**Detailed analysis of fitbit data:**

The fitbit has a lot of information we can get through its web api.

The one we’re interested in is the heart rate sensor. The fitbit uses an ppg optical heart rate sensor.

We are interested in the heart rate data from the fitbit because heart rate is one of the best ways to identify stress and anxiety. We have already identified specific anxiety heart rate patterns that differentiate it from exercise. We are meeting with a dcu sports science lecturer, Dr.David Susta, to confirm and improve how we identify the heart rate pattern.

The web api gives us the users heart rate data in 5 minute intervals which we will pass into our app to decide if the person is experiencing an anxiety attack or not. if they are we will notify them and log the details in a graph that they can view later.

‘’Optical heart rate sensors are good for producing information like on-the-spot readings or resting heart rate data, which can be a good indication of you current state of health. They're pretty useful for adding HR data when you're working out, too.

Generally, all of these heart rate monitors are based on the same technology. We're talking light-based optical tech (PPG) that uses flashing LEDs which penetrate the skin to detect blood flow. The light reflected off that blood flow is captured by those sensors and with algorithm smarts produce the heart rate data. It's a non-invasive way to measure heart rate and that's why a lot of companies use it in their wearables.’’

There are constraints to the fitbits hardware though but over time wearable trackers will contain more accurate heart rate sensors like the ecg heart rate sensor that is used in the new apple 4 watch or the kardiaband that is the only apple wearable certified by the fda.