

# Projects Under Robotics Club

(five themes)

## [1]. UGV - Unmanned ground vehicle

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- **All Terrain Robot (AGV)**
  - Mentor- Varad, Rajendra
  - Team Leader - Pavan Chandra & Omkar
  - No. of team members -
  - Subtask :
    - The mechanism for all terrain navigation
    - Pick and place robotics arm
    - Autonomous and Manual control mode
  - Components required from EE Lab - Arduino(2), Raspberry Pi
  - Similar project: <https://youtu.be/ISznqY3kESI>

## [2]. AUV - Unmanned underwater vehicle

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- **Underwater Submarine(AUV)**
  - Mentor - Rajendra
  - Team Leader - Chayan Deb
  - No. of team members - 4
  - Subtask :
    - Altitude control mechanism - water chamber
    - Waterproof electronics
    - Horizontal motion control
    - Object recognition and tracking
  - Components required from EE Lab - Raspberry Pi
  - Similar project: <https://youtu.be/Df3TAWHAaus>

## [3]. UAV - Unmanned aerial vehicle

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- **RC plane**
  - Mentor - Manish
  - Team Leader - Aswin Raj K
  - No. of team members - 6
  - Subtask :
    - Stable control mechanism for flying
  - Components required from EE Lab - Arduino
  - Similar project: <https://youtu.be/gIURSGIXX0Y>

- **Ornithopter**

- Mentor - Divyansh Khare
- Team Leader - N.Jayaprakash
- No. of team members - 4
- Subtask :
  - Stable control mechanism for flying
- Components required from EE Lab - Arduino
- Similar project: <https://youtu.be/YBkaINpNnVI>

## **[4]. Biomimicking**

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### **A) Human**

#### **1) Humanoid**

- Mentor - Rajendra, Muskaan
- Team Leader - Parul Sangwan, Swami Prasad Amin
- No. of team members - 10
- Subtask :
  - Biped walking mechanism
  - Object grasping from hands
  - Face recognition(will be done by below face recognition team)
  - Conversation(will be done by below chatbot team)
- Components required from EE Lab - Arduino, Raspberry Pi
- Similar project: <https://youtu.be/Zsw35FpJSz0>

#### **2) Chatbot**

- Mentor - Suchit Mahajan
- Team Leader - Rakesh Kumar
- No. of team members - 5
- Subtask :
  - General Q&A (will be used in the above humanoid project too)
  - Personalised information based conversation
- Similar project: [https://youtu.be/\\_U146hWhDhM](https://youtu.be/_U146hWhDhM)

### **B) Spider robot**

- Mentor- Sachin Rustagi
- Team Leader - Pranjal Agrawal
- No. of team members - 5
- Subtask :
  - 6 or 8 leg navigation
  - Vision-based response
- Components required from EE Lab - Raspberry

- Similar project: <https://youtu.be/9tVvPAEA2VY>

## [5]. Everyday use

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- **Board Cleaning Robot**

- Mentor: Rajendra, Varad
- Team Leader - Raghav Tiwari
- No. of team members - 3
- Subtask :
  - Cleans whole board once instructed
- Components required from EE Lab - Arduino
- Similar project: <https://youtu.be/gXCEqz8pzOg>

- **Face recognition based classroom attendance**

- Mentor - Devansh Singh, Rajendra Singh
- Team Leader - Ashish, Vipin(2 teams)
- No. of team members- 5+2
- Subtask :
  - Face recognition(will be used in the above humanoid project too)
  - System for classroom attendance
  - Stable control mechanism for flying
- Components required from EE Lab - Raspberry pi(1+1)
- Similar project: <https://youtu.be/FeNasBaXdhg>

- **IOT based smart mirror**

- Mentor: Manoj
- Team Leader - Vinay
- No. of team members - 3
- Subtask :
  - Display general information like Temp., Time, Date.
  - Display personalised notification(e.g email) based on face recognition
- Components required from EE Lab - Raspberry pi, Display
- Similar project: <https://youtu.be/fkVBACvbrjU>

- **Cricket bowling machine**

- Mentor: Aakash
- Team Leader - K V M swaroop
- No. of team members - 2
- Subtask :
  - Automated balling for a different angle, speed etc.
- Components required from EE Lab - Arduino
- Similar project: <https://youtu.be/e4ubE2gQsB4>

- **Pen plotter**

- Mentor: Rajendra
- Team Leader - Chandana
- No. of team members - 4
- Subtask :
  - Able to draw complex diagram on A4 size paper
- Similar project: [https://youtu.be/KEvOdXhf\\_vQ](https://youtu.be/KEvOdXhf_vQ)

### **Summary of required components from the EE lab:**

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|----------------------------|---|-------------------------------------------------|
| 1) Arduino                 | - | 7                                               |
| 2) Raspberry Pi set        | - | 7 (Including HDMI, Power supply, camera module) |
| 3) 7" Raspberry Pi Display | - | 1                                               |