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Project Proposal: Pedometer MKII

Website: <https://edisonnchen.github.io/153B-ProjectProposal>

Objective:

The objective of this project is to create a pedometer wherein the user can input how many steps they want to take in a given day. The pedometer will have an LED display that will have 3 different graphics on it. A starting graphic, a graphic that will indicate halfway, and an ending graphic. The pictures will change according to the number of steps logged. If the user does not start moving within a set time, the pedometer will have a display that will have flashing colors or a sad face to remind the user to take steps. If time permits, we will be adding an audio system that will play sounds to remind the user to take steps or play congratulatory music when the user meets their goals.

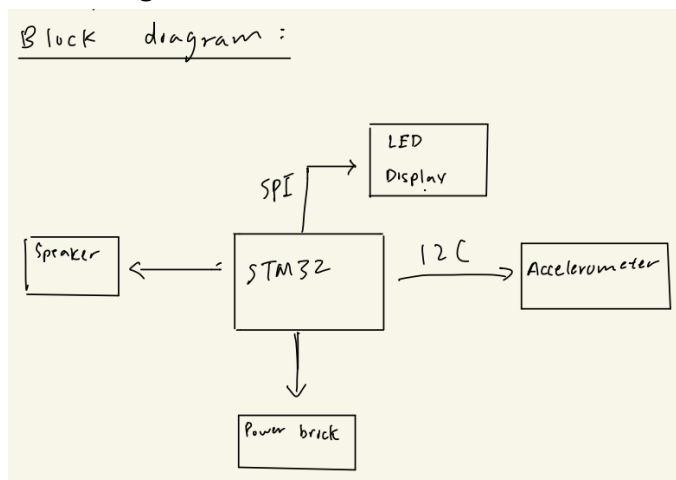
Peripherals:

- LED display that will show: speed, steps taken, kcals burned(?)
- ADXL345 Accelerometer
- EK1725(speaker)
- st7789 display(LED to display colors/ graphic)
- Power pack for portability

Protocols:

- I2C for accelerometer
- SPI for LED

Block Diagram:



Software:

We will be using the I2C communication protocol in order to connect with our accelerometer and the SPI protocol in order to communicate with the LED display. We will also be utilizing a

graphics library in order to display the graphics we want on the LED display. We will be interfacing the LED display and accelerometer in order to properly change graphics and display the proper amount of steps. We will also be adding in a sound speaker to the system when time permits.

Responsibilities

Edison will be working on the integration of the accelerometer and Tim will be working on the LED display. We will be working together to integrate both of them into a system and we will both be working on the speaker system. The website will be updated with our progress throughout the project.