

# Ume Ammara

## Electrical Engineer

Electrical Engineering student (8th semester) with a strong interest in embedded systems and modern computing technologies. Motivated to enhance practical knowledge, gain hands-on experience and develop industry-relevant engineering skills through structured training and real-world projects.

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Arifwala, Punjab, Pakistan

## EDUCATION

### Namal University, Mianwali

Bachelors in Electrical Engineering

Oct 2022 – Present | Mianwali, Punjab, Pakistan

CGPA: 3.27/4.00

### Courses

- Embedded Systems
- Machine Learning
- Wireless Communication
- Digital Logic Design
- Digital Signal Processing
- Computer Architecture
- Internet of Things
- Database Engineering
- Data Structure & Algorithms
- Control Systems

## WORK EXPERIENCE

### Engineer Intern

National Radio & Telecommunication Corporation

Jul 2024 – Aug 2024 | Haripur, KPK, Pakistan

### Accomplishments / Tasks

- Programming of Arduino, STM32
- Communication Protocols: I2C, SPI, UART
- Software and Hardware learning of MCU

### Engineer Intern

National Radio & Telecommunication Corporation

Jul 2025 – Aug 2025 | Haripur, KPK, Pakistan

### Accomplishments / Tasks

- Integration of Serial Device into Modern Ethernet
- Location tracking using M10N GPS Module
- Orientation using 3D digital compass & temperature sensor

## FINAL YEAR DESIGN PROJECT

### Yokeless Axial Flux Motor & Control using Open-Source Processor

*Industry Collaboration:* Khurshid Fans & NECOP

**Tools:** Ansys Motor-CAD, MATLAB/Simulink, CH32V307 RISC-V

### Tasks / Achievements

- Designed 24V coreless YAFM for compact high-efficiency direct-drive applications
- Built FOC architecture using PI control, Clarke/Park transforms & SVPWM
- Simulated in FEA and MATLAB/Simulink achieving >90% efficiency
- Embedded FOC on CH32V307 RISC-V microcontroller for real-time motor control

## SKILLS

**Soft Skills:** STM32CubeIDE, Modelsim, Arduino, Proteus, C/C++, MATLAB, Python, Verilog

**Hardware:** Arduino, ESP32, STM32, Power Electronics, Embedded Systems, DSP

## ACHIEVEMENTS

### Namal Tech Expo (Robotics)

Namal University Mianwali

*Sumo War Robot – 2nd Position (2024)*

*Balloon Bursting – Winner (2025 & 2026)*

### AI InnoFest

Bahria University Islamabad

*Sumo War Robot Competition – Winner*

## PROJECTS

### Indigenous Robots

#### Contributions / Activities

- Sumo War & Balloon Busting Robot (Arduino); Line Following Robot (Zumo Kit)

### Smart Concrete Monitoring & Strength Prediction IoT System

#### Contributions / Activities

- ESP32 IoT system with Firebase real-time data and Python/Matplotlib visualisation

### Life Style and Health Assessment

#### Contributions / Activities

- ML classification model (Logistic Regression, Random Forest, Gradient Boosting) to predict health status

## INTERESTS

Embedded Systems	IoT	Machine Learning
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AI and Data Science	Technical Writing	Project Management
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