Wyatt Hansen

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SKILLS

Programming Languages:	C / C++
Frameworks:	FreeRTOS, ROS
Hardware:	STM32F4 Series, ARM Cortex M Micro-controllers, Arduino, Nucleo F446RE
Development Tools:	Agile, Git / GitHub, Linux, STM32CubeIDE, 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.
- Engineered a system that collected sensor data, effectively corrected for delays, and facilitated data visualization using **ROSpy** and **RViz** for integration into autonomous vehicles.
- Collaborated with a team of five engineering students on a Senior Design project, showcasing strong teamwork and project coordination skills as the **Project Lead**.

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.
- Collaborated closely with a team of two engineering students for my Digital Electronics Class project.

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.
- Utilized Systick Timer every 1ms and PendSV Handlers as the scheduling mechanism for task switching.
- 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.

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

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.