TAWHID MONOWAR

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SKILLS

- C, C++, Python, Microcontrollers (Arduino, ESP32), Tinkercad, Problem Solving, Git, GitHub, Agile, SQL, Java, Kotlin, Compose & Kotlin Multiplatform (KMP) Development, Technical Documentation.

PROJECTS

Maze Runner: *Autonomous Line Follower Robot* —---------- *Project On GitHub*

- Developed a real-time autonomous navigation system using Arduino UNO and a Digital IR Sensor Array.
- Implemented PWM-based motor control using an L293D Motor Driver Shield.
- Designed a PID-based line tracking algorithm that improved path following accuracy by 25%.
- Optimized sensor calibration and noise filtering techniques for better adaptability to different tracks.
- Participated in several competitions, winning awards for performance and innovation.
- Technologies used: Arduino UNO, L293D Motor Driver Shield, Digital IR Sensor Array, PID Controller.

CNC Pen Plotter Machine: *A Computer Numerical Control Pen Plotter Machine* —-------- *Project On GitHub*

- Developed an Arduino-controlled CNC pen plotter that translates G-code instructions into drawings.
- Designed a 3D-printed 3-axis system using 28BYJ-48 and ULN2003 drivers for accurate pen movement.
- Implemented G-code parsing on Arduino Uno for automated plotting and built a stable, modular frame.
- Technologies used: Arduino UNO, Stepper Motors (28byj-48), ULN2003 Stepper Motor Drivers.

AQMS: *Real-Time Air Quality Monitoring Systems* —---------- *Project On GitHub*

- Design & Developed a real-time air quality monitoring system using ESP32 and MQ135 gas sensors.
- Integrated a 16X2 LCD, 10K potentiometer, and buzzer for dynamic display and alert functionality.
- Technologies used: ESP32, MQ135 Gas Sensor, 16X2 LCD, 10K Potentiometer, Buzzer, Resistors.

ReadOut: *Android & Desktop Application* —---------- *Project On GitHub*

- 28M+ books & 20K+ audiobooks with AI-powered text/audio summaries.
- Features seamless playback, personalized search, favorite book saving, and dual themes.
- Technologies used: Kotlin, Compose & Kotlin Multiplatform, Generative AI, MVI + Clean Architecture.

WebCapture: *Android Application* —---------- *Project On GitHub*

- Developed an Android app that converts any web page into a PDF file for offline access and sharing.
- Implemented features like YouTube video thumbnail download, metadata, and hashtag extraction.
- This app has been downloaded over 3,000 times and has received more than 100 stars on GitHub.

CERTIFICATIONS

- ACM ICPC - *International Collegiate Programming Contest* —---------- Show Credential
- Python Programming & Basic Data Science - *ICT Division* —---------- Show Credential

ACHIEVEMENTS

- Champion - *Intra MU Junior Programming Contest* —---------- Show Credential
- First Runner Up - *Robo Fest 2.0 - MU Robotics Club* —---------- Show Credential
- Winner - *Children Science Congress* —---------- Show Credential
- Winner - *40th National Science Fair* —---------- Show Credential

EDUCATION

Metropolitan University | Sylhet, Bangladesh —---------- May 2021 – April 2025
BSc. in Computer Science & Engineering

Relevant Coursework: Data Structures, Algorithms, Operating Systems, Microprocessor, Computer Networks, Machine Learning, Artificial Intelligence, Mobile App Development, Software Engineering, User Experience/User Interfaces Design, Database Management System, Object-Oriented Programming.