Wyatt Hansen

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SKILLS

Programming Languages: C / C++

Frameworks & Protocols: GPIO, SPI, I2C, USART**,** RTOS, FreeRTOS, ROS

Hardware: STM32F4 Series, ARM Cortex M, Nucleo, 16x02 LCD, Tiny RTC, Arduino

Development Tools: STM32CubeIDE, Git / GitHub, Agile, Linux, Multisim

PROJECTS

Hardware Synchronization System for a Self-Driving Car

- Utilized **Arduino** to demonstrate synchronization of Radar and Camera sensors through PPS signals received from GPS.
- As Project Lead of a team of five we designed and implemented a system that collected sensor data, effectively corrected for delays, and facilitated data visualization using **ROSpy** and **RViz** for integration into autonomous vehicles.

Embedded Driver Development

- Utilizing an STM32 Nucleo-F446RE I implemented the drivers for the **GPIO**, **SPI**, **I2C**, and **USART**.
- Successfully completed a Clock and Calendar Display on an 16x02 LCD using an Tiny RTC.

Task Scheduler with Round Robin Prioritization

- Utilizing a Nucleo-F446RE programmed in **C** to create tasks to independently toggle LEDs using **Register Manipulation** of the GPIO available.
- Inline Assembly was used to implement the Process Stack Pointer for the tasks and Main Stack Pointer for the scheduler.
- **Debugging** was done by enabling the Usage, Memory Management, and Bus Faults.

Krisys Line Following Robotics

- Designed and developed an autonomous car utilizing a Xilinx BASYS 3 FPGA, **Multisim**, 2 DC motors, and Capacitance Sensors, enabling it to autonomously track and follow a 5V current-carrying wire on the floor.
- Created a State Machine and Controller Decision Table to derive the **PWM** Duty Cycles for each motor.
- Built the State Machine, Frequency Divider, PWM and Debugging logic in Multisim circuitry.

EDUCATION

Texas A&M University, College Station, Texas — December 2021
Bachelor of Science in Computer Engineering
Minor in Cyber Security

Lone Star University, Kingwood, Texas — May 2017
Associate of Arts

Fast Bit Embedded Courses — November 2023 – March 2024

- Completion of: Embedded Driver Development, Mastering RTOS and Embedded Systems Programming

WORK EXPERIENCES

Genesis Dimensions, Houston, Texas — Summers of 2017, 2020, and 2021
Engineering Intern

- Successfully installed and implemented Taiga, an open-source Agile project management tool, on in-house servers, enhancing project coordination and management.
- Assisted in the manufacturing and integration of industrial control panels for a Kuka Robot and a Material Flow Control System

Arrington Automation, Houston, Texas — August 2018 – August 2019
Engineering Intern

- Collaborated with a team of engineers to contribute to the design, testing, manufacturing, and integration processes of industrial control panels for control systems.