Moumita Kabir Ananna

Dhaka, Bangladesh mkanannakabir@gmail.com +8801765689015 Portfolio
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Professional Summary

Passionate Embedded System Engineer with 4 years of experience in designing and delivering cutting-edge embedded solutions. Proficient in C/C++, RTOS, and microcontroller programming, with expertise in developing and optimizing embedded software and hardware. Passionate about translating ideas into practical solutions through a strong technical foundation and fascination with circuits, sensors, and emerging technologies. Collaborative and adaptable professional committed to achieving project goals in fast-paced environments while driving impactful contributions.

Technical Skills

Programming Languages: C, C++, Python, MicroPython
Embedded Systems & Microcontrollers: ARM Cortex-M, ESP, Raspberry Pi, AVR
Real-Time Operating Systems (RTOS): FreeRTOS, NuttX
Communication Protocols: SPI, I2C, UART, TCP/IP, CAN Bus, MQTT
Wireless & Network Connectivity: LAN, Wi-Fi, Bluetooth (BLE), GSM, RF
Embedded Security: TLS, Secure Boot, Firmware Encryption
Development Tools & IDEs: Keil, Eclipse, STM32CubeIDE, VS Code, Git, Proteus, CMake
Testing & Debugging Tools: JTAG, OpenOCD, GDB
Hardware Design & PCB Development: Altium Designer, Eagle, EasyEDA, SolidWorks

AI & Machine Learning: TensorFlow Lite, OpenCV, Edge Impulse, TinyML
Web & Backend Development: HTML, CSS, JavaScript, PHP, MySQL

Education

B.Sc. **Computer Science and Engineering**, Southeast University, Dhaka, Bangladesh Jan 2016 – Jan 2020

- cGPA: 3.04/4.0

Experience

RoboDoc Limited, Embedded System Engineer — Dhaka, Bangladesh — Dec 2021 – Feb 2025

- Developed 15+ custom embedded solutions for industrial applications, including PCB design, optimized firmware in C/C++, Python, and MicroPython, and custom protocols to enhance data transfer efficiency and system reliability.
- Designed and developed 12 STEAM Science Kits from scratch, benefiting 5000+ students, called the Innovation Kit.
- Developed security and implementation mechanisms for the Amarpet NFC Smart Pet Tag, enhancing pet identification and security.
- Integrated AI/ML algorithms into IoT devices, enabling automation and analytics.
- Led 10+ workshops and trained 500+ students in IoT and robotics.
- Managed production and QC teams for high manufacturing standards.

Rokkhi IT Solutions Limited, Software Engineer (IoT)

Dhaka, Bangladesh
Feb 2020 – Feb 2021

- **IoT Solutions:** Designed and implemented integrated firmware and hardware solutions, ensuring seamless performance in industrial applications.
- **IoT Communication Protocols:** Engineered Wireless, Bluetooth, Radio, and MQTT protocols for efficient M2M communication.
- **Embedded Systems Development:** Developed high-performance IoT applications using STM32, ESP8266, ESP32, Atmega, Raspberry Pi, and nRF24L01+.
- **Technology Optimization:** Assessed and improved IoT infrastructure, deploying strategic solutions to improve efficiency and reliability.
- **Key Projects:**

  1. IoT-Based Vehicle Guard: Monitors fuel access, records timestamps, and tracks vehicle location via GSM for security.

  2. Biometric RFID Attendance System: Integrated biometric and RFID tech for accurate attendance tracking.

  3. Smart Security Sensors: Developed door and window sensors to detect and notify for unauthorized access.

Research Project

Decentralized App

Github

- Developed "Crypto' Medical Shop" which is a secure decentralized e-commerce medical shop application (Dapp) based on Ethereum blockchain technology. This dapp's operation is completely transparent and recorded on the public ledger.
- Tools Used: Solidity, Ethereum, C++, HTML, CSS, JavaScript

Contest

- 1st Runner-up , IoT Design Competition 2022 — University of Florida
- Finalist , Blockchain Olympiad 2020
- Participant, ICPC and National Girls' Programming Contest 2018-2019

Reference

Shahriar Manzoor
Assistant Professor and Chairman, CSE Department, Southeast University
Judge of ACM ICPC World Finals 2003-2018
President, Bangladesh Association of Problem Setters
Office Ext.: 120 (+88 02 9821590)
Email: smanzoor@seu.edu.bd