Huzayfa Jasat

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Education

University Of Waterloo Sep. 2024 - Apr. 2029

Bachelor of Applied Science in Mechatronics Engineering — Academic Representative *Waterloo, ON*

Scholarships: President's Scholarship of Distinction, Ted Rogers Entrance Scholarship, TELUS Entrance Scholarship

Experience

Software Engineer Sep. 2024 – Present

University of Waterloo Formula Electric

- Developed a **C++ CLI command** to clear motor controller faults, reducing troubleshooting time **by 30%**
- Engineered and integrated fault-clear functionality into diagnostic tools for electric vehicle motor systems, achieving a **95% success rate** in automated fault recovery simulations through development and testing **using GitHub**
- Calibrated motor control systems by analyzing performance data, leading to a **10% increase** in motor efficiency
- Resolved motor control system issues by leveraging **embedded systems** and **C++ expertise**

Robotics Club President Sep. 2023 – Jun. 2024

Pine Ridge Secondary School

- Directed a team of **20+ members** in the **mechanical design** and construction of competitive robots, utilizing **SolidWorks** and **AutoCAD** , achieving a **top 3 finish** at a regional championship
- Secured **$3,000** in funding for club activities and projects, by pitching to over **10 potential sponsors**
- Spearheaded **35 interactive workshops** that empowered **50+ students** to develop technical skills in mechatronics and robotics, while fostering communication, leadership, and collaboration

Apprentice Jul. 2022 – Sep. 2022

Federal Auto Repair

- Inspected and replaced **over 50 mechanical components**, including brakes, rotors, and discs, enhancing vehicle functionality, resulting in a **20% improvement** in vehicle performance and reliability
- Repaired or replaced mechanical units and components using hand and power tools, including soldering mufflers for noise reduction and exhaust efficiency, resulting in improved vehicle operation and reduced emissions
- Operated **5 hydraulic systems**, gaining hands-on experience and in-depth knowledge of hydraulic machines

Projects

Motion Detecting Walking Stick | *TinkerCAD, Arduino, SolidWorks*

- Used **Arduino, SolidWorks, and C++** to design and implement a motion-detecting walking stick that assists visually impaired users by detecting obstacles and providing real-time haptic feedback
- Developed an optimized sensor calibration algorithm to reduce false positives and achieve **95% obstacle detection accuracy** while covering a **180-degree range** using **three motion sensors,** conducting over **50 tests**
- Integrated signal processing techniques to trigger vibration feedback **within 0.5 seconds**, ensuring reliable alerts

Automated Pet Feeder | *EV3 Robotics, RobotC, SolidWorks*

- Leveraged **RobotC, EV3 hardware, and SolidWorks** to create an automated pet feeder capable of differentiating between pets and dispensing food based on user-defined intervals and amounts
- Designed and implemented a state machine-based control system for seamless operation of **ultrasonic and sound sensors**, achieving **98% accuracy** in identifying pet types
- Conducted over **40 trials** to optimize dispensing mechanisms, achieving a **15% reduction** in food waste and developing software to manage sensor input, motor control, and error detection, **reducing downtime by 20%**

Skills

Languages: Python, Java, C/C++, JavaScript, HTML/CSS

Tools and Frameworks: SolidWorks, AutoCAD, Arduino, GitHub, GitLab, Microsoft Office

Technical Concepts: Embedded Systems, Sensor Integration, Mechanical Design, Microprocessors, RTOS