Mrugank Pednekar

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About

TECHNICAL SKILLS C/C++, Java, Octave, Arduino/Arduino IDE, HTML, PCB Etching, EAGLE

LANGUAGES English, Hindi, Marathi, Konkani

Achievements and Personal Projects

'SHAASTRA' - IIT MADRAS (One of Asia's largest tech festivals) (December 2016-January 2017)

- Developed an autonomous 2-D maze solving robot, capable of traversing non-looped mazes and finding the shortest path from initial to final node. Used 'Left Hand on The Wall' Algorithm. Secured 4th Position in the event.
- Was a member of the team which was awarded 1st position in the 'Robowars' event, which involved building a heavy weight robot, capable of pinning or immobilizing the opponent's robot.

'QUARK' - BITS GOA (February 2018)

- Awarded the 2nd position at the National Level in the Line Following Event.
- Made a fully autonomous robot which traverses a line. Implemented PWM(Pulse Width Modulation) and PID(Proportional Integral Derivative) in order to improve stabilization and thus increase average speed.

BUILDATHON ROBOTICS CUP NATIONALS (January 2018)

- Won the Best Robot Model Award for designing an autonomous line following robot, which is able to identify obstacles, avoid them, and climb steep inclines.
- Used an arduino microcontroller, L293D motor driver and PWM to increase stability.

ELECTRIC SKATEBOARD (July 2017)

- Single rear drive, wireless Electric Skateboard made with a brushless motor, 180 A ESC, custom welded motor mount. Controlled with a wireless 2.4Ghz controller. Capable of traversing on poorly maintained roads as well due to large ground clearance.

QUADCOPTER (March 2018)

- Carbon fibre frame, with provisions for mounting a camera and obtaining real time visual footage.
- Components included F3 flight controller, 20A optical ESCs, 4 Brushless Motors and a 2.4Ghz transmitter and receiver system. Configured using BetaFlight Configurator.

DESIGNED AND ETHCED PCB (April 2017)

- Single layered PCB using a copper clad board for mounting arduino nano and TB6612FNG motor driver in order to eliminate jumper wires and to achieve compactness.
- Designed the circuit using EAGLE and etched using Ferric Chloride.

ROBOTICS INSTRUCTOR - LVE

- Introduced Robotics and Programming for free to 13 High School Students, and guided them to build their first robot.
- The project was a wireless android controlled robot, using arduino, L293D motor driver, and a HC-05 module.

LDR (Light Dependent Resistor) AND EDGE DETECTING ROBOTS (November 2015)

- Autonomous robot which moves in the direction of light. Components include a light dependent resistors, potentiometers and motors.
- Autonomous robot capable of detecting obstacles in it's path, as well as detecting edges on a plane surface. Components used were an ultrasonic distance sensor, an arduino and a motor driver.

Publications

- Rise Of The Machine | The Goan In School (July 2017)
  An article about my experience with robots. For the article please click Here.

Education

MUSHTIFUND ARYAAN HIGHER SECONDARY SCHOOL Bambolim, GA (2019–Present)

SHARADA MANDIR SCHOOL Miramar, GA (2016–2019)

- Graduated with 92.17% at the ISCE Examination
- Chairman's Special Award for academic excellence