

# MUAWWIZ ALI YOUSUF

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## EDUCATION

**University of Engineering and Technology** **Expected, May 2025**  
BSc. Mechatronics and Control Engineering. GPA 3.72/4.00 Lahore, Punjab

## PROFESSIONAL EXPERIENCE

**Precision Manufacturing Pvt Ltd.** **January 2024 - February 2024**  
Design Trainee Lahore, Punjab

- Designed and reverse engineered mechanical parts of military projects using SolidWorks.
- Overseen production and manufacturing processes in CNC workshop.

**RADWI Electronics Pvt Ltd.** **June 2023 - August 2023**  
Embedded Systems Engineer Intern Islamabad

- Developed optimized ESP32 firmware for RFID-based smart lock integration & efficient data storage.
- Implemented UDP and MQTT protocols for efficient IoT communication.

**Designmen Consulting Engineers Pvt Ltd.** **August 2022**  
HVAC Design & FLS Systems Intern Islamabad

- Gained hands-on experience in HVAC design, Fire & Life Safety (FLS) Systems, and AutoCAD drawings with site visits.
- Coordinated project tasks, ensuring adherence to engineering standards and regulations.

## RELATED PROJECTS

**Autonomous Mobile Robot** **Expected May 2025**

- Currently developing an Autonomous Mobile Robot (AMR) using the Robot Operating System (ROS) environment for sample/material transportation.
- Implementing a Simultaneous Localization and Mapping (SLAM) algorithm in real time for navigation using LiDAR and depth camera to ensure robust obstacle avoidance and object detection.

**SMART Parking Lot** **December 2024**

- Controlled SMART Parking Lot by implementing programmable logic control using Ladder Diagram (LD) and Functional Block Diagram (FBD) on the OpenPLC and testing via practical demonstration.

**Ball Balancing on a Plate** **May 2024**

- Developed a ball-balancing system using a PID controller and a resistive touch screen for real-time tracking. Integrated stepper motors with inverse kinematics to maintain balance and execute smooth trajectories like line, circle, and infinity.

**Design & Analysis of Amber Lucid One Robot** **May 2024**

- Designed and reverse engineered the Amber Lucid One Robot in SolidWorks and integrated it with MATLAB for kinematics and trajectory generation using the Robotics System Toolbox.

**Automatic Pick & Place System (Electro-Pneumatic)** **January 2024**

**Portable Ventilator** **May 2023**

## RELEVANT COURSEWORK

- |                        |                          |                                |
|------------------------|--------------------------|--------------------------------|
| • Mobile Robotics      | • CAD Modeling           | • Computer Programming         |
| • Automation & Control | • Embedded Systems       | • Product Design & Prototyping |
| • MATLAB Simulations   | • Hydraulic & Pneumatics | • Circuit Design (PCB)         |

## ADDITIONAL INFORMATION

**Technical Skills:** Microsoft Office, SolidWorks, PLC Programming, MATLAB, Python, C, AutoCAD, ANSYS

**Certifications:** AutoCAD Training, Safety in Utility Industry, Problem-Solving Using Computational Thinking

**Research Interests:** Mobile Robotics, 3D Modelling, PLC Programming, Control

**Awards:** Laptop Scholarship (PMYLS), Merit Scholarships & Educational Grants, 1st Position in CAD War

**Languages:** Urdu (Native) & English (Fluent)