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ECE 49022

Team 17: Blind Mice

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What have I accomplished recently:

* Created functional test code that allows the user to cycle through all files stored in a flash drive and access the file names of each file.
* Created test code that allows the user to use a push button to navigate backward to the previous file when pressed and close/open the directory the directory and navigate to the final file of the flash drive when pressing the push button at the time the first file name is read
* Created test code that allows the user to use a push button to navigate forward to the next file when the respective push buttons are pressed and close/open the directory to navigate to the first file of the flash drive when the last file in the drive is reached and the push button is pressed again.
* Obtained Micro SD Chip
* Obtained Micro SD Shield Breakout board

What am I working on now:

* Filtering out non-.txt files from the file selection process so that the user is not able to select an unexpected file type that is not .txt
* Creating test code that generates a buffer of array size equal to the number of elements within a single line of text within the .txt file that has been selected to be read

What needs to be done next:

* 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
* Creating SD Card Initialization code using SPI
* Prototyping the code to be used for the midterm demo to demonstrate all parts of my subsystem. Code must consist of the following general bodies of code executed in sequence:

1.) USB Check Mode – Checks if user USB flash drive is mounted or not. If flash drive is detected, continue to File Select Mode. If no flash drive is detected within three minutes, then automatically power down.

2.) File Select Mode – User is prompted to select the text file that they will be reading from. After selecting desired file to read using the play button, the audio file corresponding to the text will be selected automatically by the microcontroller.

3.) Play File Mode – The contents of the text from the selected text file will be read into a buffer array of variable size line by line and the parsed audio data corresponding to the read line of text will be transferred to the DAC and be outputted as an AC voltage signal, which can accessed at the DAC output pin. The user can use the navigation buttons to skip to the next or previous chapters at any time during Play File Mode. In addition, the Where am I button, Play button, and Mode buttons will also be active to allow the user to know the page and chapter they are currently on, to enable or disable scrolling of braille text, and to switch translation mode between contracted and uncontracted braille respectively. User will not be able to exit this mode unless the microcontroller is powered down and restarted to go back to USB Check Mode.