Sajeev Debnath

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Education

University of Toronto Toronto, ON

Bachelor of Applied Science, Computer Engineering (2nd Year) *Sep. 2022 – present*

GPA: 3.60, Dean's Honour List, UofT Engineering International Scholar Awardee

Relevant Courses: ECE244 Programming Fundamentals **(C++)**, APS105 Computer Fundamentals **(C)**, ECE241 Digital Systems **(Verilog)**, APS112 Engineering Strategies and Practice II

Experience

Software Developer Oct 2023 – Present

aUToronto *Toronto, ON*

- Developing the user interface for the Autonomous Car using ROS 2 in Linux to replace the previous keyboard controller implementation with an intuitive digital touchscreen solution.
- Utilizing Rviz with ROS 2 to visualize and debug the system, ensuring seamless operation and quick resolution of errors.

Project Manager Jan 2023 – April 2023

University of Toronto *Toronto, ON*

- Managed a team of 6 members by delegating tasks, setting deadlines, and resolving concepts which ensured effective team communication and strength-based task allocation.
- Implemented Gantt Charts which provided a visual representation of project timeline, tasks, and deadlines, resulting in all project milestones being achieved before the deadline.
- Authored a 68-page engineering report defining the client's issue, solution constraints, and three alternate designs to address the problem.

SUMO Robotics Competition Member Sep 2022 – April 2023

UTRA *Toronto, ON*

- Designed 3 prototypes of a 13cm-by-13cm autonomous robot chassis using SolidWorks so that I can learn how to use the software and iteratively improve the weight distribution of the design.
- Programmed attacking features using C++ code in Arduino IDE to charge at an opposing robot when the ultrasonic sensor detects a body within a specific distance.
- Collaborated with a team member by delegating tasks amongst and discussing design ideas, developing teamwork and problem-solving skills in a competitive environment. **Achieved 3rd place** in the competition.

Projects

Autonomous Line Tracking Robot | *C++, AutoCAD, GitHub* July 2023

- Implemented line tracking features of the IR sensors to handle 90-degree turns, slight turns, going straight, and stopping most efficiently using C++ code in Arduino IDE
- Collaborated on writing the code with other team members using GitHub
- Designed the chassis of the robot using AutoCAD and printed the design using a 3D printer

Robot Arm | *C++, GitHub* August 2023

- Developed a robot arm that can be controlled using a Bluetooth controller on the phone
- Utilized Adafruit libraries to enable Bluetooth connection between the Adafruit app and its micro-controller

2 Player Maze Game | *Verilog, FPGA* December 2023

- Implemented PS2 keyboard input, background audio using memory blocks, and timer using the seven-segment display on the FPGA
- Project was part of the Digital Systems course (ECE241) at the University of Toronto and it received a score of 85 out of 90

Technical Skills

Languages: C, C++, HTML/CSS, HDL Verilog
CAD software: SolidWorks, AutoCAD, Altium Designer
Developer Tools and Frameworks: GitHub, GitLab, VS Code, Linux, ROS2