AJAY SURESH
FIRMWARE/EMBEDDED SYSTEMS ENGINEER

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Data-driven engineering professional with team-focused experience leading innovation and creative designs. Delivers high quality, reliable, cost-saving solutions and strategies that streamline processes and drive business growth in a fast-paced environment. Committed, organized, and hands-on with a proven track record reflecting enthusiastic and collaborative work ethic. Consistently brings problem-solving and verbal communication skills, and excellent organizational skills.

CORE COMPETENCIES

- Internet of Things
- Network Communications
- Embedded Software Development
- Hardware/Software Testing and Validation
- Cloud Infrastructure & Deployment

- Microcontrollers
- Root Cause Analysis
- Circuit/PCB Design
- Quality Assurance & Continuous Improvement
- Firmware Programming

PROFESSIONAL EXPERIENCE

JUNIOR HARDWARE ENGINEER   **August 2019 - Present**
Solarlytics, Inc.   Livermore, CA

- Manage multiple roles in **circuit/hardware design**, **firmware programming**, full stack **web development**, and **test automation software design** with the use of industry standard applications.
- Leverage **PCB design** skills to build custom power supplies and solar-powered IoT Solutions (designed for long range WiFi).
- Design **firmware** and **drivers** to control and poll data from various **analog/digital sensors** attached to Solar Panels.
- Collaborate with hardware and software teams to build **automated hardware/software unit testing and validation infrastructure** using **Google's OpenHTF Platform**.
- Built a **NodeJS/ReactJS** based web application capable of querying, retrieving and plotting data from central databases.
- Deploy a variety of **REST APIs** to allow devices to make secure and time-critical measurement updates to databases, send status messages, and receive commands from a **command server**.
- Write and deploy **python** and **BASH** automated test/polling scripts on **Linux-Based** Virtual Machines.
- Assisted with **board bring-up** and **debugging** for high power and low power designs including **analog/digital** components.
- Analyze **system performance** and correlational sensor data to trace down various hardware/software issues.

ACADEMIC & PROJECT EXPERIENCE

REMOTE MEASUREMENT UNITS - FIRMWARE DEVELOPMENT, NETWORKING   **June 2019 - Present**
[Units that measure voltage, current, and temperature on a string of Solar Panels.]
- Developed **multi-threaded RTOS** firmware in **Embedded C/C++** for a variety of devices that collect measurements from Voltage-to Frequency, Hall Effect, Temperature and Irradiance sensors that monitor and inform Solar Power Optimization.
- Employed an MCU **network stack** to set up devices for remote communication, commanding, and firmware updates.
- Wrote **python** tests to retrieve and validate data from devices over socket connections during automated engineering tests.
- Added remote command capabilities to firmware to allow retrieval of information, change functionality, and update firmware through **Socket Connections (TCP/IP)** or **HTTP GET** Requests.

SMARTHANDLE – SYSTEMS/FIRMWARE DESIGN (Capstone Project)   **June 2018 - June 2019**
[A solar-powered smart bicycle handle that has automated lights, motion detection, and anti-theft security features.]
- Wrote **RTOS** Drivers for a solar-powered smart bicycle handle as an integral member of a 6-member engineering team.
- Designed schematics and PCBs (on **Altium 18**) for the prototype and test boards.
- Developed communication interfaces between components over **UART, SPI** and **I2C** on a PSoC 6 MCU.
- Established connections with a custom smartphone application over Bluetooth Low Energy (**BLE**).

EDUCATION

BACHELOR OF SCIENCE (BSc), *Electrical Engineering*,   University of California, Davis
BACHELOR OF ARTS (A.B.) *Psychology*   **2019**

TECHNICAL PROFICIENCIES

Software: Embedded C, C++, GNU/Linux, Python, NodeJS, ReactJS, HTML, CSS, Azure, AWS, MySQL/Postgres Databases, Git
Firmware/Hardware: FPGAs, ARM Microcontrollers, TI's DSP MCUs (TMS320), Verilog, Altium/DipTrace Schematic and PCB Design, Quartus (DE-10 FPGA), Logic Analyzers, Oscilloscopes, VEE/LabVIEW, SPI, I2C, UART, BLE, Ethernet, WiFi, TCP/IP, HTTP