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

Experience

Team Phoenix   (February 2016 - June 2018)
Robotics Intern

- Developed Semi-Autonomous/Autonomous robots using Arduino, L293D,L298N,TB6612FNG motor drivers.
- Designed and soldered circuits using various ICs. Programmed robots using Arduino IDE.
- Gained insights and experience in combat robotics and organizing robotics workshops, events across the state.
- Participated in International/National level technical events and secured various prizes at a variety of events.
- Implemented algorithms for 2-D maze solving such as PID, Left Hand On The Wall.

Personal Projects

Personal Project Website   (June 2020)

- A website containing my profile, curriculum vitae, experiences, and a technical guide to making each of my projects. Coded in HTML and CSS on GitHub.

PID Line Follower   (April 2018)

- Line Following Robot integrated with PID(Proportional Integral Derivative) and PWM(Pulse Width Modulation).
- Used Arduino Nano, TB6612FNG motor driver, digital 8IR sensor array and coded with Arduino IDE.

Obstacle Avoiding Line Follower - 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 Etched 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   (April 2017)

- 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 phone controlled robot, using arduino, L293D motor driver, and a HC-05 module.

Hotel Management Project   (November 2015)

- Made a demonstrative management system for a dummy hotel. Provisions for reserving, cancelling rooms as well as calculating stay expenditure, room allocation, displaying all of the above information. Coded in JAVA. Submitted for evaluation as my high school project.

All-Terrain Robot   (May 2018)
  - Wireless robot capable of traversing challenging terrains, equipped with a 433Mhz transmitter and receiver system, with a 2A motor driver. Range of 60 metres. DPDT switches used for controlling the robot.

Sensor Equipped Robots   (November 2016 – March 2018)
  - Autonomous robot, capable of solving a non-looped maze and finding the shortest path. Used Left Hand On The Wall algorithm. Used arduino nano, TB6612FNG motor driver, analog 8IR sensor array. Coded using Arduino IDE.
  - Autonomous robot, capable of detecting obstacles and edges in it's path using ultrasonic distance sensors, and an Arduino. Coded with Arduino IDE.
  - Autonomous robot which proceeds in the direction of light. Made with light dependent resistors, which controls the movement of the actuators.

Publications

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

Education

MUSHTIFUND ARYAAN HIGHER SECONDARY SCHOOL   (March 2019 – Present)

SHARADA MANDIR SCHOOL   (June 2016 – March 2019)
  Graduated with 92.17% at the ISCE Examination.

Achievements and Social Service

  - Team won 1st Place in RoboWars & 4th Place in MazeSolver at 'SHAASTRA '17'-IIT M(One Of Asia's largest Techfest).
  - Team awarded 2nd Position at 'Quark '18' – BITS Goa's technical fest.
  - Won 'Best Robot Model' award at 'BUILDATHON'-Robotics Cup Nationals 2018.
  - Featured on the front page of TGIS(The Goan In School) newspaper along with my article on Robotics.
  - Awarded Chairman's Special Award for academic excellence at the ISCE Examination 2019.