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CRT 420
Project 03 - Function Proposal

FUNCTION PROPOSAL

Hardware

- ***Inputs***
  - Slide Switch - This component will act as an On/Off switch of my device.
    - https://www.adafruit.com/product/805
  - 6 DOF Accelerometer/Gyroscope Sensor - The accelerometer will sense the accelerations of the device in the x,y, and z axis. The accelerometer will help detect which screen is up by reading the gravitational force along the z axis. The gyroscope will sense the rotations of the device in the x, y, and z axis. The gyroscope will help incorporate the directional motion of the device into the directional motion of the snake game.
    - https://www.amazon.com
  - Tactile Button - This component will allow the user to access the home screen. Then the user will use the accelerometer sensor to switch through the different options displayed on the home screen. Such as developer screen and different snake game types.
    - https://www.adafruit.com/product/367
- ***Processing***
  - Teensy 3.2 - This processor should provide the most speed, inputs, and outputs for the preferred screens and to run the snake game.
    - https://www.adafruit.com/product/199
- ***Outputs***
  - OLED LCD Display - This .96” single color display screen is preferred for display the snake game. The screens will work with Adafruit libraries.
    - https://www.amazon.com
  - Piezo Speaker - This component will add audio output for the user for when he./she beats their high score, for example. This extra sensory feature will improve the overall experience of using the device.
    - https://www.adafruit.com/product/1740
- ***Power***
  - 500mAh Lithium Ion Polymer Battery - This component will provide adequate power to the device and its size will fit well with amongst the other components.
    - https://www.adafruit.com/product/1578

    - TP5410- LiPo Charge/Boost Converter - This component will help charge the battery through USB plugin, while the device is running.
        - https://www.ebay.com/itm/191990401129
- ***Software***
    - Arduino IDE - This software will allow me to create code to control the functions of my Teensy 3.2 with my other components.
        - https://www.arduino.cc/en/Main/Software
    - Adafruit GFX Library - This library will help me code what will be displayed on the screens.
        - https://learn.adafruit.com/adafruit-gfx-graphics-library?view=all
    - Adafruit SSD1306 Library - This library helps me code for a specific screen and what will be displayed on it.
        - https://learn.adafruit.com/monochrome-oled-breakouts/arduino-library-and-examples
    - FreeIMU Library - This library should help develop code for the 6 DOF.
        - https://playground.arduino.cc/Main/MPU-6050
    - ToneAC Library - This library will provide quality tones for the piezo speaker.
        - https://playground.arduino.cc/Code/ToneAC