IoT Presentation

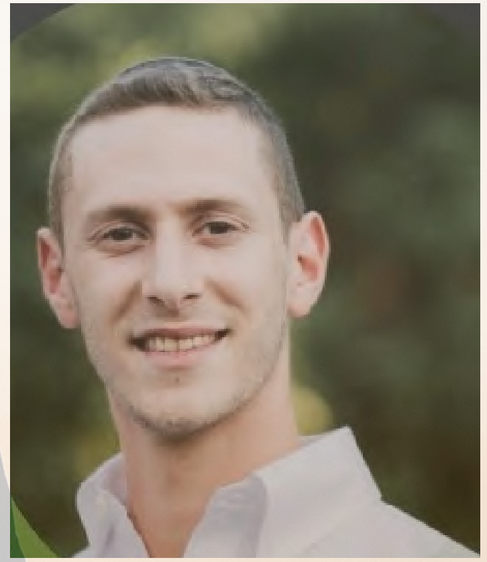
WatchMeAI

Idan Horowitz, Elon Dagan, Matan Birnboim

Project Team Members

Idan Horowitz

Elon Dagan



Matan Birnboim

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Try Pitch

Our Story

Our story begins with concerns.

Concerns that occupy the thoughts of people of all ages. Girls and boys, women and men, old people and young.

When going on a hike, when sitting in their house, or simply when trying to get home at night, everyone wants to be safe.

But if something happens, no one will know. Who will help them?

We must make sure that as they walk from place to place, or when they sit at home, they will feel safe.

This is our story, the story of all of us.

Our Story

The problem

Our Solution

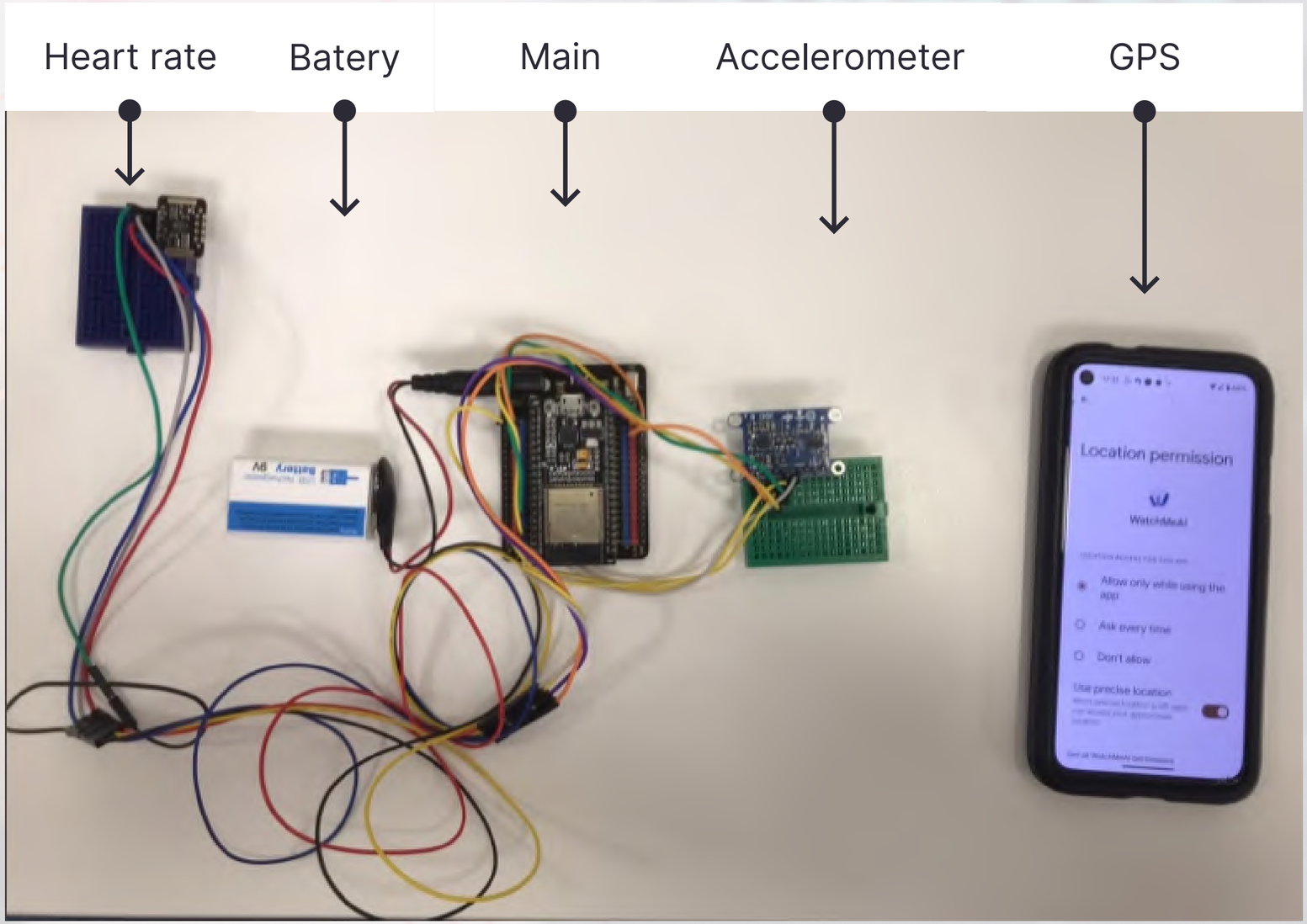
Examples

Our Product

https://www.youtube.com/watch?v=4ouJbpXEDs8

Our Product

Illustration:

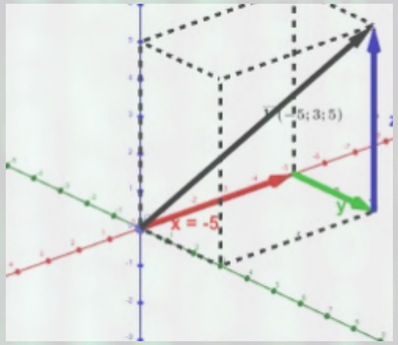


Algorithms, Signals & Data

Data Flow:

1.Means of Measurement:

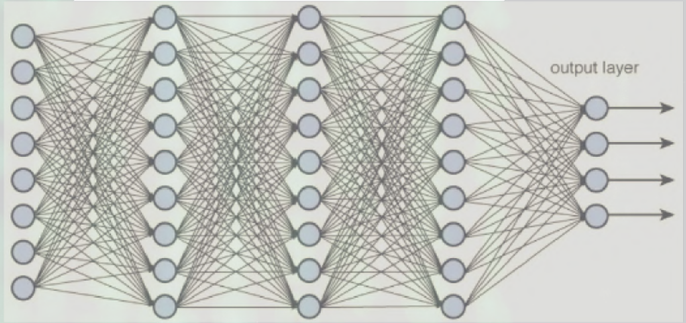
Accelerometer



X,Y,Z

2.Analysis:

norm & neural network



GPS

Heart rate

walking
running
falls
no signal

Abnormal

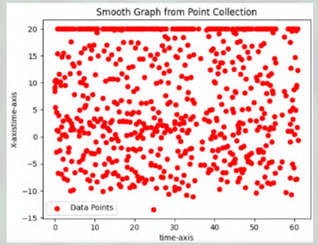
Stress

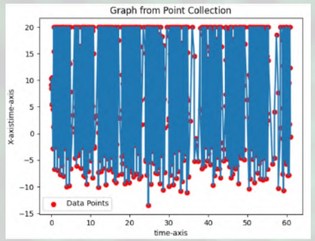
Body Mode

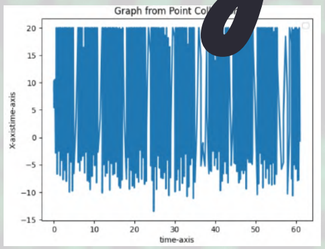
3.Inference:

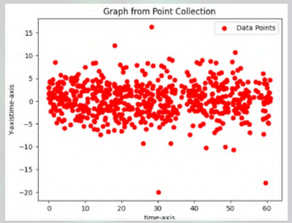
Emergency

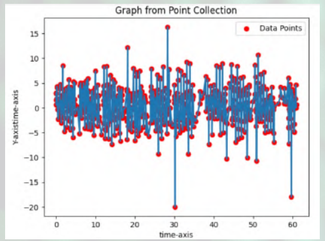
Signals & Data

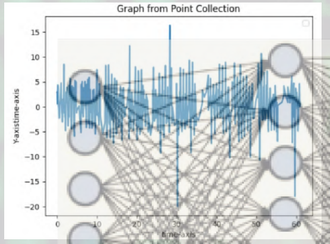


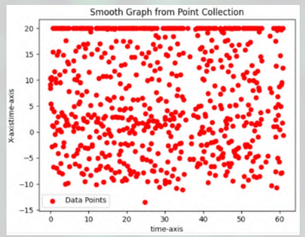


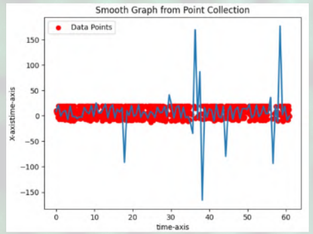


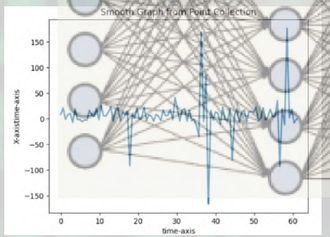


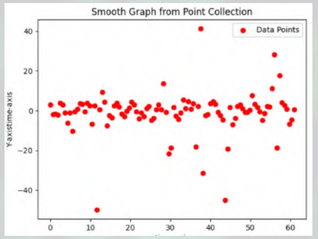


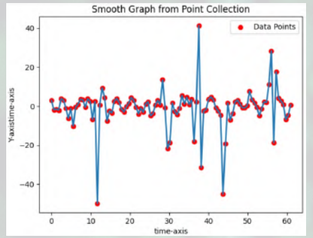


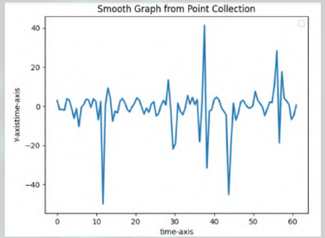


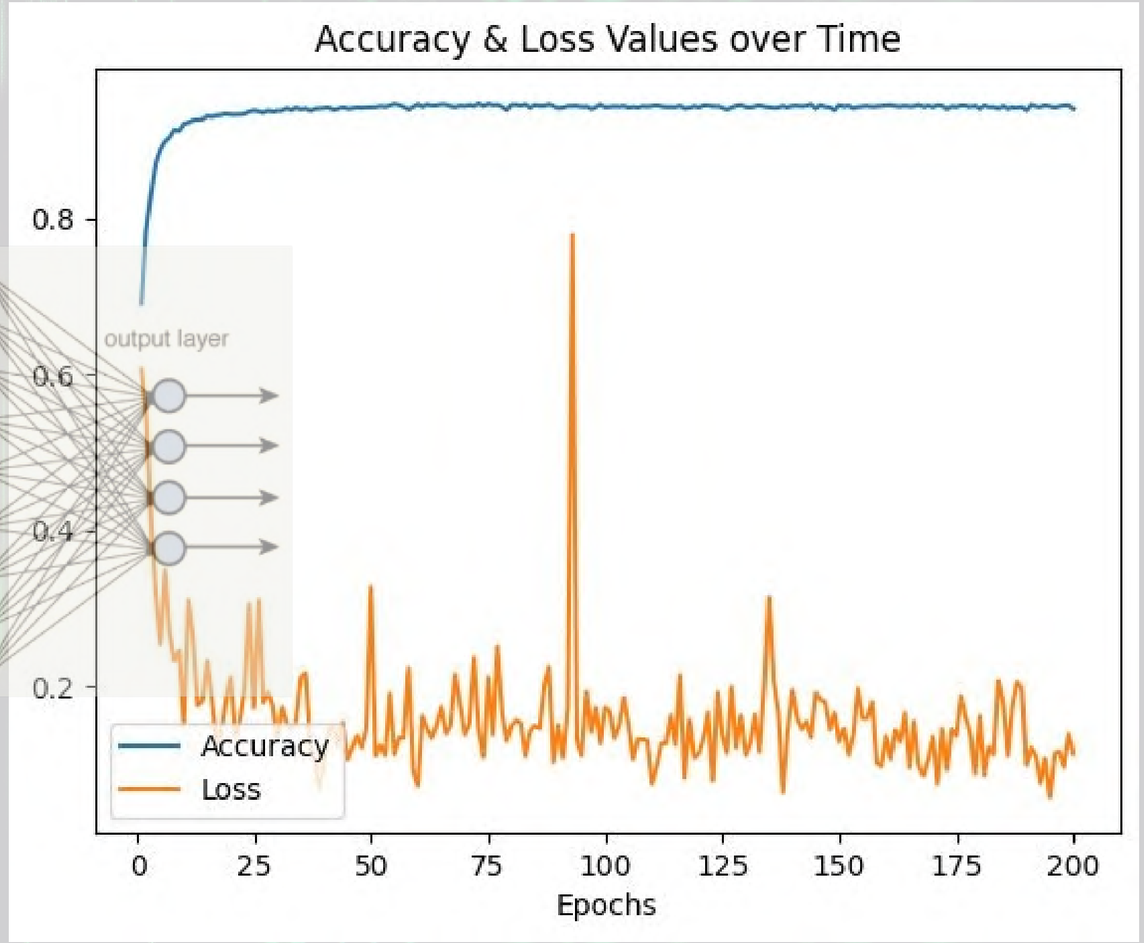










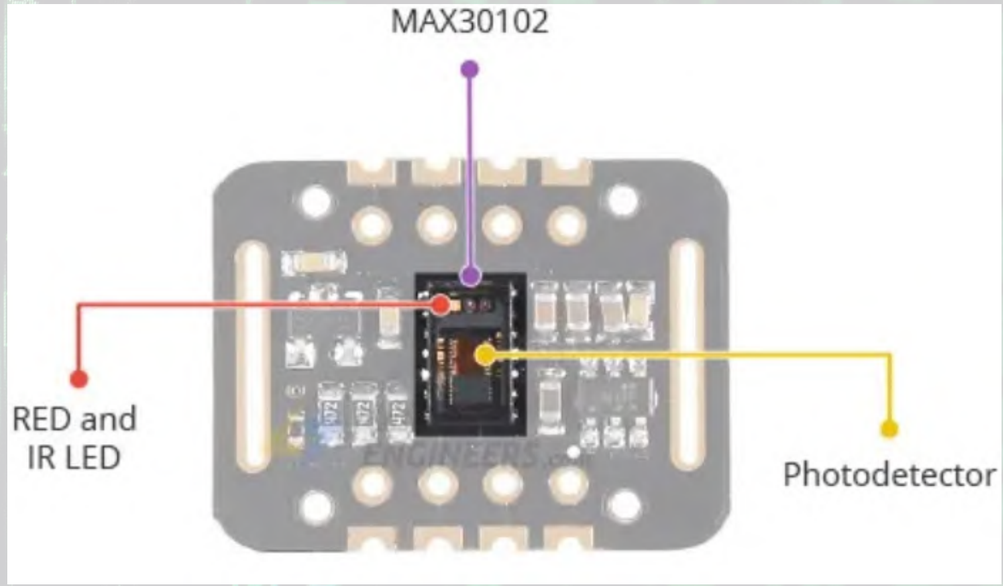


Try Pitch

Signals & Data

Interfacing MAX30102 Pulse Oximeter and Heart Rate Sensor with Arduino

Behind the window on one side, the MAX30102 has two LEDs – a RED and an IR LED. On the other side is a very sensitive photodetector. The idea is that you shine a single LED at a time, detecting the amount of light shining back at the detector, and, based on the signature, you can measure blood oxygen level and heart rate.



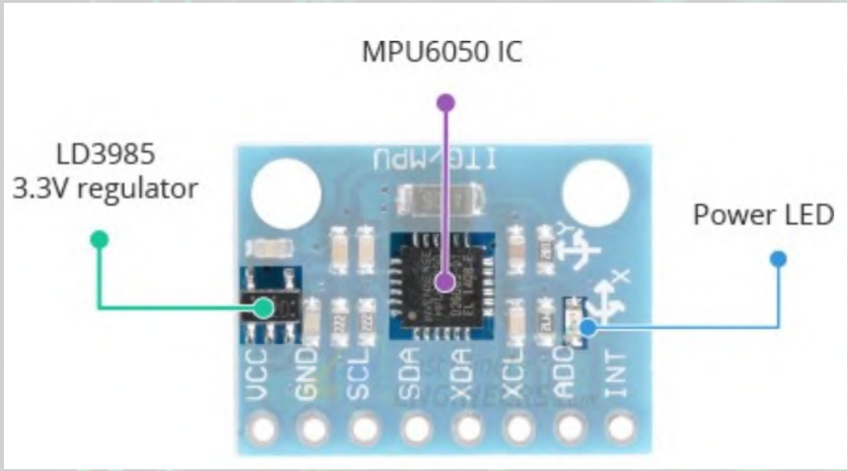
I2C Interface

The module uses a simple two-wire I2C interface for communication with the microcontroller. It has a fixed I2C address: 0xAEHEX (for write operation) and 0xAFHEX (for read operation).

Signals & Data

Interface MPU6050 Accelerometer and Gyroscope Sensor with Arduino

Accelerometers are based on Micro-Electro-Mechanical Systems (MEMS fabrication technology).
As a result of deflection, the capacitance between fixed plates and plates attached to the suspended structure changes. This change in capacitance is proportional to the acceleration along that axis.
The sensor processes this change in capacitance and converts it into an analog output voltage.



The I2C Interface

The module communicates with the Arduino via the I2C interface. It supports two different I2C addresses: 0×68HEX and 0×69HEX. This allows two MPU6050s to be used on the same bus or to avoid address conflicts with other devices on the bus.

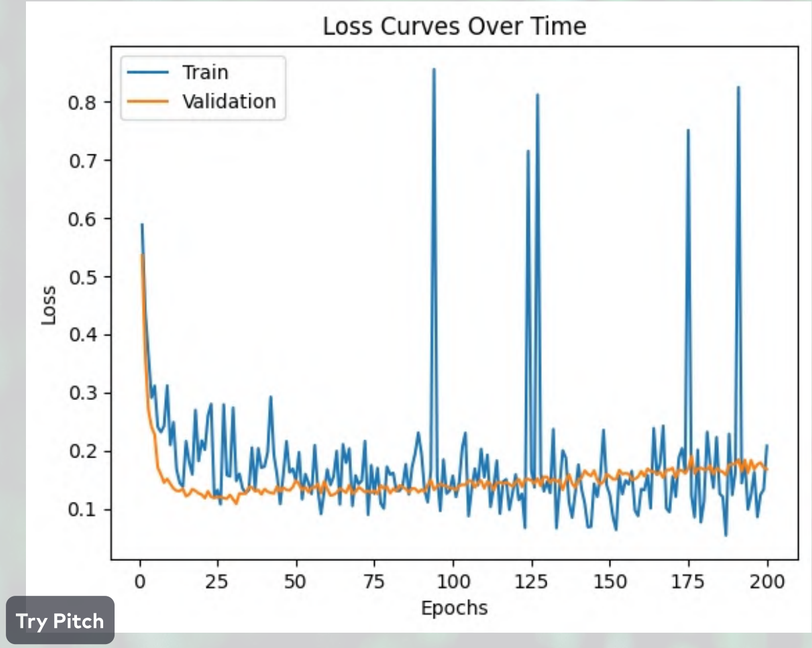
Application Algorithms

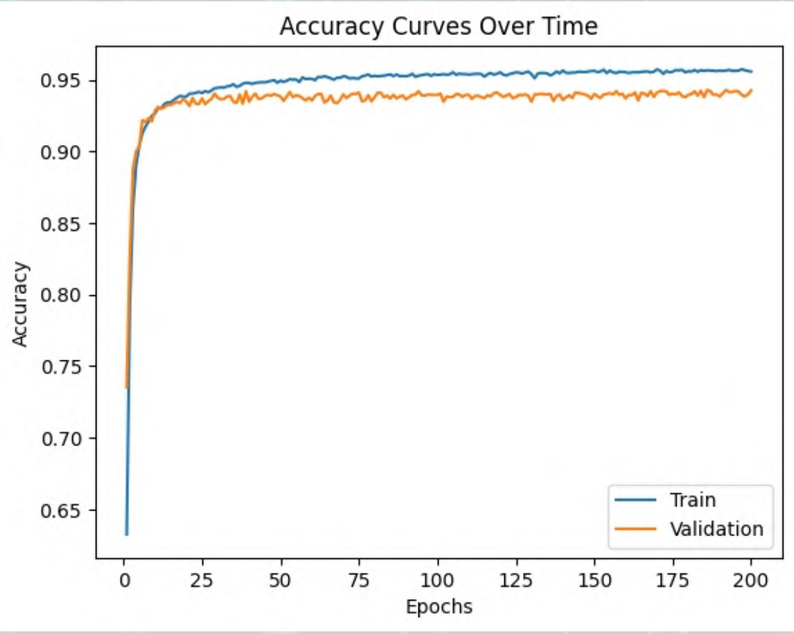
- Walk/Run Classification
- Heart Rate Monitor
- Fall

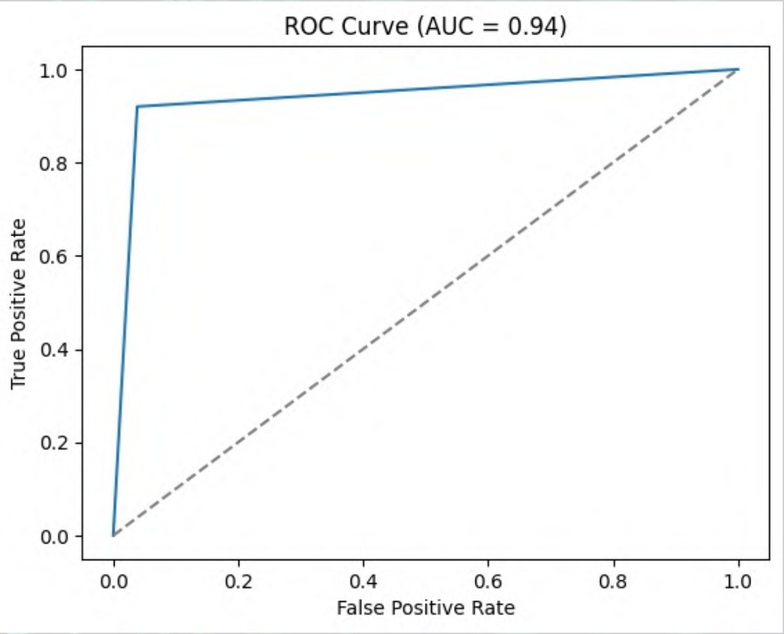
Walk/Run Classification

Using Communal Data

- **Data Preprocessing**
- **Neural Network**



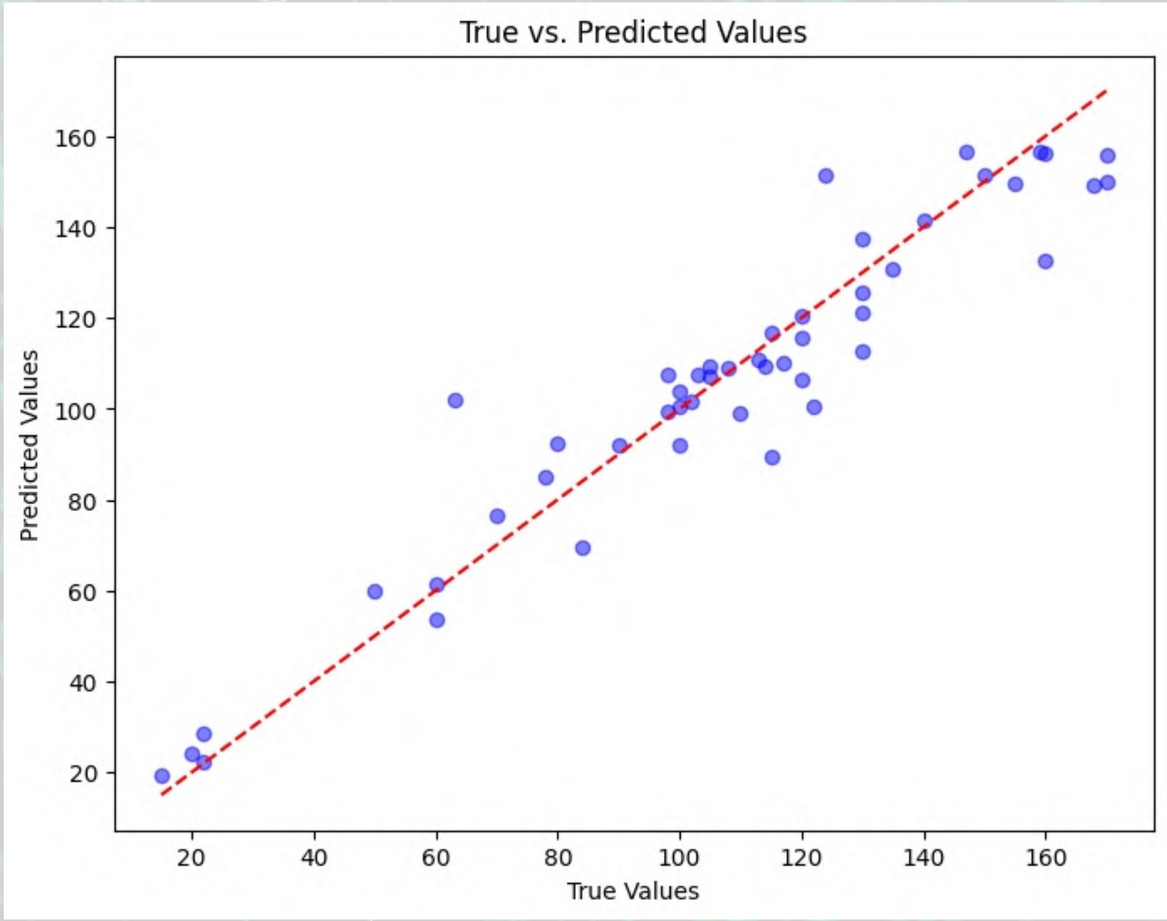




Step Counter

Using Communal Data

- **Feature Extraction**
- **Model Selection**
- **Hyperparamter Tuning**



Company Goals

Company Goals

We at WatchMeAI strive to be a make an impact in the world, providing intelligent, AI-based solutions for the benefit of populations seeking assistance, safety and decrease of anxiety in dangerous situations.

Based on a product with a few simple sensors and a convenient mobile phone application, we aim to produce a security mechanism that works independently, reliably, intelligently and effectively.

WatchMeAI

The End

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