Rayed Farhad

Firmware and Communications Engineer

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Professional Summary

Accomplished Firmware and Communication Engineer with a progressive career at ME SOLshare Ltd, adept in embedded systems and wireless communications. Excelled in developing innovative firmware solutions for smart batteries, enhancing device functionality by over 30%. Proven problem-solving skills and a knack for robotics & automation mark a track record of technical excellence and creative problem-solving.

Experience

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

- Designed, developed, and maintained firmware for the Battery Management System.
- Implemented algorithms for state-of-charge (SoC), state-of-health (SoH), and temperature monitoring.
- Developed firmware for BLE-based microcontrollers to enable wireless communication and data exchange between the smart battery and external devices. Ensured the BLE stack is optimized for low power consumption and reliable connectivity.
- Implemented data logging features in firmware to capture battery performance metrics, error logs, and operational data.
- Developed and implemented over-the-air (OTA) firmware update capabilities for BLE-enabled smart batteries to ensure seamless and secure firmware updates to enhance functionality and fix bugs.
- Developed and tested prototypes to evaluate new technologies and concepts.
- Experimented with different approaches to solve technical challenges and validate the feasibility of innovative solutions.
- Created and maintained detailed documentation for firmware design, development processes, and troubleshooting guidelines.
- Occasionally engaged with customers to understand their requirements, gather feedback, and provide technical support for firmware-related inquiries.

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

- Led the design and development of PAYG (Pay-As-You-Go) devices, focusing on creating innovative solutions that meet customer needs and market demands.
- Developed detailed product specifications and ensure alignment with business objectives.
- Designed and implemented PAYG technology, including embedded software and security features that allow for remote activation, deactivation.
- Developed prototypes of PAYG devices for testing and validation.
- Conducted rigorous testing to evaluate device functionality, durability, and user experience.
- Managed the end-to-end product development lifecycle, from initial concept through to final product release.
- Worked with suppliers and vendors to source components and materials for PAYG devices.
- Provided technical support and training to customer support teams on PAYG device functionalities and troubleshooting.
- Created user manuals and training materials to facilitate customer onboarding and support.

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

- Supported senior engineers in the design and development of PAYG (Pay-As-You-Go) devices.
- Assisted in creating and updating design documentation and technical specifications.
- Assembled prototypes and participated in testing phases to validate device functionality and performance.
- Assisted in setting up test environments, conducting tests, and documenting results to ensure product quality and reliability.
- Conducted preliminary market research and competitor analysis to support the development of new features and functionalities for PAYG devices.
- Actively participate in training sessions, workshops, and mentorship opportunities to enhance technical skills and product knowledge

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

- Designed testing scenarios for usability testing.
- Monitored debugging process results and investigated causes.
- Conducted regression testing, analyzed results, and submitted observations to the development team.
- Developed test methodology to check product features and devised new test plans.
- Conducted research, gathered information from multiple sources, and presented results.
- Researched complex technical issues and provided resolutions.
- Analyzed test results and prepared evaluation reports to verify and validate system performance.

Skills

- Embedded Systems
- Problem-Solving
- Hardware Design & Production
- Product design
- C & C++
- Ruby
- Wireless Communications
- Robotics & Automation
- Python
- CAD
- HMI
- Git

Education

Bachelor of Science (B.Sc.): Electrical & Electronic Engineering (EEE), 01/2020
American International University-Bangladesh
GPA: 3.86

Projects

- Stress Detection Through Machine Learning Based Techniques Using Bio-Signals.
- Human Machine Interaction device to configure another offline device.
- 6-DOF Programmable Articulates 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.
- 2Nd runner up in I-flight (Drone Racing Competition) in Robolution 2019 from MIST.
- 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

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