Blake Russell
Bryson Bolin

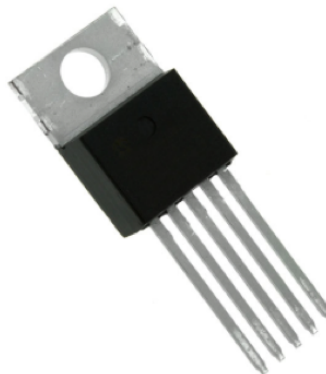ECE 153B Project Proposal

Overview

For our final project we are going to design a smart watch screen that a user can interact with. To do this we are going to implement an LCD screen that will have different page options the user can select. We are going to have different modes that one can click through such as the date/time, the weather, a stopwatch, and possibly other uses as well.

Peripherals

As of now we have two peripherals we will be forsure using, and will possibly be adding more. The first peripheral is the ILI9341 LCD display which is the screen the user will be interacting with.

The next peripheral will be the TC74 temperature sensor which will be used to display the current temperature onto the LCD screen.
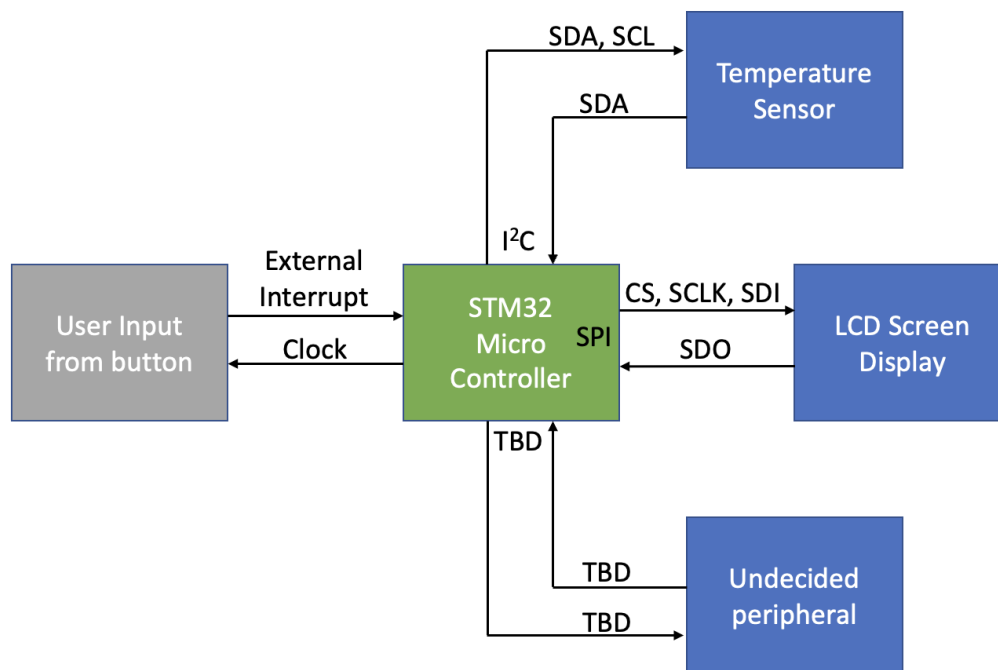
We are considering adding more peripherals such as one that helps tell the current weather in the area or ones coorindiates, but we have yet to find one that completely fits our design. We also may need a button of some sort that the user can push to select the different pages since the LCD is not a touch screen. Whether we use another peripheral for this or just the button in the STM32 is unknown right now.

Serial Interface Protocols

As of now we have two interface protocols for each peripheral. The LCD screen uses SPI and the temperature sensor uses I2C.

Block Diagram

Responsibility

When it comes to splitting up the work in this project we want to both contribute as much as possible. We will both attempt to try and work on it together the best we can. However, if circumstances do not permit that we will each work a bit with each peripheral and protocol so we both learn and understand how they are implemented in our design. As of now, it is too far in advance to predict where most of our time will be spent.

Software Structure

The LCD and Temperature Sensor will be implemented at the register level as we did in class. When it comes to the user interface and having the user interact with the various functionalities of the watch, we will most likely implement a Hierarchical Finite State Machine. This will allow for a smooth interface for the user to select where they want to go from a menu state.

Project Website:

https://sites.google.com/d/1IL9p6V50BggjI_Mbxnft2ICqe2qAVekU/p/1U9WclSkJj8ALZXCMBCXM01pIhmjS9pmX/edit