Monish Nene

Phone: +917738773782 Email: monish.nene@colorado.edu
Address: 502, Prerana, Naupada, Thane, Maharashtra, India.
LinkedIn: https://www.linkedin.com/in/monishnene888a2412a/
Git Profile: https://github.com/monishnene

Education:

Masters in Embedded Systems Engineering, University of Colorado, Boulder. GPA: 3.31/4.0 May 2019
Bachelor of Engineering in Electronics, VESIT, Mumbai University, India. GPA: 8.0/10 May 2017

Courses: Principles of Embedded Software, IoT Embedded Firmware, Network Systems, Embedded System Design, Practical PCB Designing, Embedded Systems Architecture, Design and Analysis of Algorithms, Real-Time Embedded Systems (RTOS), Embedding Sensors and Actuators, Advanced Embedded Software Development.

Skills:

Software - C, Embedded C, C++, Scripting– (Shell, Python), Swift, Makefile, Assembly, Regex.
Linux - Linux Kernel, System Calls, Semaphore, Mutex, Inter-Process Communication, Multithreading.
Programming - Real-Time Scheduling, Object Oriented, String Manipulation, Interrupt Handling.
Algorithms and Data Structures -Binary Tree, Link list, HashMap, Sorting, Greedy, Backtracking.
Protocols - Bluetooth, UDP, TCP/IP, I2C, SPI, UART, Bit Banging, USB, Memory Mapping.
Hardware - Logic Port Analyzer, Digital Oscilloscope, JTAG, SoC design for microcontrollers.
Tools - Git, Altium, IDEs- (uKeil, Eclipse, Code Composer, Code Blocks, Xcode), Buildroot, Bash.
Other- Debugging, Time and Space Complexity, ARM Architecture, Real-Time Operating Systems.

Experience:

Engineer at Qualcomm - [Audio Software & Architecture, Linux Kernel, C] July 2019 –June 2020
Worked Qualcomm on the customer end of audio team of Snapdragon. My responsibilities included reproducing customer issues/bugs on Qualcomm Hardware, fixing the bugs and helping them with customization. I use Android debug studio and other Qualcomm internal tools designed for debugging and modifying android phones. Used Linux to modify and compile builds / images for android kernel.

Research – Designing Athletic Training Equipment for "Milwaukee bucks" January 2019 – May 2019
I Developed Firmware for interfacing sensor with an iOS application, Bluetooth communication, Designed PCB and log data in a .csv file. The project is now patented by "Milwaukee Bucks" NBA team.

Graduate Teaching Assistant (Embedding Sensors and Actuators) August 2018 - December 2018
Helped students with lab work and checked lab work.
Developed Firmware for interfacing sensors and controlling the speed, position, and torque of different types of motors. PID control, analog & digital filters, signal processing, sensor integration & calibration.

Projects:

- **Indoor Exhaust System** [FreeRTOS TIVA, Linux- Arm Cortex A8]{C} April 2019
  - Humidity, Temperature, Smoke sensors and Exhaust fans interfaced with FreeRTOS remote node.
  - Data collected from the sensors using Real-Time threads is stored, logged and used to control fans.
  - The two nodes were connected using UART for logging data & send control signals to remote node.
- **Smart Home - Virtual Refrigerator** [Linux- Arm Cortex A8]{C} March 2019
  - Developed my own device drivers to interface I2C connected temperature and light sensors.
  - Implemented multiple threads for data logger, remote server socket and data collection.
  - Interprocess communication using shared memory and socket. Heartbeat and recovery for threads.
- **Network Systems Projects** [Ubuntu(Linux)]{C} September 2018 - December 2018
  - Distributed File System using multiple servers to retrieve the original file, to handle server failure.
  - Web proxy and cache management, along with timeout for cached files. works with any "http://".
  - TCP based web server using a socket that can send any webpage or file to the Web browser client.
  - Reliable data transmission using acknowledge for packets. Uploaded 12 MB file on a remote server.
- **Music transfer via Optical Medium** [MSP432, AT89C51 microcontroller]{C} April 2018
  - Converted Audio signals to digital signals with ADC and sent using Laser and Photodiode.
  - Audio signal sent at 250kbps with custom asynchronous communication. Even the lyrics were clear.