Paavan Raj

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EXPERIENCE

Western Engineering Competition Leader Sept 2017 - Present

- Manage the innovative engineering competition, drafting competition guidelines and problem to be solved by competitors
- Overlook event on the competition day, acting as a facilitator to enable participants to compete to their fullest potential

Western Aero Design Sept 2016 – Present

- Work with a team of 15 people to build a miniature airplane to compete at the national SAE Aero Design competition
- As a member of the aerodynamics team, test and model various wing configurations and shapes to achieve maximum lift and flight time
- Assis the controls team in designing and testing of the autonomous computer to maintain flight using PID feedback control and sensors
- Creating a drone to be used in monitoring the plane during flight time

Western Engineering Robotics Team Sept 2016 – Present

- Worked individually to build an autonomous bipedal walking robot
- Manually soldered surface mount components of Arduino based PCB for walking robot following various schematic circuit diagrams
- Teach new members of the club relevant skills such as soldering, reading schematic diagrams, Arduino, and C based programming

Quality Assurance Specialist July 2015 – Aug 2016
M&R Automation Ontario

- Inspection of parts to ensure that engineering specifications were met
- Used mills to machine parts for use in automated assembly lines
- Constructed mechanical subassemblies used in the main assembly
- Used knowledge of CAD modelling, Solidworks software, and geometry to assist machinists in fabrication of complicated parts

PROJECTS

Stark April 2017

- Fully custom autonomous robot modelled in Solidworks and programmed using an Arduino microcontroller platform
- Utilises custom-made laser cut and 3D printed motor driven rack and pinion forklift system to remove obstructions and pick up objects

Jarvis February 2017

- Arduino based autonomous line tracking robot which uses three light sensors to follow a track and a servo controlled claw effector with a mounted photoresistor to move light emitting obstructions

EDUCATION

Western University
Mechatronic Systems Engineering (BESc)
2015 – 2019

Certified Solidworks Associate
2017

TECHNICAL SKILLS

Programming languages:

Arduino • C++ • Java
JavaScript • HTML • CSS • C

Tools:

Git • Visual Studio • Microsoft Office • Microcap • Eagle Solidworks • MATLAB Quartus • Processing • p5.js

Laboratory instruments:

Soldering irons • Shop Machinery (mills, lathes, sanders, etc.) • Multimeter Oscilloscope • Protoboards

COURSE WORK

Programming Fundamentals
Mechatronics Systems Design
Electrical Instrumentation
Kinetic Analysis of Machines
Electric Machine Analysis
Control Systems Design
AC and DC Circuit Analysis
Material Selection and Design
Finite Element Methods
Microprocessor Selection

CLUBS

DECA Western University
Sign Language Association
Western Magic Association
Western Automotive Society