Md Saber Hossain

saberhossain378@gmail.com — +8801575548741 — Matuail Dhaka 1362
LinkedIn — GitHub

Career Objective

As a dedicated learner, I am determined to leverage my research, development, and innovative expertise to address pressing real-world challenges using IoT, Embedded System, and AI technologies.

Education

Ahsanullah University of Science & Technology cgpa: 2.78/4.00
B.Sc. in Mechanical Engineering January 2019 – March 2024

Professional Experience

Embedded System Engineer June 2024 – Present
Vertical Innovation Limited Baridhara, Dhaka

- Acquired an in-depth understanding of complex IoT vending machine systems.
- Delivered technical guidance and support to cross-functional team members.
- Played a key role in the design, integration, and deployment of an advanced IoT-enabled cash vending machine.
- leading efforts in the development of an IoT-based water monitoring system.

Technical Skills

Programming Languages: Embedded C++, Arduino, Python, Micropython.
IoT Framework: NodeRED.
IoT Protocols: MQTT, MQTTS (Mosquitto), HTTP, HTTPS, Websockets.
Hardware Protocols: UART, I2C, SPI.
Hardware: Raspberry Pi, ESP8266, ESP32, Arduino, Sensors, Actuators.
PCB Frameworks: KiCad, EasyEDA.
IoT Cloud Platforms: Google Cloud IoT Platform, Thingspeak, Blynk, Local Cloud.
Tools: Git, GitHub, Office tools.
Operating Systems: Windows, Raspbian.
3D Modeling: SolidWorks.

Volunteering Experience

Aust Robotic Club January 2021 – February 2022
Joint Secretary

- Organized and led robotic workshops to enhance practical skills among club members.
- Hosted engaging robotics events and regular club meetings.

American Society of Mechanical Engineers (ASME), AUST January 2021 – February 2022
Organizational Secretary

- Facilitated international student exchanges, expanding the club's global network.
- Organized talks, workshops, and mentorship programs with industry professionals.

Professional Attachments

Bangladesh Industrial Technical Assistance Center July 2021
Tejgaon Industrial Area

- Introduced to heavy and light machine tools and CNC and heat treatment shops.
- Learn about total process management by visiting their Production Control Division (PCD) and Industrial Engineering.

Achievements

- 2nd Runners Up - Hult Prize AUST (Idea Competition), December 2020
- 1st Runners Up - RESOLUTE 1.0 (Case Competition), July 2022
- Quarterfinalist - MindSparks (Robotics Competition), October 2022
- Top 5 Finalist - Kambaii Toolkit Design (Design Competition), November 2022

Event Host

AUST Rover Challenge
Organizer

- Coordinated a multifaceted robotic event, overseeing challenges including Soccer Robot, Line Follower, Project Showcasing, and Rover Challenge, demonstrating strong organizational prowess and leadership acumen.
- Led as the primary team leader for the Line Follower Robot competition segment.

Workshop Instructor

Getting Started with Arduino ESP8266
Instructor at Aust Robotic club

- Facilitated Delivered comprehensive instruction on MQTT and IFTTT for ESP8266 during engaging workshops, empowering students with practical knowledge in leveraging these technologies.

BUILD AND SIMULATE ARDUINO PROJECTS ON TINKERCAD
Instructor at IMECH

- led dynamic workshops on "Build and Simulate Arduino Projects on Tinkercad," imparting fundamental Arduino imulation skills while showcasing projects like Solar Tracker, Flex Sensor Controlled Robotic Arm, and Automatic Rain Detection System.

Certifications

- Arduino Platform and Programming
- Python for Everyone
- C for Everyone: Programming Fundamentals
- Git+ GitHub for Open-Source Collaboration
- Interfacing with Arduino

Projects

OpenCV Arduino Gesture Control 3DOF Robotic Arm
Python, OpenCV, Arduino

- A real-time robotic arm control system using computer vision and Arduino, capable of detecting hand gestures enabling the robot to respond to various hand movements
  Code — Video

Virtual buttons to control LED switch using Augmented Reality and IOT
Arduino, C++ , AR

- Developed an augmented reality (AR) application using Unity and Vuforia for controlling home appliances remotely using iot.
  Code — Video

IOT based Home Automation System
Arduino, Esp8266, Sensor

- Designed and implemented home automation system integrating IoT technology.
- Develop IoT-based video stream security and RGB LED lights and fans control. Automated Dual-axis solar tracker and RFID-based security with an OLED display. Earthquake, rain, and gas detection system. Automated car parking system with LCD display counting.
  Code — Video

Real time motion tracking system using OpenCV and Arduino Servo control Arduino,CV
Python, OpenCV, Arduino

- Developed a real-time motion tracking system using OpenCV and Python, capable of detecting and tracking moving objects in a video stream and pointed through laser module.
  Code — Video

A Real-Time Sign Language Detection System with Arduino Visual Feedback
Python, OpenCV, Arduino

- Facilitated This project demonstrates the development of a Computer Vision system capable of real-time sign Language detection using OpenCV and the detected sign is then visually communicated through an Arduino OLED display.
  Code — Video

Project Article

Design and Development of a GPS-Based Hover Quadcopter using STM-32 Microcontroller
17th Annual Paper Meet, IEB, Bangladesh, 2023

Reference

Dr. Abu Hamja
Assistant Professor, Department of MPE, Ahsanullah University of Science and Technology
abuhamja.mpe@aust.edu

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