Ahsan Muzammil

Email: muzammia@mcmaster.ca **Personal Website:** Projects

PROJECTS

Password Checker *Oct 2023 — Nov 2023*

- Solely developed a password checker in C by using the command-line interface for seamless interaction.
- The C program utilizes a point system to determine the strength of the inputted password by the user, where it checks the strength by evaluated the password based on these criterions: contains uppercase character, lowercase character, special character, and length.

Robot Recycling Algorithm *Jan 2023 — Mar 2023*

- Designed and implemented an autonomous robot control algorithm in python to collect and segregate trash and recyclables, demonstrating expertise in robotics, computer vision, and AI-driven automation.
- Led the algorithm development from conception to deployment, encompassing algorithm design, programming, integration of sensors, and performance evaluation.
- Created a successful pathfinding algorithm that utilizes an IR sensor to identify the optimal route for recycling trash, with a focus on maximizing efficiency.
- Incorporated sensor modules, including colour sensors and proximity sensors, to enable real-time environmental awareness and the detection of coloured recycling bins along the robot's path during its operation.
- Conducted extensive testing and refinement of the algorithm, achieving a high accuracy rate in trash sorting.

Hangman Game *Jan 2021 — April 2021*

- Designed and developed a GUI Hangman game in Java to enhance problem-solving and programming skills while applying object-oriented programming concepts using Visual Studio Code.
- Sole developer responsible for the entire project, including design, coding, testing, and documentation.
- Implemented a user-friendly interface for players to guess words, manage game state, and track scores.
- Utilized object-oriented principles to create modular code, enhancing code readability and reusability.
- Integrated different game modes, with a wide variety of hard/easy words with less/more lives.

Line Following Circuit (Tinkercad) *April 2020 — June 2020*

- Developed a digital circuit that uses photoresistors, motors, and Arduino Uno to detect and follow a coloured line.
- The pathway of the motors is determined by assessing the percentage of light that reflects off the ground and reaches the sensors.
- Designed and implemented a complete line-following algorithm in C++, taking charge of the entire project, including coding, rigorous testing, and comprehensive code documentation.

WORK EXPERIENCE

Mathematics Teacher | Mississauga, ON *Sept 2020 —Sept 2022*

- Teaching mathematics to high school students through Zoom.
- Explaining concepts and solving problems in multiple ways to give students an in-depth understanding of the topics.
- Positively impacting students' views on learning and improving their study skills by serving as a positive role model.
- Increased students' mathematics grades by 5% to 10%.

EDUCATION

McMaster University, Hamilton ON *Sept 2022 — April 2026 (expected)*

Bachelors Of Engineering—Software Engineering (B.ENG)

- **CGPA:** 3.95/4.00
- **Awards:** Deans' Honour List (2022-2023), Received an invitation for the Golden Key International Honour Society (2023)
- **Relevant Courses:** Object-Orientated Programming, Integrated Design Projects In Engineering, Digital Systems and Interfacing, Intro to Software Development, Data Structure and Algorithms, Software Engineering Practice and Experience

SKILLS & INTERESTS

- **Programming Languages:** Python, Java, C#, C++, C, Bash, Verilog
- **Other:** Microsoft Office, Virtual Machine, AutoCad Inventor, Notion, MATLAB, Tinkercad, Linux
- **Professional Skills:** Dependability, Time Management/Organization, Collaboration/Leadership
- **Interests:** Working On Cars, Video Editing, Swimming, Riding My Bicycle, TED Talks, Puzzles, Rubix Cube, Playing Cricket