Rayed Farhad

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Professional Summary

Results-driven IoT and Embedded Systems Engineer with over 4 years of experience in firmware development, wireless communication (BLE, Wi-Fi), and hardware-software integration for smart energy and IoT products. Skilled in C/C++, RTOS, and microcontroller programming, with proven success in optimising embedded systems for performance, power efficiency, and reliability. Passionate about developing scalable solutions that enhance connectivity and user experience

Education

Master of Professional Engineering (M. ProEng.): Embedded Systems Engineering, 2025 - Present
Curtin University

Bachelor of Science (B.Sc.): Electrical & Electronic Engineering (EEE), 2015-2020
American International University-Bangladesh
CGPA: 3.86

Experience

Firmware and Communication Engineer, 10/2022 - 02/2025
ME SOLshare Ltd - Dhaka

- Developed firmware for battery management systems (BMS) to optimise energy monitoring and device reliability, improving SoC and SoH accuracy by 15%.
- Implemented BLE-based communication protocols to enable seamless wireless data exchange between smart batteries and external devices, reducing power consumption by 10%.
- Built over-the-air (OTA) update features that enhanced firmware deployment speed and system security, reducing manual updates by 80%.
- Introduced real-time data logging and error tracking to improve diagnostics and post-deployment analysis for engineering teams.
- Tested and validated prototype designs, accelerating development cycles for new product iterations.
- Engaged with customers to gather technical feedback, resulting in firmware refinements aligned with user needs.
- Authored detailed documentation covering firmware design, testing procedures, and troubleshooting, streamlining knowledge transfer within the team.

Product Engineer, 01/2022 - 09/2022
ME SOLshare Ltd - Dhaka

- Led the design and development of PAYG (Pay-As-You-Go) devices, enhancing accessibility of solar energy solutions for off-grid communities.
- Developed embedded security features for remote activation/deactivation, improving device control and customer trust.
- Prototyped PAYG systems and conducted performance testing, reducing production issues by 20%.
- Collaborated with suppliers and vendors to source cost-effective components, maintaining quality while reducing unit costs.
- Created user manuals and conducted training sessions, increasing customer support efficiency by 25%.

Junior Product Engineer, 07/2020 - 12/2021
ME SOLshare Ltd - Dhaka

- Assisted senior engineers in product design and prototype assembly, contributing to faster product rollouts.
- Coordinated and executed testing procedures, identifying design flaws early in development.
- Compiled test documentation and market research to support strategic feature enhancements for PAYG devices.
- Participated in internal training and knowledge-sharing programs, enhancing team technical capabilities.

Hardware & Firmware Development - Intern, 02/2020 - 06/2020
ME SOLshare Ltd - Dhaka

- Designed and executed testing scenarios for embedded hardware, ensuring product reliability under varied conditions.
- Monitored debugging and regression testing processes to improve firmware stability and performance.
- Researched and analysed biosignal-based sensor data, contributing to development of next-gen IoT prototypes.

Skills

- Embedded Systems
- Hardware Design & Production
- C & C++
- Python
- Ruby
- Wireless Communications
- Robotics & Automation
- PCB Design
- GIT
- CAD

Projects

- Stress Detection Through Machine Learning Based Techniques Using Bio-Signals.
- Human Machine Interaction device to configure another offline device.
- 6-DOF Programmable Articulated Robotic Arm.
- Home Automation System using ESP32.
- Automatic Obstacle-Avoiding Quadcopter.
- Autonomous Ground Vehicle for Surveillance.
- Year-Round Hydroponic Vegetable Cultivation for Underserved Communities.

Awards

- Magna Cum Laude Distinction from American International University-Bangladesh (AIUB), for exceptional performance throughout the academic years.
- Academic Scholarship from American International University-Bangladesh (AIUB), for exceptional performance throughout the academic years.
- Dean's award from American International University-Bangladesh (AIUB) for exceptional performance throughout the academic years.
- 1st runner-up in Quad Copter Challenge in Esonance 2019 from Islamic University of Technology.
- Champion in Op. Rahat (Drone Racing Competition) in Techfest Bangladesh Zonal 2018.

Publications

- M. F. Rizwan, R. Farhad, F. Mashuk, F. Islam and M. H. Imam, "Design of a Biosignal Based Stress Detection System Using Machine Learning Techniques," 2019 International Conference on Robotics, Electrical and Signal Processing Techniques (ICREST), Dhaka, Bangladesh, 2019, pp. 364-368.
- Rizwan, M. F., Farhad, R., & Imam, M. H. (2021), "Support Vector Machine based Stress Detection System to manage COVID-19 pandemic related stress from ECG signal". AIUB Journal of Science and Engineering (AJSE), 20(1), 8- 16.

References

Available on Request