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ECE 49022

Team 17: Blind Mice

Week of February 10, 2020

What have I accomplished recently:

* Learned to use STM32CubeMX Program to generate peripheral initialization code to use for STM32F413ZH microcontroller programming
* Successfully wrote and tested code for debounced on/off push button that utilizes the user push button on PC13 configured in interrupt mode to toggle the state of the blue User LED located at PB7 (configured in output mode) on and off when pressing the push button once.
* Wrote test code for reading from and writing files to USB flash drive via the USB\_OTG\_FS peripheral
* Purchased OTG Micro USB adapter from Amazon, which will be expected to arrive at PMU Amazon by Monday, 2/17
* Found a Micro SD breakout board to purchase from Amazon that has 2-day shipping
* Learned from the Manager's meeting that I2S is not compatible with the built-in DAC on the microcontroller
* Attended the EAGLE PCB Design Tutorial on Saturday, 2/15/20, to learn the basics of PCB Schematic and Layout design using EAGLE free software

What am I working on now:

* Learning how to use the STM32F413ZH's on-board user USB port to interface with USB flash drive via the USB\_OTG\_FS peripheral by reading the STM32F4 Family Reference Manual in detail.
* Researching how to access file paths of files that are stored inside USB flash drives and SD cards to help with file selection.
* Researching how to use the SPI to read/write files to SD cards via online tutorials, databases, SD card SPI-mode pin definitions, and the STM32F4 Family Reference Manual.
* Researching how to use the DAC to output Sound Files via Interrupt Service Routines clocked by a timer at frequencies between 20 Hz to 20 kHz.
* Researching how to store data contained in variables into Flash Memory for preservation of user settings even after power-down

What needs to be done next:

* Testing out USB Flash Drive interfacing code written last week with a real flash drive using the newly purchased Micro USB adapter from Amazon
* Creating functional code that can check status of microcontroller's USB port, read/write files to flash drive, and access file path data of the files stored within the USB Flash Drive
* Creating test Code for DAC output of analog voltage signal from an array containing digital data for a sine wave signal
* Creating test Code for storing data into Flash Memory