Rayed Farhad

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Summary

An Embedded Firmware Engineer with entry-level experience specializing in firmware development, microcontrollers, hardware design, and CAD. Adept at identifying opportunities to enhance hardware and software performance for large-scale technology implementations.

Work Experience

Firmware and Communication Engineer
ME SOLshare Ltd, Dhaka, Bangladesh
October 2022 – Present

- Develop and implement firmware solutions for embedded systems, including microcontrollers, IoT devices, and consumer electronics.
- Debug and troubleshoot firmware issues using appropriate tools and techniques.
- Conduct testing and verification of firmware functionality, and document test results and findings.
- Implement wireless communication technologies such as Bluetooth, Wi-Fi, Zigbee, or LoRa.
- Develop communication protocols and interfaces for device-to-device and device-to-system communication.
- Conduct thorough testing and debugging of firmware to identify and resolve issues.
- Write technical documentation, including design specifications, user manuals, and release notes.
- Collaborate with cross-functional teams, including hardware engineers, software engineers, and product managers, to define communication protocols and interfaces.
- Analyze and optimize manufacturing processes to improve efficiency, quality, and cost-effectiveness.
- Develop and implement process improvements and standard operating procedures (SOPs) to streamline operations.
- Design, configure, and optimize production equipment and tools to meet production goals.

Product Engineer
ME SOLshare Ltd, Dhaka, Bangladesh
January 2022 – September 2022

- Recommended solutions, built custom proposals, prepared supporting information.
- Drafted clear technical documentation, detailing product design specifications.
- Launched customer-driven design review process to enhance customer experiences and efficiency.
- Recommended software solutions, built custom software proposals and developed presentations.
- Provided clear and timely technical data required for design and specification of product.
- Coordinated deployments of new software, feature updates and fixes.
- Collaborated with developers and performance engineers to enhance supportability and identify performance bottlenecks.
- Contributed ideas and suggestions in team meetings and delivered updates on deadlines, designs and enhancements.
- Participated in IOT (Internet of Things) development, specializing in PAYG Devices.
- Wrote and maintained custom scripts to increase system efficiency and performance time.
- Developed next generation integration platform for internal applications.
- Designed embedded hardware, firmware and interfaces used in PAYGO industry.

Junior Product Engineer
ME SOLshare Ltd, Dhaka, Bangladesh
July 2020 – December 2021

- Reviewing, evaluating and identification of requirements for testability.
- Tested completed projects for functionality and implemented changes to production methods to rectify issues in final products.
- Monitored and tested application performance to identify potential bottlenecks, develop solutions, and collaborate with developers on solution implementation.
- Designing and development of automation scripts/apps using open-source tools.
- Designed embedded control system software and created software test plans.
- Documented rules of engagement and defined technical procedures needed for execution of operational tests.
- Wrote and optimized test cases to maximize success of manual testing with consistent, thorough approaches.
- Built and improve Hardware designs and Firmware to support company strategies.
- Designed, developed and tested software for embedded devices.
- Created proofs of concept for innovative new solutions.
- Planned and prioritized field-testing engagements of PAYG technology.
- Coordinated scheduling of available resources to conduct assessments and prototype testing.
- Engineered software components for automation hardware such as microcontrollers and sensors.

Hardware & Firmware Development - Intern
ME SOLshare Ltd, Dhaka, Bangladesh
February 2020 – June 2020,

- Designed testing scenarios for usability testing.
- Monitored debugging process results and investigated causes.
- Conducted regression testing, analyzed results and submitted observations to 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.

Key Skills

- Embedded Systems
- HMI
- Robotics & Automation
- Machine Learning
- Problem Solving
- Product design
- Hardware Design & Production
- CAD

Technical Skills

- Python
- C & C++
- Ruby
- Git
- Fusion 360
- Altium Designer
- Proteus
- MATLAB

Research Experience

- 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.
- Detection and Warning System for Flooding, Landslide and Rainfall.

Education

Masters in Electrical & Electronic Engineering (EEE)
Year 2019 - Present
American International University-Bangladesh (AIUB)
CGPA 3.81 Out of 4.00

Bachelor of Science in Electrical & Electronic Engineering (EEE)
Year 2015 - Year 2018
American International University-Bangladesh (AIUB)
CGPA 3.86 Out of 4.00

Publication (s)

[1] 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.
doi: 10.1109/ICREST.2019.8644259

[2] 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.

Scholarships & 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.
- Champion, Drone Racing Competition, ACES Foundation Day 2018 from American International University-Bangladesh (AIUB).
- Champion in Op. Rahat (Drone Racing Competition) in Techfest Bangladesh Zonal 2018.
- 2nd runner up in I-flight (Drone Racing Competition) in Robolution 2019 from MIST.
- 1st runner up in Quad Copter Challenge in Esonance 2019 from Islamic University of Technology.

REFERENCES

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