SAM JOHNSTON

Phone Number: (661)-703-2065
Email: srjohnst@icloud.com
Education: Cal Poly San Luis Obispo
Major: B.S. Electrical Engineering/M.S. Electrical Engineering
Current GPA: 3.6

Technical Projects:

Master's Thesis- *Image reject filters using buffered RC-CR structures*
- -Researched a complex filter implementation that utilized the least number of active components
- -Performed extensive LTSpice simulation to determine the effect of component tolerances on system performance
- -Implemented the complex filter on a protoboard
- -Characterized filter performance using a function generator and oscilloscope
- -Explored using the complex filter as a 90-degree phase splitter
- -Gained experience working with quadrature generation and image reject filters

RFID Enabled "Smart" Refrigerator
- -Developed a RFID food tracking system with a smart phone interface
- -Implemented a web server for hosting tag data using node.js
- -Interfaced a Linux based Raspberry Pi system with an ALIEN RFID reader using a java based SDK
- -Gained experience working with UHF readers, antennas, and tags

Hand Tremor and Mitigation Project:
- -Gained experience working with EMG signals and TENS devices for the purpose of tremor mitigation

"You Can't DiaBeat us" Blood Glucose Monitor
- -Developed and implemented a low cost EMG device on a protoboard
- -Integrated the EMG into a portable form factor
- -Led technical design decisions for the project
- -Gained experience working on a multidisciplinary team and soldering surface mount components

Smart Phone/Watch Controlled Home Automation System
- -Implemented a node.js server to handle user requests and a wifi enable micocontroller to preform remote GPIO and sensor events
- -Wrote C code to integrate an I2C temperature sensor with a micocontroller for live indoor temperature measurements
- -Developed remote-controlled wall outlets using relays and an ESP8266 microcontroller

Heart-rate/Pedometer Device
- -Interfaced a TI-MSP430 with a SPI based three axis accelerometer to measure steps
- -Used a photodiode, LED, and an analog-to-digital converter to measure a user's heart rate
- -Integrated MSP430, heart rate monitor, and accelerometer in a wrist mounted package
- -Gained experience acquiring and processing analog signals with a Texas Instruments based microcontroller to provide useful information to a wearer

Employment History:

CalTrans Simulator Development Assistant - 2015-present
- -Developed a simulator training facility for a third party contract
- -Gained experience working with high end audio/video and networking equipment

Analog Design Grader- Fall 2015

Engineering Intern at Paramount Citrus Association – Summer 2014
- -Developed and implemented an improved product traceability system
- -Improved labeling efficiency from 94% to over 99%
- -Presented design to the plant manager and other supervisors
- -Gained experience working with multiple departments to implement a process change in an industrial environment

Relevant Course Work:

-Electric Circuit Analysis
-Fundamentals Of Comp. Science 1&2
-Classical Control Systems
-Semiconductor Device Electronics
-Analog and Discrete Time Signals and Systems
-Electronic Design
-Advanced Analog Circuits
-Microprocessor-Based System Design
-Digital Signal Processing
-Power Electronics
-Discrete Time Filters
-Stochastic Processes
-VLSI
-Wireless Communications
-Advanced Digital Communications

Skills:

-Oscilloscopes
-Function generators
-DC power supply
-Multimeter
-Vector network analyzers
-Unix
-Code Composer Studio
-Texas Instrument based microcontrollers
-Embedded firmware programing
-Basic Java and Python programming
-C programming
-MATLAB
-LTSpice and PSpice
-ADS
-Cadence Software Tools