

Muhammad Usman

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● ABOUT ME

I'm a dedicated Embedded Systems Engineer with substantial experience in creating real-time applications for the Internet of Things (IoT). My focus has been on developing innovative motion detection and health monitoring solutions, ensuring they are user-friendly and efficient. With strong skills in IoT communications, sensor integration, and safeguarding data, I have consistently improved the performance and reliability of various systems.

● WORK EXPERIENCE

03/08/2022 – 02/11/2022 Karachi, Pakistan
IT INFRASTRUCTURE INTERN AGA KHAN EDUCATION SERVICE, PAKISTAN

- Assisted in the setup and maintenance of IT infrastructure, including servers, networks, and storage systems.
- Performed regular maintenance tasks, troubleshooting, and documentation of the organization's IT systems, enhancing system performance and reliability.
- Authored detailed documentation of the organization's network architecture and configuration.

09/12/2022 – 06/01/2023 Remote, United States
EMBEDDED SYSTEMS ENGINEER CONFIDENTIAL CLIENT

- Developed **health monitoring system** using MAX30100 and DHT11 sensors, integrating with mobile apps for real-time data sync via BLE.
- Enhanced system firmware for continuous monitoring, improving operational reliability and data accuracy.

● PROJECTS

07/2024
Decentralized Energy Management System (DEMS) - FYP

- Developed a blockchain-based dApp for peer-to-peer energy trading with secure Ethereum smart contracts.
- Automated real-time energy data collection by integrating the Fusion Solar website using Playwright.
- Enhanced user energy management and promoted sustainable practices aligned with the UN Sustainable Development Goals.

Link https://github.com/musman2k/Decentralized_Energy_Management_System

08/2023
Mobile Application Developer

- Designed and developed a **mobile application** using *MIT App Inventor* for enhanced user engagement, including compliance features and dynamic data collection interfaces.
- Integrated **Google Sheets API** for efficient data management and user interaction analytics.

05/2023
Software Developer

- Created a web-based interface for secure remote **door control using fingerprint identification** integrated with ESP32 microcontroller for real-time access management.

06/2022
Weather Station - IoT Developer

- Developed a **weather station** using Arduino and ESP8266/ESP32 platforms to deliver real-time temperature and humidity monitoring, significantly enhancing client's data collection capabilities.

Link <https://github.com/musman2k/Blynk-2.0-Wifi-Credentials-using-Esp32-Nodemcu-with-DHT-and-DS18B20>

04/2021

Home Automation Project - IoT Developer

- Led a team of three in developing a Home Automation System, managing back-end, front-end, and database integration.
- Utilized Arduino IDE for device control, MIT App Inventor for the user interface, and Firebase for real-time data management.
- Demonstrated strong leadership and technical skills in creating a secure and efficient IoT solution.

Link <https://github.com/musman2k/Home-Automation-Project>

● EDUCATION AND TRAINING

01/08/2020 – 12/07/2024 Karachi, Pakistan

BACHELORS IN COMPUTER SCIENCE SZABIST

Website <https://szabist.edu.pk/>

01/04/2017 – 19/09/2019 Karachi, Pakistan

INTERMEDIATE - PRE-ENGINEERING Board of Intermediate Education

Website <https://www.biek.edu.pk/>

● HONOURS AND AWARDS

08/10/2023

Galactic Problem Solver – NASA international Space Apps Challenge

2023

Artificial Intelligence and Robotics Challenge – Zab E-Fest - SZABIST

26/04/2021

Associate in Internet of Things – Institute of Business Administration

● DIGITAL SKILLS

Internet of Things

IoT Applications (Arduino, Raspberry Pie) | Electronic simulation software: Circuit Wizar, Proteus, Multisim, EasyEDA

Blockchain

Solidity with React | Blockchain programming | Solidity Smart Contract

IT

Basic knowledge of IT (Computer Hardware, Networking, Linux, Windows) | Technical Tools (Linux OS, Windows OS, Python Programing, AWS Infrastructure, VMware 6, Visio) | Cisco packet treacer

Web Development

Node.js, React.js | JavaScript (Node.js, TypeScrip)

Machine Learning

Python | Python(Pandas Matplotlib Seaborn Pytorch Tensorflow)