॥ सा विद्या या विमुक्तये ॥
भारतीय प्रौद्योगिकी संस्थान धारवाड
Indian Institute of Technology Dharwad

Summer Project List

2019 – 20

<table>
<tr><th>Project Name</th><th>Description</th><th>Members</th><th>Expense Breakup</th></tr>
<tr>
<td>SCARA</td>
<td>A SCARA Robot is a simple three linked, robotic module which is flexible in 3 dimensions. This modular device can be further improved on by means of adding a grappling arm and modifications at the end effector. Aim is to further be able to teach the module to grab objects.</td>
<td>Team of 7 students
Mentored by

Rohan Savakar
(170030033)</td>
<td>
<table>
<tr><td>3D printer material</td><td>₹ 1,200</td></tr>
<tr><td>Motor
(Servo-revolute)</td><td>₹ 500 X 3</td></tr>
<tr><td>Motor (Prismatic)</td><td>₹ 700 X 2</td></tr>
<tr><td>Arduino-Uno</td><td>₹ 500</td></tr>
<tr><td>Miscellaneous</td><td>₹ 1,500</td></tr>
<tr><td>Total</td><td>₹ 6,100</td></tr>
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<td>SLAM (Simultaneous Localisation And Mapping) with Swarm of robots</td>
<td>SLAM is an important problem in design of robotic motion on large scale. It is a computational problem of constructing or updating a map of an unknown environment while simultaneously keeping track of an agent's location within it.
It is used in search and rescue operations and in popular media, has been depicted in various movies involving hostage rescue scenes.</td>
<td>Team of 7 students
Mentored by

Vihang Puranik
(170030008)</td>
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<table>
<tr><td>Drones + Controller</td><td>₹ 5,500 X 3</td></tr>
<tr><td>Miscellaneous</td><td>₹ 1500</td></tr>
<tr><td>Total</td><td>₹ 19,000</td></tr>
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<td>Spy-der bot</td>
<td>The project is a four-legged Arduino powered, Bluetooth controlled spider robot. It works by manipulating several servos motors to achieve the bot's motion. The chassis will be 3D printed. It will be controlled by a smartphone via Bluetooth, through an app.</td>
<td>A Team of 7 mentored by

Abhinav Gupta (170030019)</td>
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<tr><td>Arduino</td><td>₹ 400 X 2</td></tr>
<tr><td>Servos</td><td>₹ 350 X 12</td></tr>
<tr><td>LIPO battery</td><td>₹ 1000 X 2</td></tr>
<tr><td>Motors</td><td>₹ 25 X 4</td></tr>
<tr><td>Bluetooth Module</td><td>₹ 300</td></tr>
<tr><td>Miscellaneous</td><td>₹ 1000</td></tr>
<tr><td>Total</td><td>₹ 8,400</td></tr>
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<td>Dynamic Obstacle Avoidance and Path Prediction</td>
<td>A bot which can move to a desired destination in a dynamic state obstacle environment, changing its routes and patterns automatically. It can provide multiple possibilities to monitor a situation in an environment where it's difficult for humans to reach.</td>
<td>A Team of 4 students

Aman Singal
Himanshu
Nikhil Singh Negi
Rajat Tyagi</td>
<td>
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<tr><td>Advance Metal Chassis</td><td>₹ 200</td></tr>
<tr><td>1.5-inch 38mm Omni wheel</td><td>₹ 350 X 4</td></tr>
<tr><td>Servo Motors</td><td>₹ 350 X 4</td></tr>
<tr><td>Maxbotix MB1240 XL-MaxSonar-EZ4 High Performance Ultrasonic Sensor</td><td>₹ 3100 X 3</td></tr>
<tr><td>Raspberry pi 3b+</td><td>₹ 300</td></tr>
<tr><td>Total</td><td>₹ 3,500</td></tr>
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<td>VTOL Autonomous Delivery drone</td>
<td>Developing an UAV (drone) infrastructure in the campus.</td>
<td>A Team of 4 students

Akhil Manoj
Akhilesh Baradhwaj
Paritosh Gavali
Sohan Anisetty</td>
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<tr><td>EMAX MT3110 700KV Brushless DC Motor</td><td>₹ 12,000</td></tr>
<tr><td>Propellers</td><td>₹ 200 X 2</td></tr>
<tr><td>Pixhawk flight controller</td><td>₹ 6000</td></tr>
<tr><td>GPS (Ublox Neo) Flight Controller</td><td>₹ 1500</td></tr>
<tr><td>Racer star 30A BL-Heli v2 ESC</td><td>₹ 3600</td></tr>
<tr><td>Frame</td><td>₹ 1000</td></tr>
<tr><td>Miscellaneous</td><td>₹ 500</td></tr>
<tr><td>Total</td><td>₹ 25,000</td></tr>
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<td>Lifeguard Assist System</td>
<td>It is an innovative solution to save drowning people and drag them back to shore safely. It will be remotely piloted by the lifeguard and will have some onboard sensors to provide limited autonomy.</td>
<td>A Team of 4 students

Sameer Anis
Joshitha Reddy
Vaishnavi Patil
Pranay Konduru</td>
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<tr><td>Coleman 12V Electric Trolling Motor (2 motors)</td><td>₹ 14,500</td></tr>
<tr><td>MinnKota Trolling Motor Power Centre</td><td>₹ 4,500</td></tr>
<tr><td>RC Transmitter and Receiver</td><td>₹ 2,000</td></tr>
<tr><td>Plywood and other materials</td><td>₹ 3,000</td></tr>
<tr><td>Total</td><td>₹ 24,000</td></tr>
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<td>Xbox-Kinect Project</td>
<td>Using the Xbox Kinect sensor to map the surroundings and provide data to a RC car for obstacle avoidance</td>
<td>Sohan Anisetty (180030040)</td>
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<table>
<tr><td>Nvidia Jetson Nano</td><td>₹ 9000</td></tr>
<tr><td>Robot car/arm frame</td><td>₹ 1000</td></tr>
<tr><td>Total</td><td>₹ 10,000</td></tr>
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Grand Total	**₹ 96,000 -/**