix the motor to the burette. Since gear motor is less precision, its percentage error is around 20% and due to lack of available drivers for high load, a new method needs to be used.

To overcome the above drawbacks stepper motor is used. It has excellent repeatability, good precision around 1.8 degree for each step. So 28Ybg-48 stepper motor is used. Although it has an error of 1%, due to its size it couldn't take much input voltage and current and Burette knob is much larger than the motor. We used NEMA-17, which holds the torque up-to 4.7kg-which uses a driver, A 4988 to control the motor.

However, providing a proper power supply to this motor is a difficult task as the torque depends upon the wattage. To overcome this, A4988 driver is used that takes up-to 2.0A and has a heat sink to suppress the heat if current exceeds 2A.

After having a sufficient trial, it is concluded that new driver TB6600 which takes input current -5A is better instead of A4988 driver that doesn't take more than 2A which gave adequate results. However, it doesn't provide enough torque to turn the knob of the burette. Hence NEMA-23 which can hold up-to 30kg, with a new power supply of 24V, 5A to run the NEMA-23 with highest torque as possible. To hold the knob we made a circular nylon finish to its orthotist could fix perfectly.

The mechanical model was completed, the colour sensor TB6600 gives proper output in dark conditions a black box around the conical flask so that light won't penetrate inside.

At the final stage, we need to do testing process for various chemicals.

TEAM MEMBERS : M.Srilekha, Charan Kalyan, S.Ramya, S.Ruchiswa-IIIB

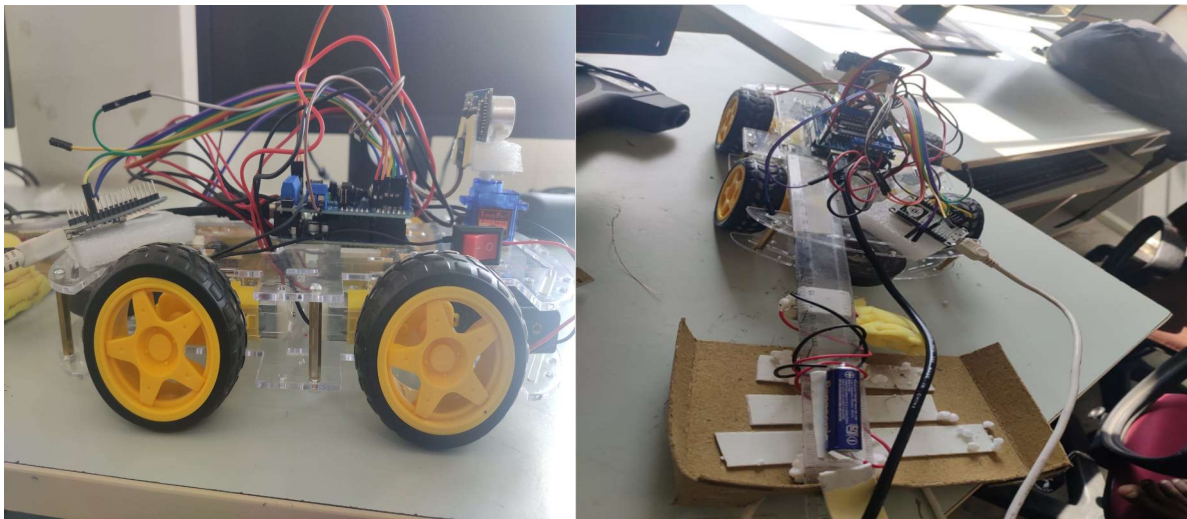


Automated Scrap Collection Robot

To develop a mechanism which can replace a worker who will be cleaning the factory floor with metallic particles which are produced during the manufacture of the metallic items. An **Automated Scrap Collection Robot** is a device which clean the floor without any human control . It is connected to Google assistant and can be on and off using the predefined voice commands in the users google assistant account . It also has a emergency switch which can be used to turn-off the bot manually. This bot is equipped with a ultrasonic sensor and servo motor which is used to detect the obstacles . Depending on the distance of the obstacle the bot changes its direction. Scrap collection is done in two ways i.e we collect the magnetic metallic particles using a magnet attached to the bot and the leftover non magnetic particles are collected using a collection mechanism in which a brush is equipped and it pushes the scrap while rotating , into the collection bin attached at the back .

Equipment used :Arduino – uno,Ultrasonic sensor ,Servo motor, Nodmcu,esp8266), Magnet, Dc motor

Sample pictures :



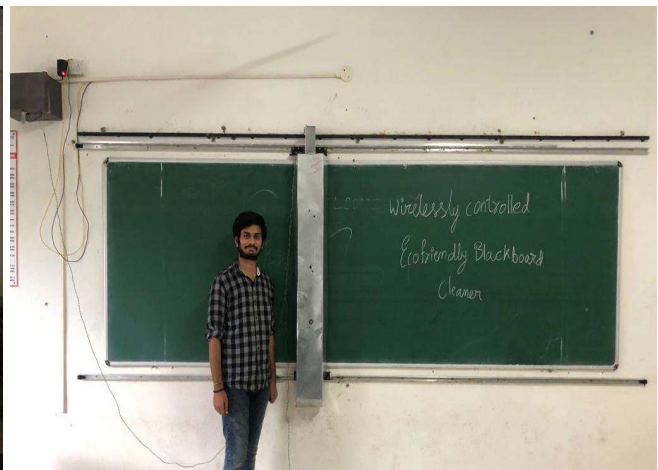
Team details :17R11A04E4 VinjamUmakanth (8309535112),17R11A0497 A Suryanarayana goud(8317615923),17R11A04A8 E Naveen ,9908764706),17R11A04B2 G Vinay Kumar (9948566966)



Eco-friendly Blackboard Eraser System

Blackboard is essential for every educational institution. The manual method of erasing the blackboard with a duster is time consuming and a tedious process. It breaks concentration of both lecturers and listeners. Chalk dust produced while erasing the blackboard causes serious health problems to both students and teachers. To overcome these problems, Remote Controlled Eco-friendly Blackboard Cleaner is one of the alternatives. It will reduce the time consumed to erase the blackboard and also the human effort.

Remote controlled eco-friendly blackboard cleaner is a machine which cleans a whiteboard or a blackboard automatically with press of a button of a remote device. This machine uses RF and a DC motor to move the duster in horizontal (X-axis) direction to cover the whole whiteboard area and DC Fans are used to suck the chalk dust particles produced. As an additional feature, the GSM module sends an SMS as a reminder to the faculty about the upcoming scheduled class.



The project was designed and implemented by Mr. M. Eswar Hemanth of ECE IV year (Section E, Roll No. 16R11A0427) under the guidance of Prof.O.V.P.R. Siva Kumar