



VICHARAKA

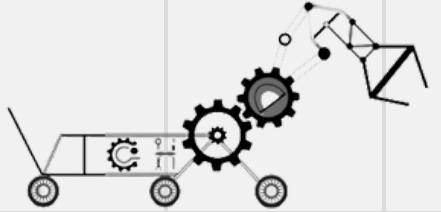
WE TRY TO ACT COOL BUT WE ARE JUST NERDS

SAHIL CHAUDHARY

SAYAK MAJI

PRATHAM GUPTA





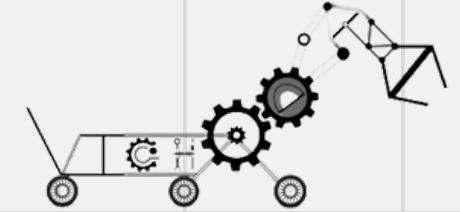
ABOUT US



Vicharaka is a group of students who are interested in the intersection of Robotics, Computer Science and Mathematics.

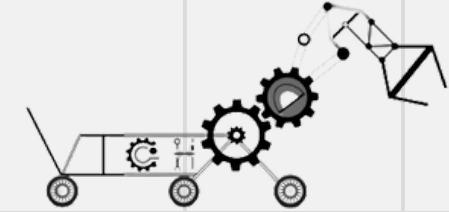
We have been actively supported by UG office, ARTPARK and RBCCPS.





NEED FOR VICHARAKA

Why did we even care to establish a club like vicharaka?



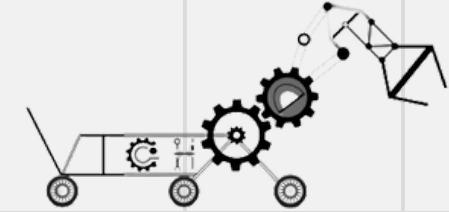
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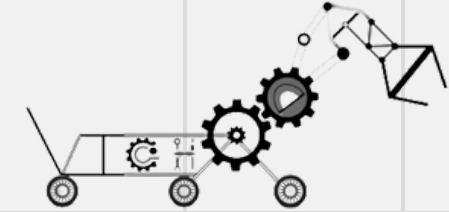
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SKILL DEVELOPMENT

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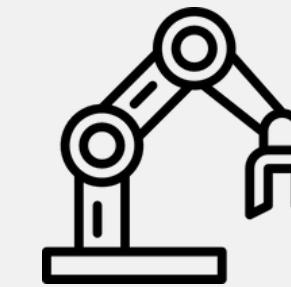
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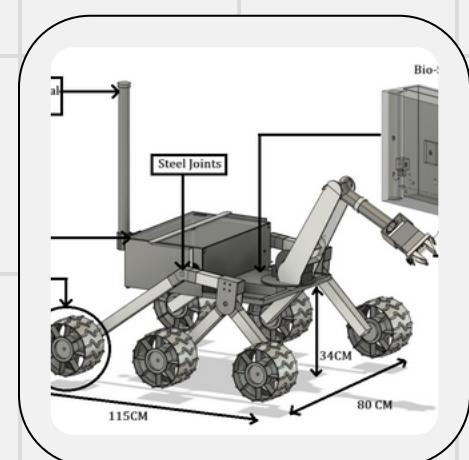
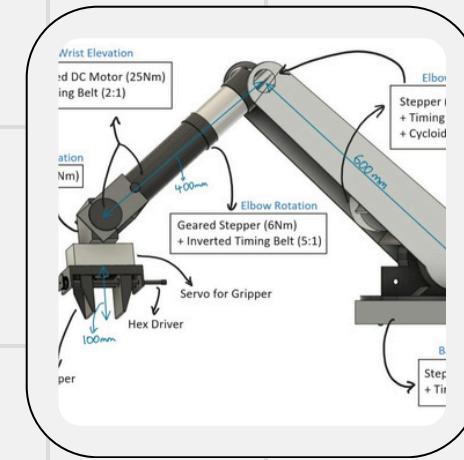
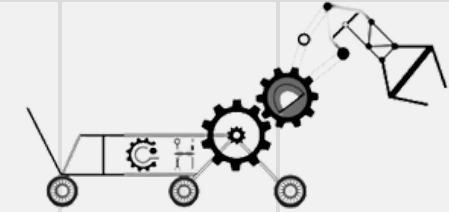
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EXPLORING ROBOTICS AND AI

We are students of mathematics and computing. We wanted to move outside our box and try to apply these skill sets in other use cases like Robotics.



Lab Pictures

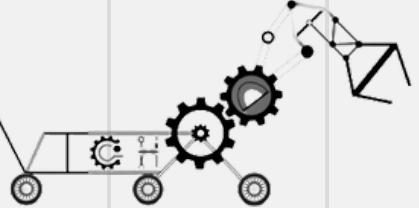
Lab Pictures

ACTIVITIES DONE SO FAR

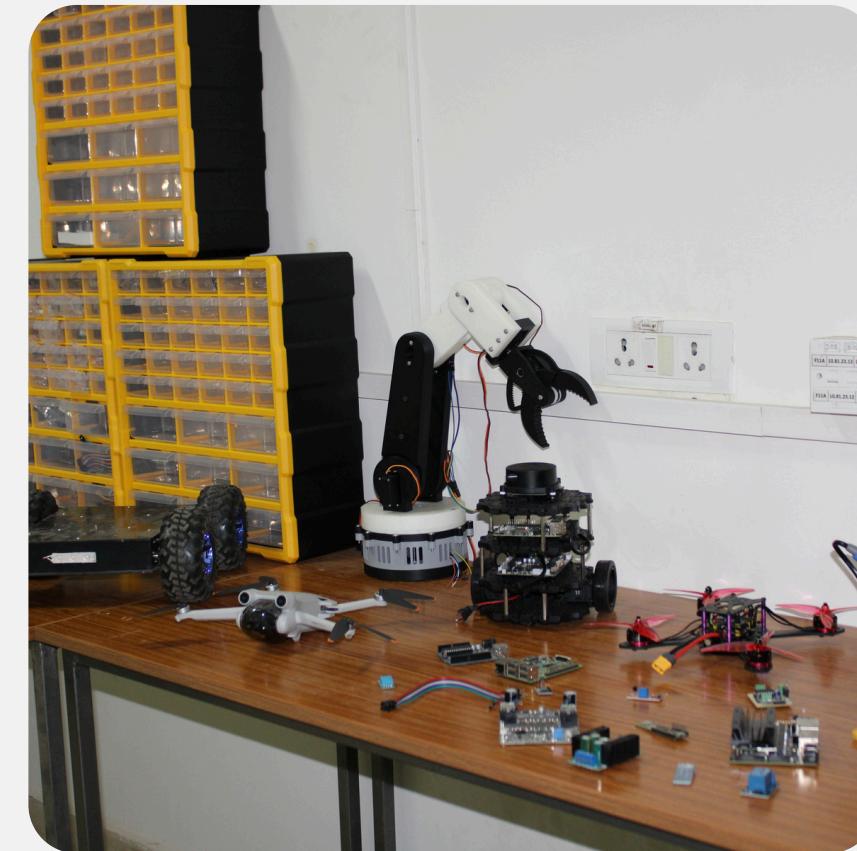
Vicharaka in its first year majorly focused on investing on lab and making the idea of building a rover possible. They work on various simulations to fixate the design of the chassis. Vicharaka ordered different machines which eventually motivated the group to establish a lab in OPB for UG students. Thanks to Prof. Srikanth and Prof. Balaji who allowed us to use a room in OPB and helped with infrastructure in the lab.

We would personally thank Prof. Pandurangan who act as a foundation for this club by supporting financially in the first phase of the club.

This summer, the team has majorly focused on completion of autonomous navigation system, object detection abilities, build drones, redesigning the rocker-bogie suspension and arm body printing.



SETTING UP A WORKSPACE

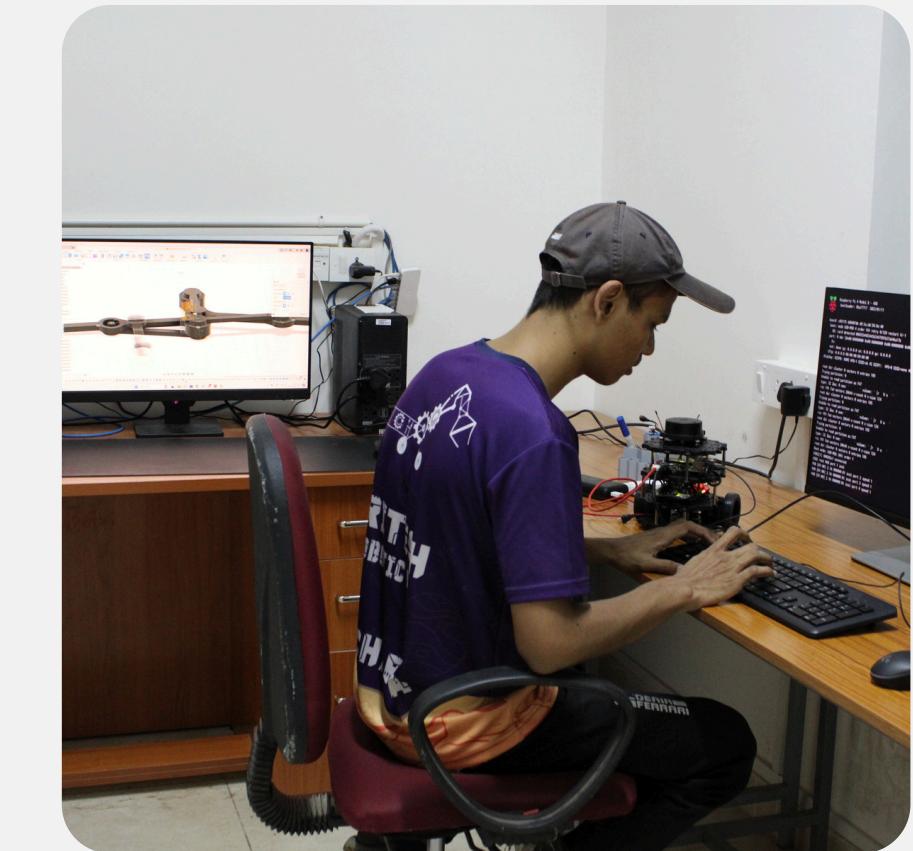


@iiscrovervicharaka



Vicharaka Lab is filled with all the machines a mechanic team would require. We have all the possible sensors required to build small projects. The idea was to enable students to pursue their project without any hurdle.

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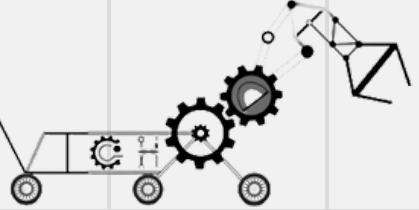


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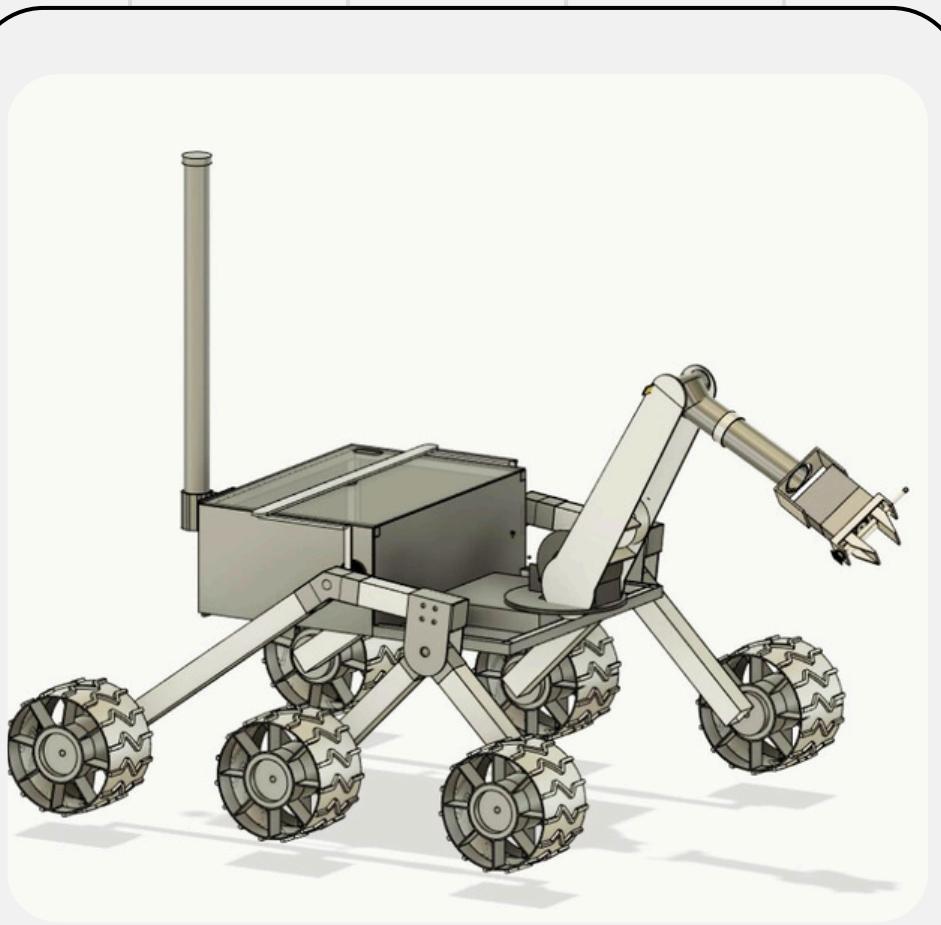


We recently set up some good computers for the software team. Since, most of their work involves writing codes and working out those algorithms in simulation, we required computers with good processors. We also have pre-built robots like turtle-bot for enabling software team to test their codes on the robots before mechanical team does their job.

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BUILDING A ROVER



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Team Vicharaka planned to build a rover as shown in our design. The Rover would have autonomous navigation system, life detecting abilities, object detecting abilities, a pay load ability of 10kg and a controllable ability upto 10km.

The Rover would also have an arm with an ability to carry a load of 5kg

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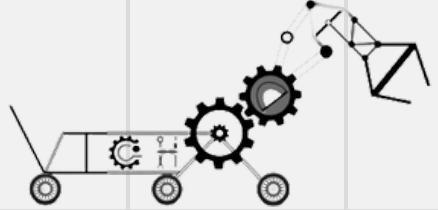
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Team Vicharaka has completed 2nd prototype so far. The current rover can be controlled within a range of 10km and has the ability of video transmission thus allowing user to control the rover from their room.

Team Plans to complete a prototype for their arm and navigation system before next academic session starts!

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BUILDING A QUADCOPTER

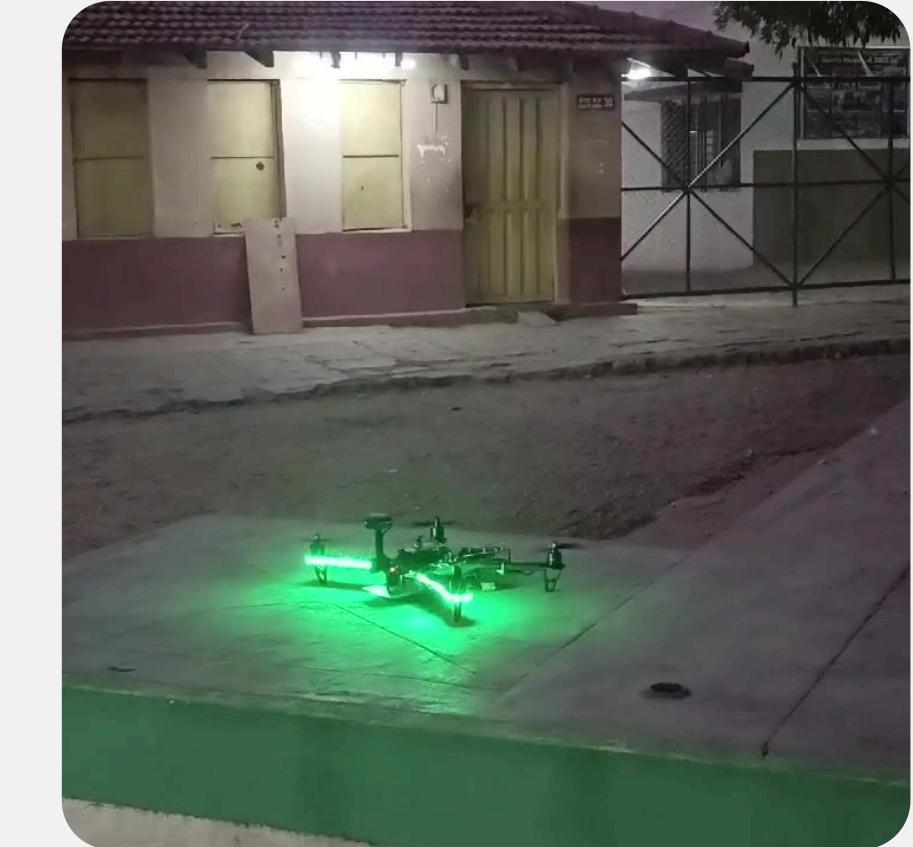


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The project focuses on the design, development, and enhancement of a quadcopter drone, with a primary emphasis on understanding and applying the fundamentals of avionics and aerodynamics. The objective is to achieve exceptional stability and precision, enabling the drone to perform designated tasks effectively.

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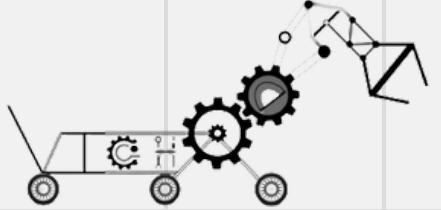
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Future Developments-

- Drone Photography
- Drone Rescue Mission
- Equipping with Lidar or Thermal Camera

♥ 5K ⚡ 5K ⚡ 5K



OPEN DAY 2024



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As a part of our IISc Open Day, we demonstrated our rover and simulations involved in designing the same.

We tried to share our knowledge as much as possible and encourage kids and general people to pursue science and engineering.

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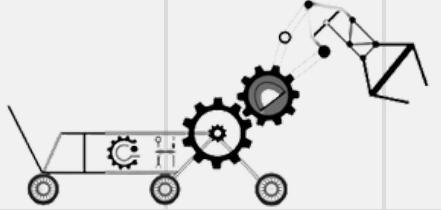
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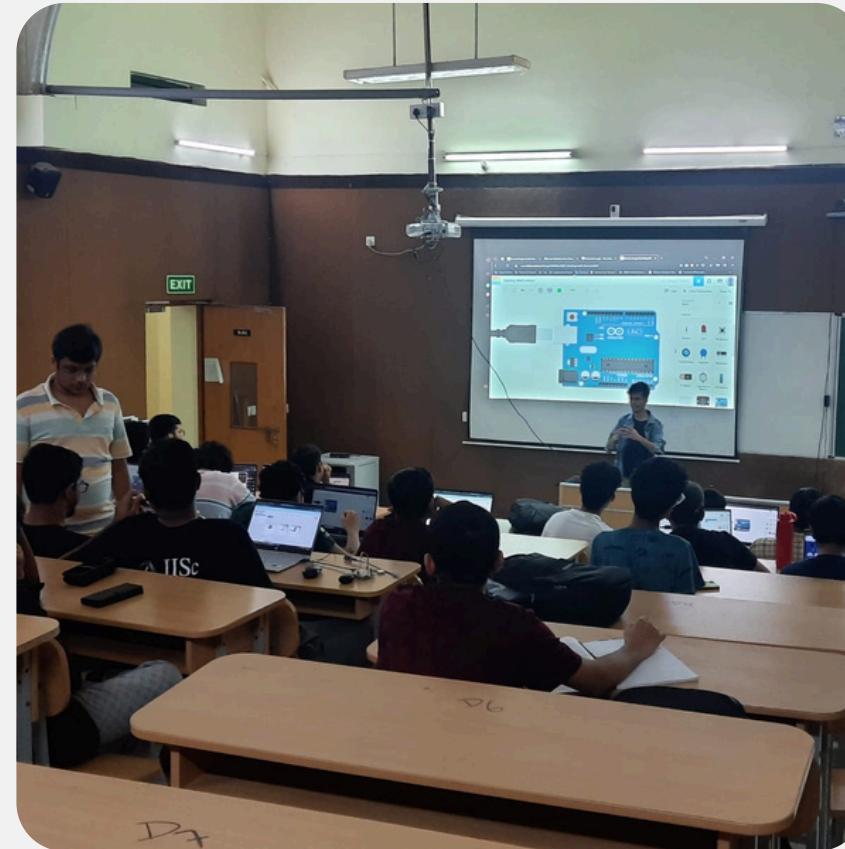
Open Day 2024 was our first step to public outreach where we tried to share our interests in Robotics and AI.

Due to different constraints at that point, we were only able to showcase few of our works but we are sure, we would show more works on next Open Day.

♥ 5K ⚡ 5K ⚙ 5K



ROBOTICS SESSIONS



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We conducted engaging sessions on embedded programming and electronics, where participants enjoyed hands-on activities

Participants also explored how various sensors work and learned their programming intricacies.

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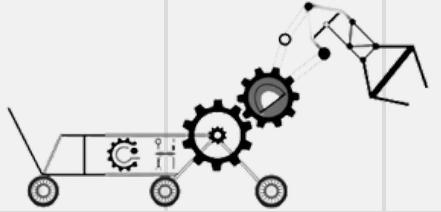
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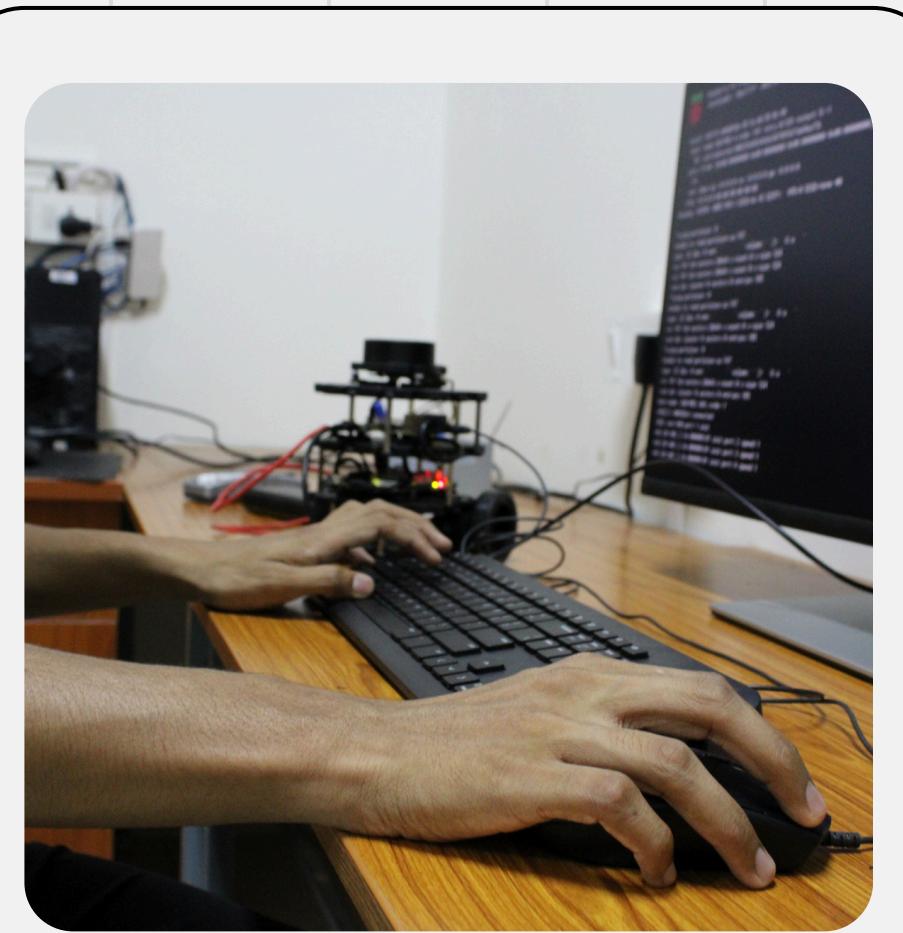
We hosted sessions on CAD modeling and design, where participants learned to use Fusion360 to design through hands-on activities, they learned the intricacies of CAD software.

Participants also used this knowledge in designing a robot car chassis.

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OTHER PROJECTS



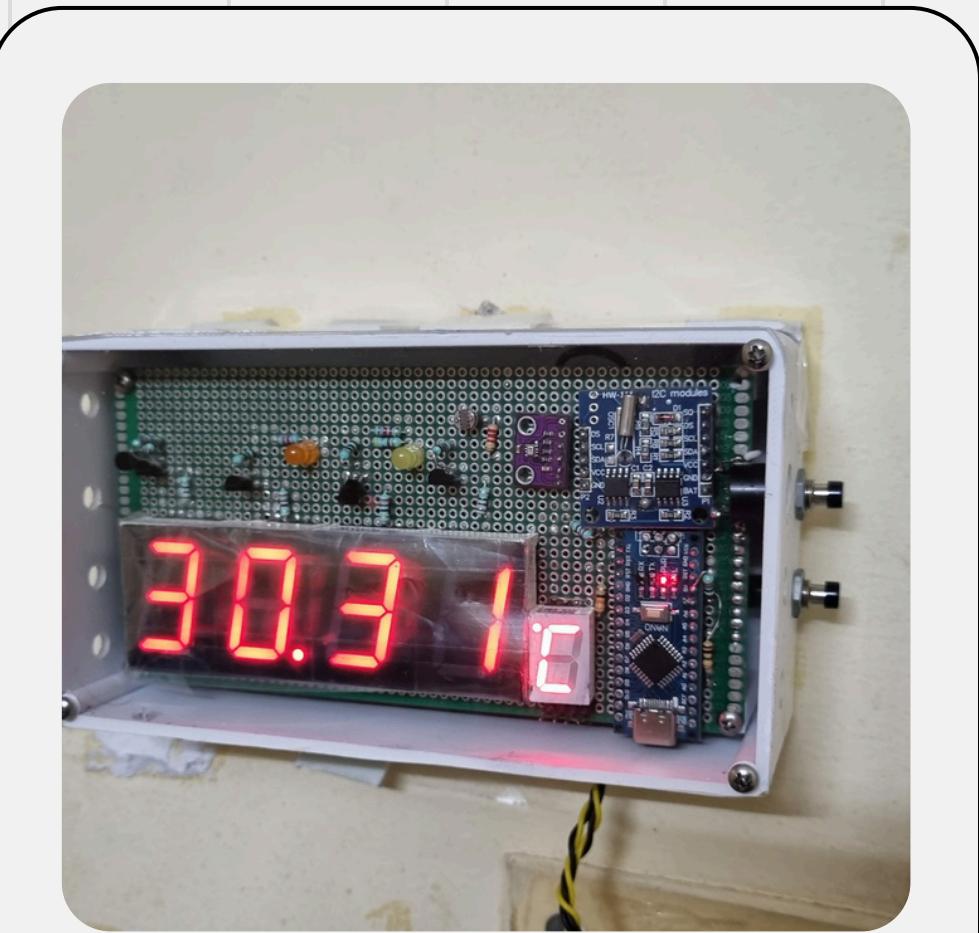
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Reading and Parallelly working on baby steps that might result in Humanoid Robots:

- Mechanics and Hardware
- Electronics
- Computer Vision
- Natural Language Processing
- Machine Learning

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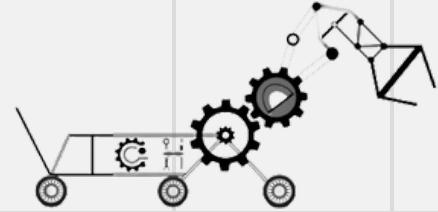
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Few of our members worked on wall clock just using a small Arduino, speaker, Bluetooth receiver and few other electronic components.

These can be connected to another Arduino system connected to your lights/fan and you can schedule your room lights to turn off using this clock.

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HOW IISc MADE THIS POSSIBLE ?

IISc has always been a great support system!



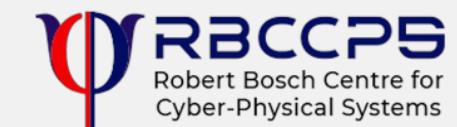
UG OFFICE

Prof. Srikanth help with everything possible to support us with infrastructure and resources.



ARTPARK

ARTPARK was kind enough to support us financially and help us navigate our way with the idea of having a club dedicated to robotics.



RBCCPS

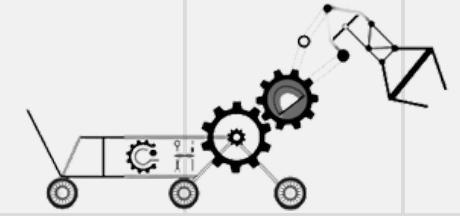
Prof. Pushpak Jagtap from RBCCPS is our major advisor and has always been our backbone in this whole journey.



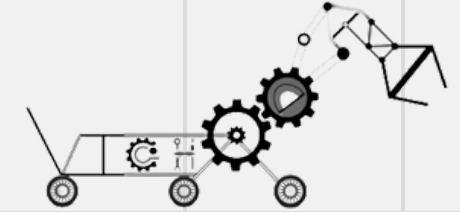
FACULTY SUPPORT

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VICHARAKA.URC@IISc.AC.IN



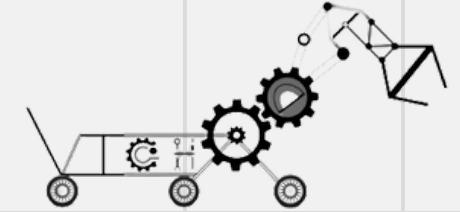
FUTURE PLANS



COMPLETE THE ROVER

The Plan is to work further on rover and fill the rover with specific skills and participate in competitions involving rovers

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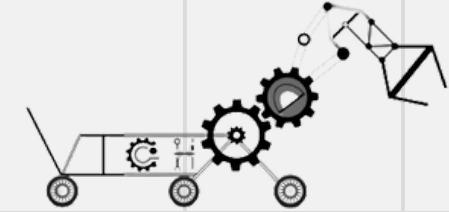
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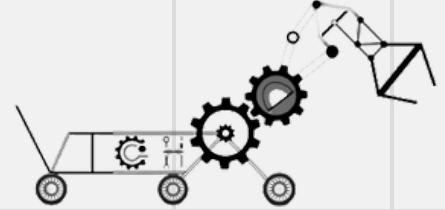
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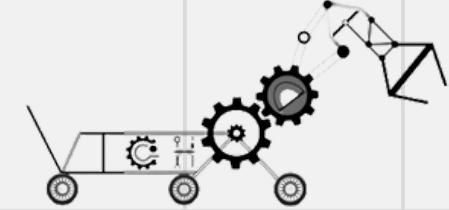
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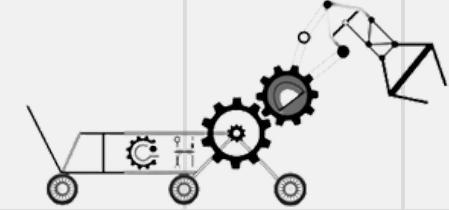
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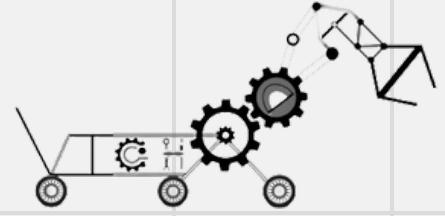
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Other than that we also plan to participate in various competitions and have fun.

VICHARAKA.URC@IISc.AC.IN



THANK YOU

FOLLOW US:   

FOR MORE DETAILS, PLEASE VISIT VICHARAKA.IISc.AC.IN