ATTA UL HALEEM

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EDUCATION

Ghulam Ishaq Khan Institute of Engineering Sciences and Technology (GIKI) **Topi, Pakistan**
Bachelor of Science in Electrical Engineering (Electronics) *Aug* 2019 - *June* 2023

CGPA	3.24/4.00
Societies	Team Foxtrot (Worked on UAVs)
Awards	Dean's Honor List in 2 Semesters
Electives	Embedded Systems, Digital System Design, Intro to Robotics

EXPERIENCE

Software Motion Engineering Services Co., Ltd **Suzhou, China (Remote)**
Embedded Software Engineer *Oct* 2024 - *Present*

– *Classic Platform AUTOSAR*

- Developed state machine for Lane Departure Warning system.
- Wrote unit tests using GoogleTest and CppUTest.
- Implemented ISO TP layer based on ISO 15765-2 standard.
- Development and testing of RTE using Vector tools (Davinci, vTestStudio, CANoe).

Silicon Nexus **Lahore, Pakistan**
Junior Embedded Engineer *May* 2024 - *July* 2024

– *Bluetooth HCI Layer*

- Implemented Host Controller Interface between STM32L4 and ESP32.
- Ported bluetooth stack (BTstack) by writing HAL APIs for UART, DMA, and Flash memory.
- Parsed advertisement packets of BLE sensors (TE6511, BT510).

Lahore University of Management Sciences (LUMS) **Lahore, Pakistan**
Research Associate, Department of Computer Science, SBASSE *Sep* 2023 - *Apr* 2024

– *Smart Energy Meter*

- Implemented OTA updates over HTTP using AWS and GitHub Actions.
- Created a reliable file transfer mechanism over MQTT.
- Hosted a web dashboard on edge device for configuration.

– *Water Tank Monitor*

- Created a low-power and battery-operated water tank monitor based on ESP8266.
- Coded a library for communicating with ultrasonic sensors (JSN-SR04T/AJ-SR04M) over UART.
- Used Firebase Realtime Database to sync user data and settings with mobile app.

– *Electric Rickshaw*

- Designed a PCB for vehicle HUD including odometer, battery monitor, and buzzer.
- Implemented custom MODBUS commands for intra-vehicle communication over RS-485.
- Designed a GPS (NEO-6M) tracker for real-time location and mileage tracking.

PROJECTS

Omni-directional Cellular Conveyor with Computer Vision (Final Year Project)

Raspberry Pi 4 based modular conveyor system.

- Created original CAD model using Solidworks.
- Tested feasibility using simulation in Webots.
- Utilized Python and OpenCV for image and video processing.
- Coded a GUI app using Python and Tkinter library.

Maze Solving Robot

Arduino Nano based robot for mapping and traversing closed mazes.

- Used ultrasonic sensors (HC-SR04) for measuring distance.
- Utilized gyroscope (MPU-6050) for precision turns.
- Added Bluetooth communication using HC-05 module.
- Implemented Depth First Search (DFS) for mapping maze.
- Applied Lee's Algorithm for finding the shortest path.

Smart Dumbbell

Real-time exercise classification using Arduino Nano 33 BLE Sense and TinyML.

- Collected training data and created Machine Learning model using Edge Impulse.
- Added wireless communication using Bluetooth Low Energy (BLE).
- Created a dashboard using Web Bluetooth API in JavaScript.

SKILLS

Documentation	LaTeX
Wireless Protocols	WiFi, Bluetooth LE
Networking Protocols	HTTP, MQTT
Serial Protocols	SPI, I^2C, UART, CAN, MODBUS
RTOS	FreeRTOS, Zephyr
Programming Languages	C, C++, Python
PCB Design	Proteus, EasyEDA, Altium Designer
MCUs and SBCs	Arduino, Raspberry Pi, ESP8266/ESP32, nRF52, PIC18, STM32