AKHIL CHERUKURI

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SUMMARY

An Computer Engineering Graduate seeking a challenging full-time position in the field of **Embedded/Firmware Engineering** with experience in development, testing, and debugging drivers for communication protocols in C and C++.

TECHNICAL SKILLS

Programming Languages	: C, C++, Python, Assembly, SQL, Java.
Operating Systems	: Linux (Ubuntu, ROS, Raspbian), Real-Time OS (FreeRTOS, Amazon FreeRTOS).
Platforms	: LPC 4078, LPC 1769, ESP32, Raspberry Pi, Nvidia Jetson, STM32L4.
Technologies and Protocols	: GPIO, SPI, I2C, UART, CAN, BLE, USB, ADC, PWM, AWS.
Tools and Debugging	: Eclipse, Visual Studio Code, Git, CMock, MATLAB, NXP MCUXpresso, Keil µVision, CCStudio, Putty, TeraTerm, Arduino, Saleae Logic Analyzer, EAGLE PCB Design, GDB, PCAN, Cura, Jira, Test-Driven Development, Agile Methodologies.

EDUCATION

Master of Science in Computer Engineering **Aug 2019 - July 2021**

San Jose State University, California

Courses: Embedded Software, Embedded Hardware Design, Embedded System Applications, Advanced Computer Design, System Software, Object-Oriented Programming Data Structures, and Algorithms (C++), Internet of Things.

Bachelor of Technology in Electronics and Communication **Aug 2015 - July 2019**

Gokaraju Rangaraju Institute of Engineering and Technology, Hyderabad

Courses: Embedded Systems Design, Microcontrollers, Objected Oriented Programming (Java), Operating Systems, Computer Networks, Computer Architecture, and Organization, Wireless Communication and Networks.

WORK EXPERIENCE

Embedded Software Intern, Orange Research Labs Hyderabad, India **Aug 2018 - Dec 2018**

- Programmed various microcontrollers in C using FreeRTOS.
- Worked with a team and developed an industrial automation system controllable using Qt Desktop and Android Application.
- Designed compact multi-layer PCBs schematics using cadence virtuoso software, which saved 30% of wiring used.

PROJECTS

Remote Monitoring and Operations Management for Hospitals - [In Progress] **Fall 2020 - Spring 2021**

Hardware / Technologies: Raspberry Pi 4, SPI, UART, I2C, MQTT, JSON, EAGLE PCB, AWS Services, DynamoDB, Alexa Voice Service, AD8232 Heart Rate Monitor, TMP102 Temperature Sensor, ADS1115 ADC, Heroku.

- An IoT based body vitals monitoring system connected to physiological sensors with real-time monitoring with abnormality alerts and assistance using Alexa Skills.

Space Invaders, A Video Game System - [Link] [Video] **Fall 2020**

Hardware / Technologies: SJSU-Dev Board (ARM Cortex-M4 based NXP LPC4078), SPI, UART, I2C, 64x64 RGB LED Matrix, EAGLE PCB, FreeRTOS, MMA8452Q Accelerometer Sensor, Audio Decoder with Equalizer, 2- axis Joystick.

- Designed a single-player 2-axis joystick controller-based arcade game called Space Invaders which uses a 64x64 RGB LED matrix as a display and an MP3 decoder with an equalizer to decode audio data for in-game sounds.
- Designed Graphics and Splash Screen Driver for LED Matrix. Contributed to game logic development of Collison Detection and object movement. Created Driver for SPI communication between Main and Music Dev Board and fabricated PCB.

Can-Ster, Autonomous RC Car - [Link] [Video] **Spring 2020**

Hardware / Technologies: SJSU-Dev Board (ARM Cortex-M4 based NXP LPC4078), HC-05 Bluetooth, CAN, UART, SN65HVD230 CAN Bus Transceiver, LiDAR, Ultrasonic Sensors, GPS, FreeRTOS, CMock (Unit Testing), EAGLE PCB.

- Built a self-driving car using industrial standard CAN bus protocol with obstacle avoidance and shortest path algorithms to reach a destination. Worked on Bridge & Sensor module to devise the implementation of Bluetooth protocol and Android Application.

2D and 3D Graphic Rendering using Transformation - [Link] **Fall 2019**

Hardware / Technologies: MCUXpresso LPX1769(ARM Cortex-M3 based NXP LPC1769), SPI, 120x160 TFT.

- Wrote SPI interface device driver for TFT LCD and designed 2D-based Live screensaver. Implemented Transformational algorithms to 3D object's perspectives and reflection gradients.

Explosive Ordnance Disposal Rover - [Link] **April 2019**

Hardware / Technologies: Raspberry Pi 3 Model B, Apache, H-Bridge L298, Servo Motors, MIT App Inventor, PiCam.

- The rover uses a Raspberry Pi 3 Model B with a local Apache HTTP Server for user end control application and achieved communication via 802.11g for remote control and live camera feed.