Zacher Tiburzi

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Summary

I focused my schoolwork on digital electronics, and have a special fondness for embedded programing projects. I am looking for a position that requires an engineering background, and will build my technical and professional skills.

Education

Bachelor of Science in Electrical Engineering, University of California, Davis — Graduated June 2016
Associate of Science in Natural Science and Mathematics, Napa Valley College, Napa — Graduated June 2014

Noted Courses: Digital Systems I & II, Computer Architecture, VLSI Design, Embedded Systems, Analog Electronic Circuits I & II, Radio Communication Electronics, Principles of Device Physics I & II, Electronic Materials, IC MEMS Fab.

Programing Languages / Software

C, Embedded C, Matlab, Verilog, Python, HTML, CSS, MIPS Instruction Set.
Code composer, Keil uVision, Quartus 2, ModelSim, Autocad 2D, Magic VLSI, Hspice, CosmosScope, Microsoft Office.

Microcontrollers / FPGA

NXP FRDM-KL25Z (ARM Cortex M0+), TI CC3200 (ARM Cortex M4), Altera DE2 FPGA.
Interrupts, GPIO, ADC, Timers (PWM, PIT, GPT), SPI, I2C, UART, DMA, pin muxing.

Laboratory

Electronics: Breadboard analog and digital circuits (filters, amplifiers, radio transmitters and receivers, current sources, finite state machines), then test using oscilloscopes, function generators, and logic analyzers.

Cleanroom: Photolithography processing of IC and MEMS devices. Including wafer cleaning, photoresist application and development, alignment and exposure, plasma and BOE, electrical characterization and step height analysis.

Projects

NATCAR - Autonomous Vehicle Senior Project (group of 3) — September 2015 - May 2016
We programed a NXP microcontroller to trigger and capture ADC conversions on two 128 pixel line scan cameras using a periodic timer, and used PWM signals to control the motors and servo. The algorithm was designed to follow solid colored piece(s) of tape. The algorithm finds the 128 slopes between each pixel value. Then using a moving average threshold we isolated peak slope locations (i.e. the tape edge), and put these indexes through a PD controller to control the steering.

Watering System Simulation (group of 2) — May 2016 - June 2016
One TI board collected ADC data from wired moisture, temp and humidity sensors, and a servo adjusted pipe water flow depending on soil moisture. Using SPI an OLED display presented the temp, humidity, and valve position. On a second board a pulse width from a wired ultrasonic sensor monitors a well's depth. If low depth a servo opens pipe water flow, and a water pump activates. Each board uses iftt to send a sms message if there is low soil moisture or a low well depth.

Work Experience

Seasonal Maturity Grape Sampler, Domaine Chandon, Yountville, CA — July 2015 – September 2015
Responsible for picking maturity grape samples, inspecting the vine health and crushing the grapes. Then assisting in analysis of the juice's brix, and organic acid content using a refractometer, autotitrator, and enzymatic bioanalyser.

Cashier and Sales Floor, Orchard Supply Hardware, Napa CA — October 2013 – September 2014
Provide excellent customer service, manage seasonal floor and warehouse stock, and create seasonal floor displays.

Activities

UC Davis IEEE, NVC Phi Theta Kappa Honor Society.