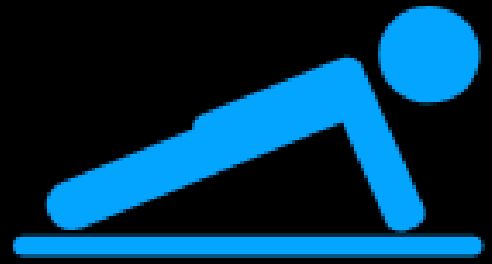
trAIner

A form fixing assistant



WHAT?

trAIner is a form-fixing assistant that utilizes both haptic and graphical feedback to provide tips on improving one's posture when doing common exercises, such as pushups and squats.

There are three parts to the assistant:

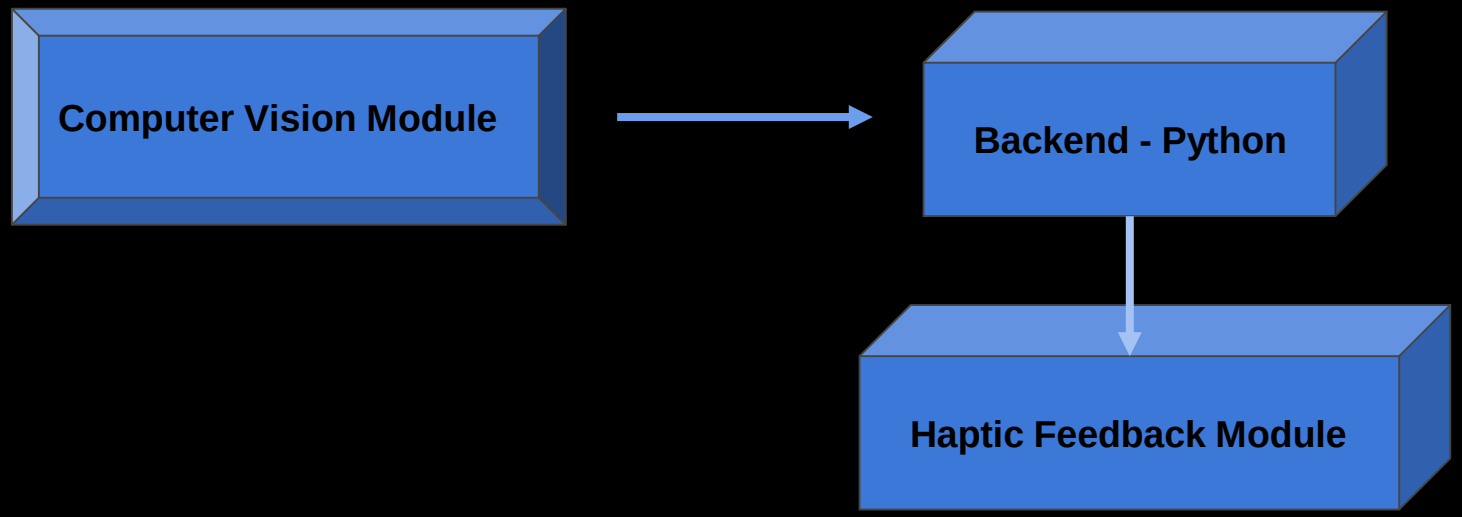
- Mobile Application
- Web Application
- Haptic Feedback

PROBLEM

We were inspired to build this app to solve two specific issues:

- Bad posture when doing simple exercises, such as pushups and squats
- High cost of personal trainers

DESIGN


Computer Vision Module
Backend - Python
Haptic Feedback Module

HOW?

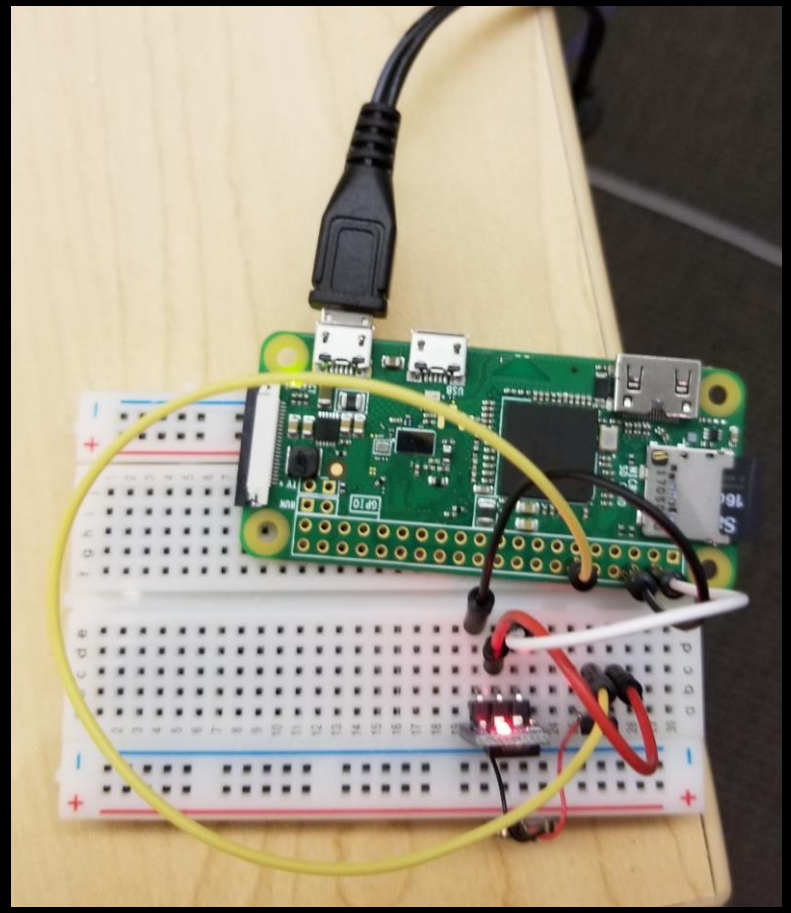
We built this app by dividing the workload into three parts.

- Gathering data from a computer vision module
- Processing and transforming raw data into a readable format
- Displaying the data on our front-end via mobile and web applications

Challenges?

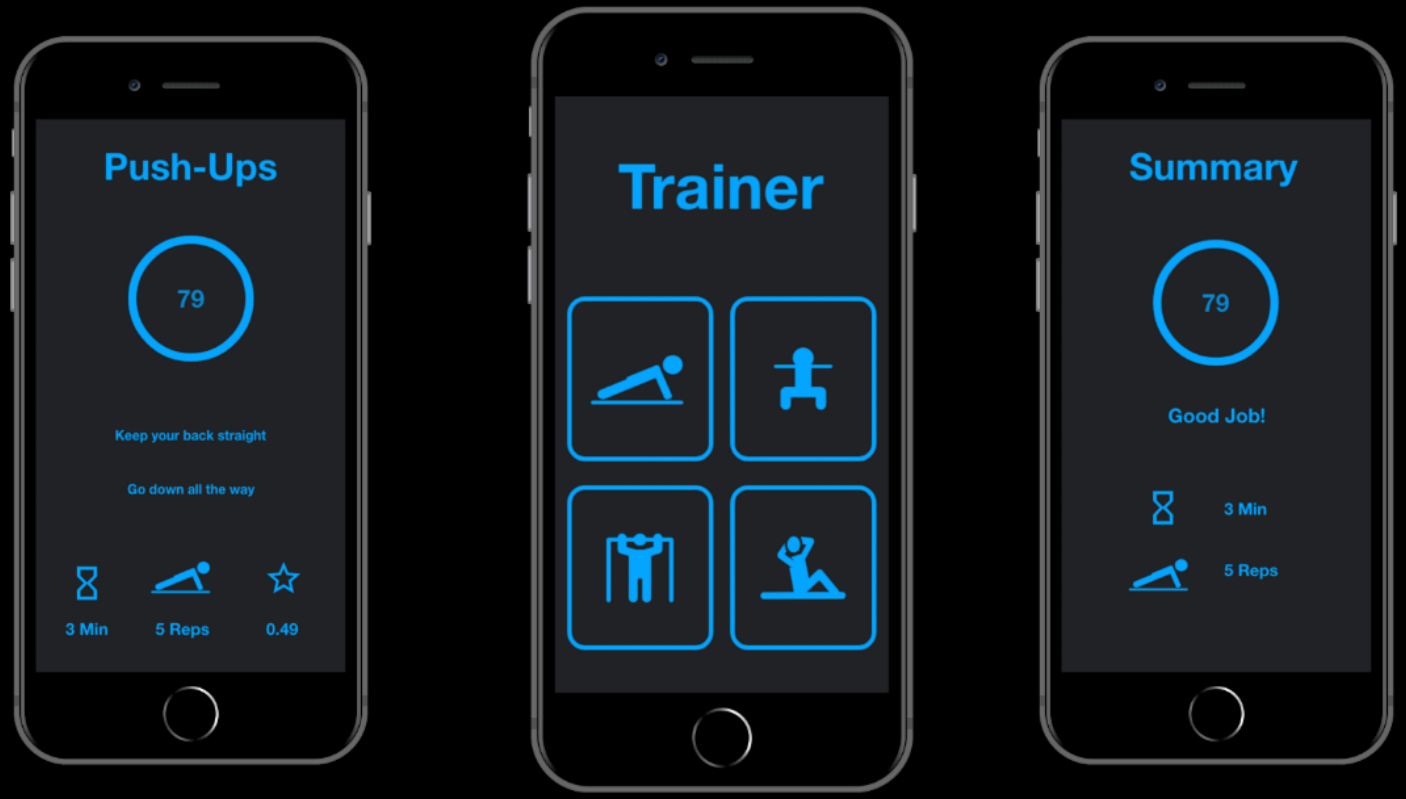
- Data processing and algorithm decision for rep count and score generation
- Determining back curvature as the CV library used gave access to only certain joints
- Data visualization through the front-end mobile and web applications

HAPTIC FEEDBACK



Raspberry Pi Zero with Vibration motor attached to a belt to provide feedback on the posture with different intensity of vibrations

MOBILE APP (ANDROID AND IOS)



WEB APP


Push-Up Overview
Overall Stats
Hours: 4
Reps: 4
Hours: 4
Reps Per Minute
30
20
10
0
1
2
3
4
5
6
7
Back Score
0.79
Balance Score
0.79
Completion Score
0.79
Back
Balance
Completion
30
20
10
0
1
2
3
4
5
6
7