Electrodermal Watchband

Overview

The primary goal of this project is to design a prototype of an electrodermal activity sensor that can be worn on the wrist and paired with a smartphone. This electrodermal activity sensor (EDA sensor) will fit into the larger picture of helping to identify cravings in recovering addicts to help them battle their addictions.

Objectives

- Design a prototype of an electrodermal activity sensor
- Interface with a smartphone
- Device will communicate with the phone over Bluetooth Low Energy (BLE)

Approach

- Visited sponsor and gathered the customer needs information
- Researched for the patent information based on the functions and the existing products in the market.
- Selected the concept to build our device comparing with the similar products sold by Empatica
- Purchased the EDA sensor integrated board, batteries, and Adafruit Feather 32u4 board
- Generated the prototype design on the housing and 3D printing the housing design
- Combined the circuitry with the 3D printing design
- Tested the accuracy of the EDA sensor and compare with the model device Empatica E4

Outcomes

- Device is able to detect the change in EDA of the patient with a high similarity to the commercial-grade EDA sensor.
- The whole unit costs less than $100, which is very competitive in the EDA sensor marketplace.