

Hands-On Workshop in Basic Robotics

The basic idea of a hands-on workshop is to actively participate in groups and to put on your thinking caps and innovate something new. We the *ACROM(Amrita Club for Robotics and Mechatronics)* and *IEEE Robotics and Automation Society (RAS) ASE Bengaluru chapter* put together a hands-on workshop on the 8th and 9th of September 2018.

A total of **42** teams registered for the event, approximately 168 participants.

On the first day, our team taught the students about the basic methodologies and the working of *Arduino*. The basic equipment and accessories needed for making bots were also discussed. This helped the students increase their knowledge in some of the fundamentals of robotics and paved a way to the learning of Arduino and its uses in the real world.

On the Second day, the students learned to interface the Arduino with different *sensors and modules*. They learned a few Arduino applications practically.

The following are the four Arduino applications the students had learned.

- **Line Follower (LIFO)** – Interfacing the Arduino with infrared sensors and code in such a way that the robot follows the black line.
- **Edge Detector**- Using infrared sensors, sensing the edges and then avoiding them by making the bot move in a different direction using Arduino.
- **Bluetooth Module**- Interfacing the Arduino with a Bluetooth module, to control the robot's motion externally.
- **Sumo Wrestler**-Learning to use limit switch with Arduino and making their own wrestling bot.
- **Obstacle Avoidance** - Learning to use ultrasonic sensor to sense an obstacle in front of the robot and avoid it.

By the end of the 2 days, the students were ready to showcase their bots to their friends, families as we had given a take away kit to them. Overall we had an amazing experience and hope to continue bringing out more workshops like this for those who are interested.

