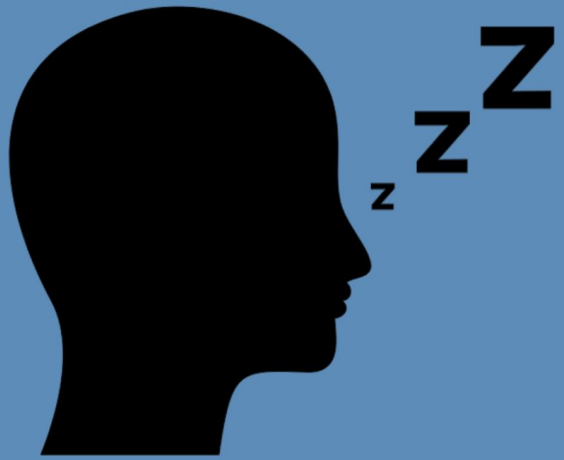
AEROSPACE

Drowsiness Detector



Problem:

Problem:

51% of Americans sleep on the job

Amerisleep Study

Problem:

- Satellite launches happen at all hours
- Employees need to stay vigilant

51% of Americans sleep on the job

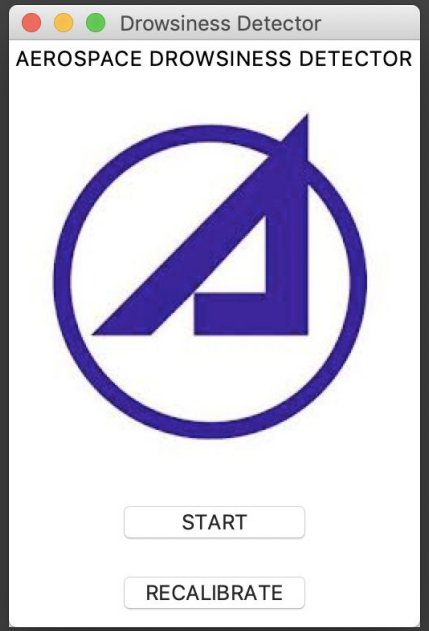
70% in tech!

Amerisleep Study

Solution:

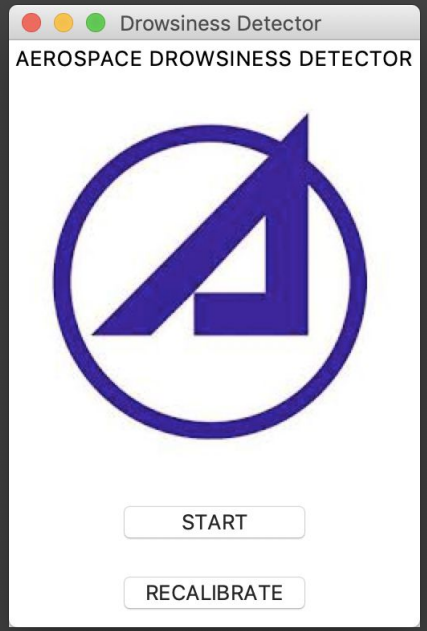
Solution:

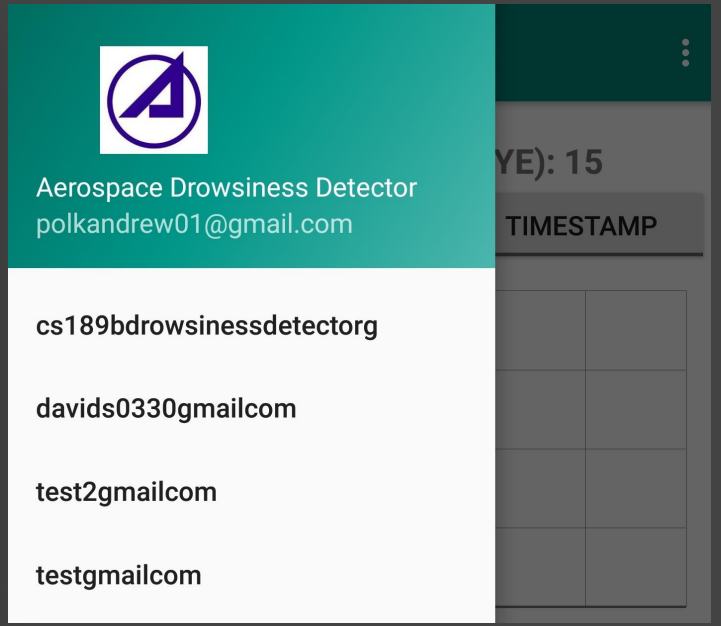
- **Employee:** Desktop program detects drowsiness via facial recognition



Solution:

- **Employee:** Desktop program detects drowsiness via facial recognition
- **Manager:** Android app displays user profiles stored in Firebase





Overview

Overview

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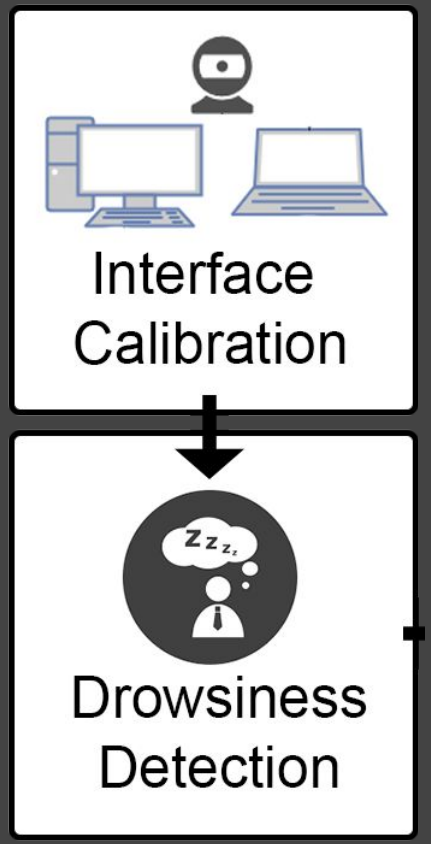
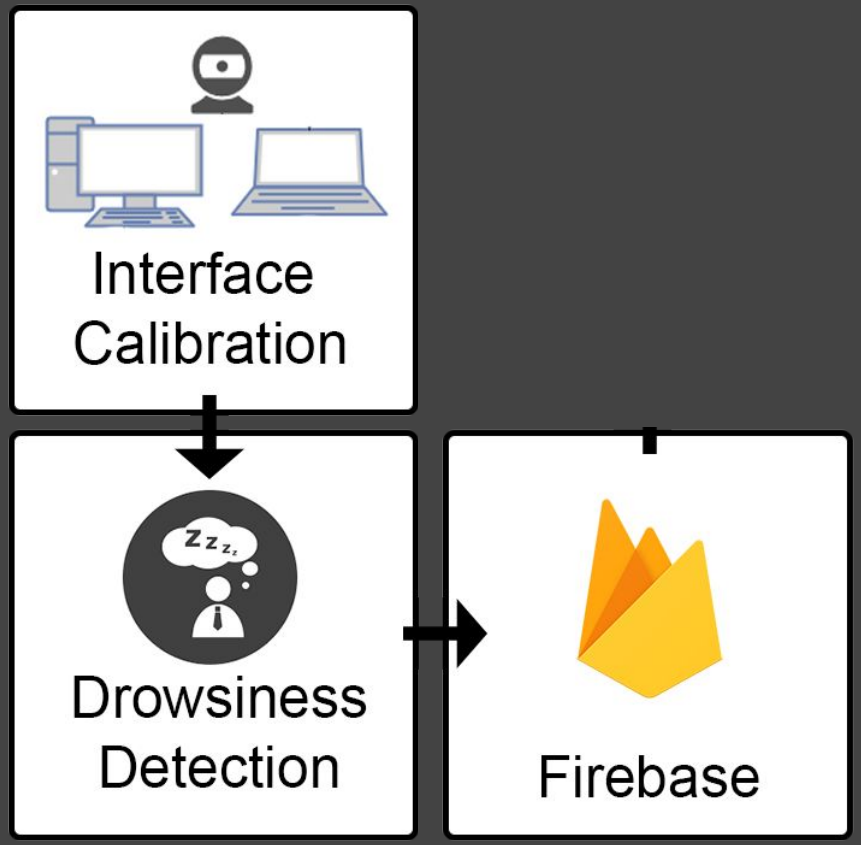
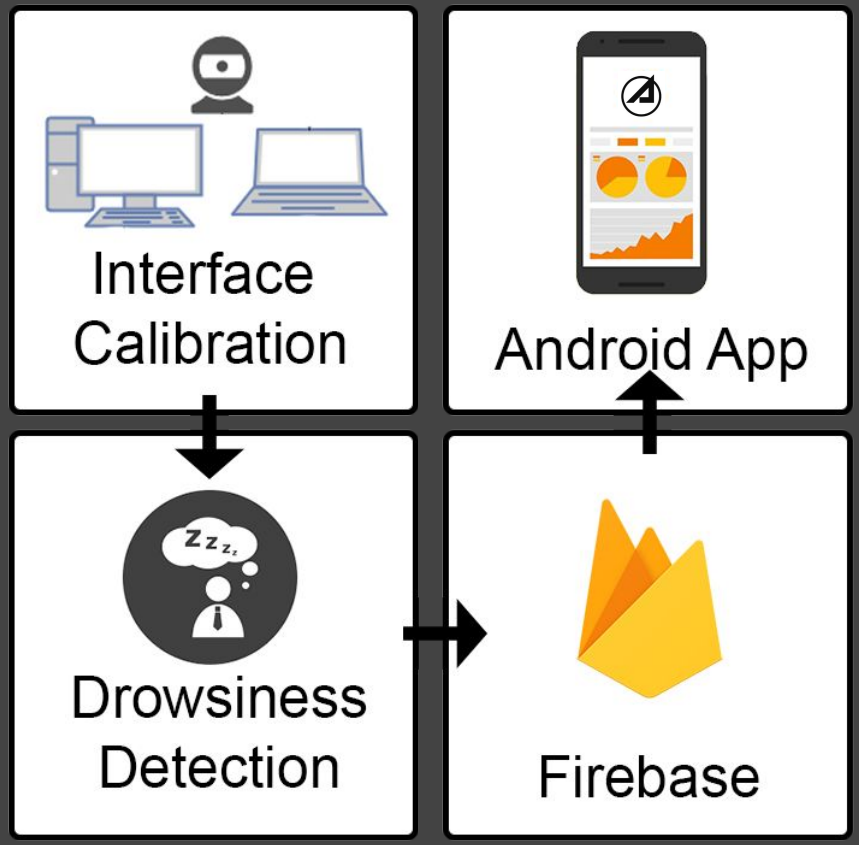


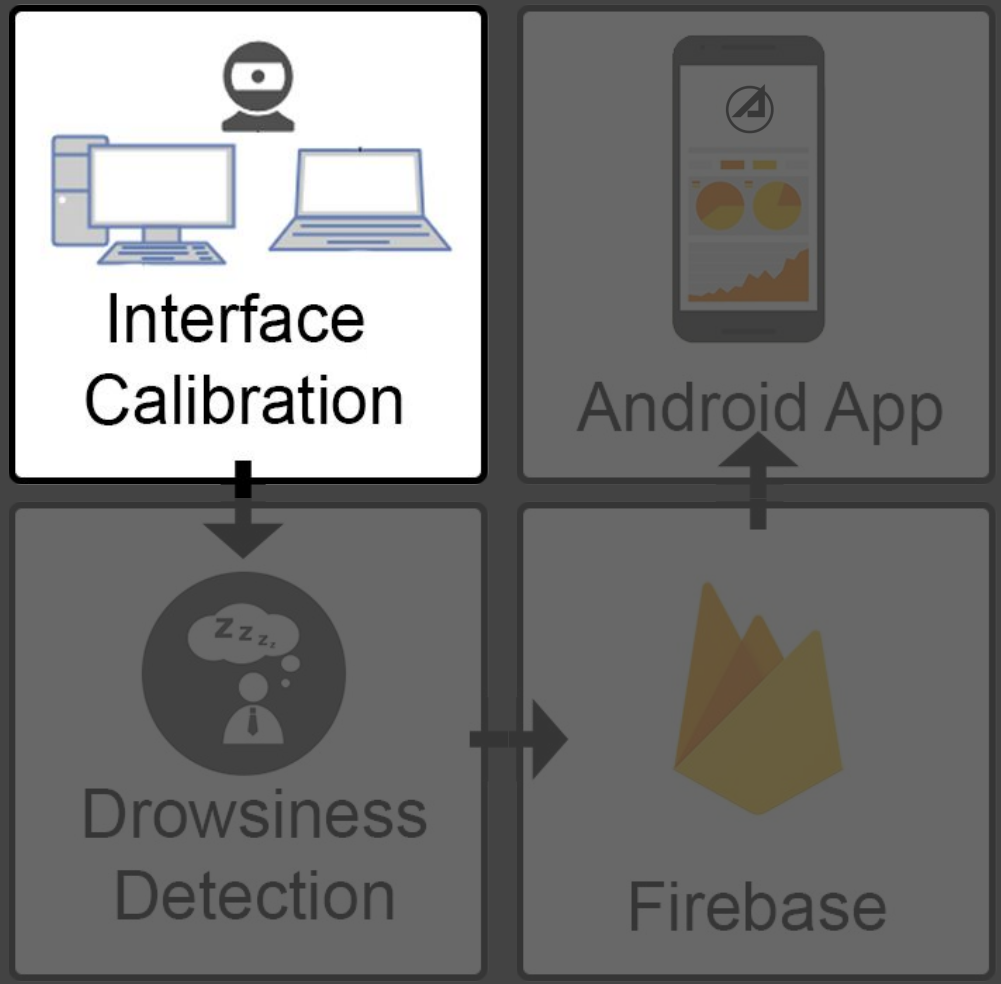
Overview



Overview


Interface
Calibration
Android App
Drowsiness
Detection
Firebase

Demo:
Employee Workflow


Interface Calibration
Android App
Drowsiness Detection
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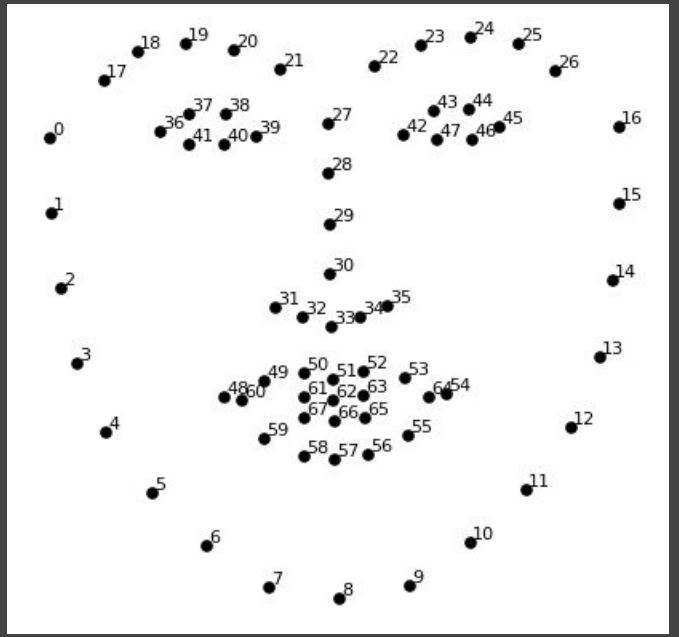
Detection Technologies

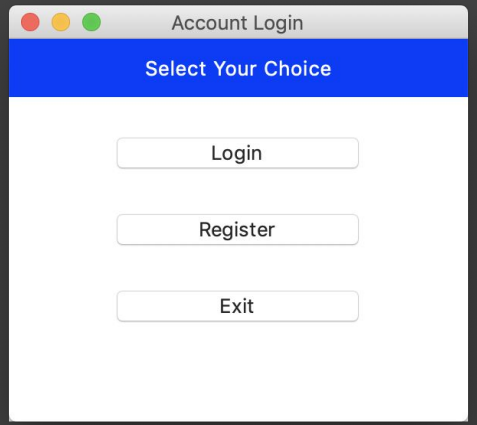
OpenCV
- Real-time computer vision

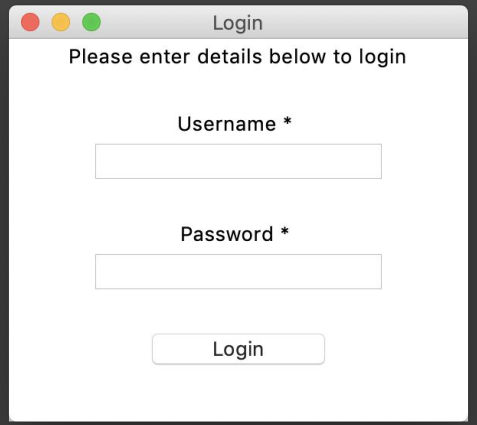
Dlib
- Facial landmarks

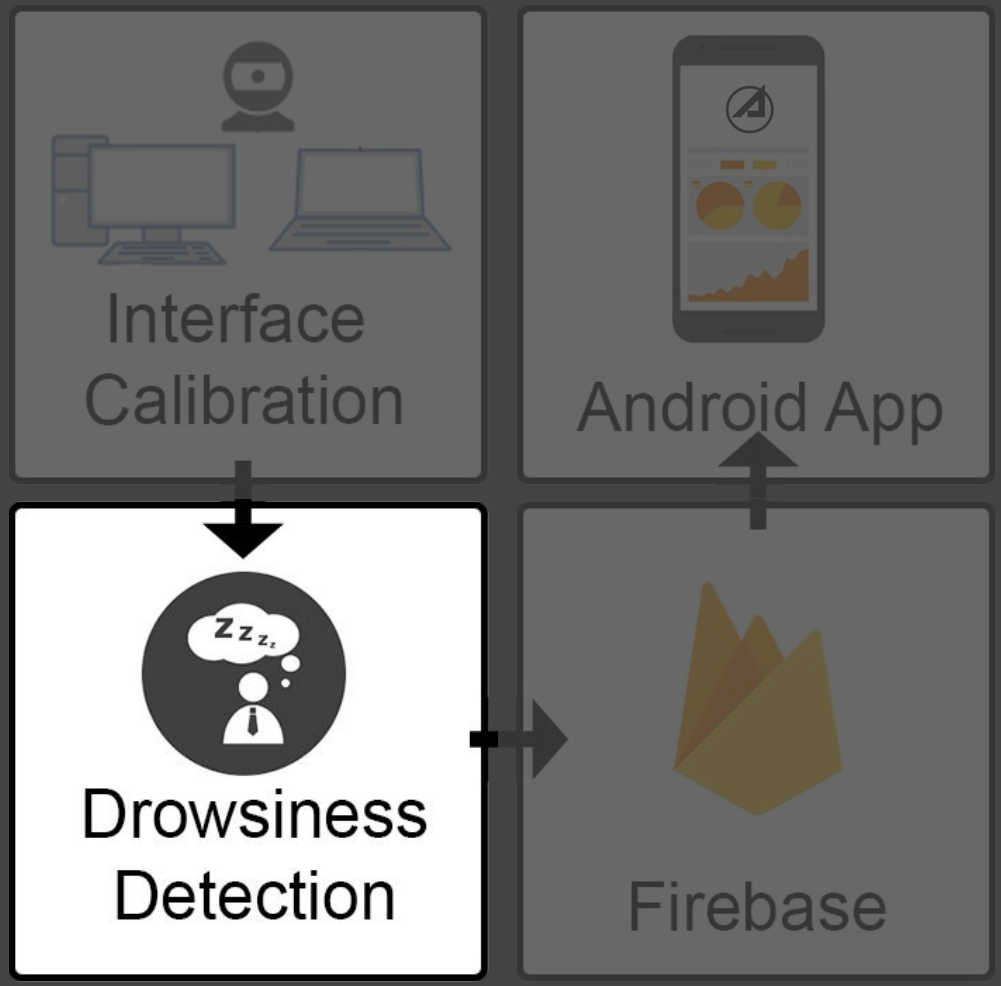


Login and Calibration

- Log in or register
- Calibrate facial features
- User specific thresholds






Interface Calibration
Android App
Drowsiness Detection
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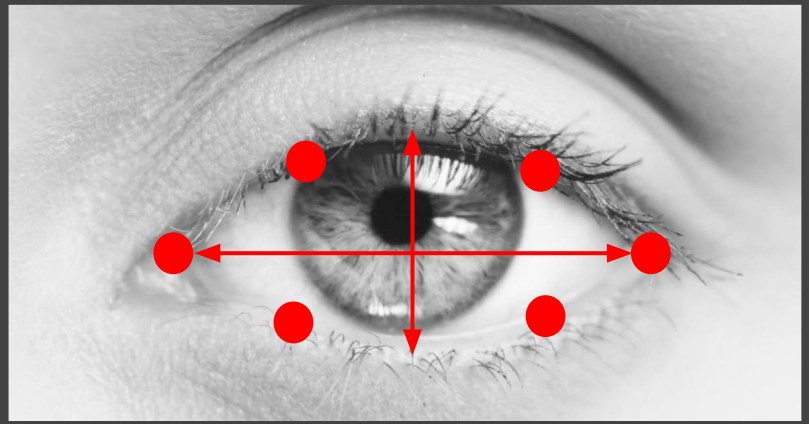
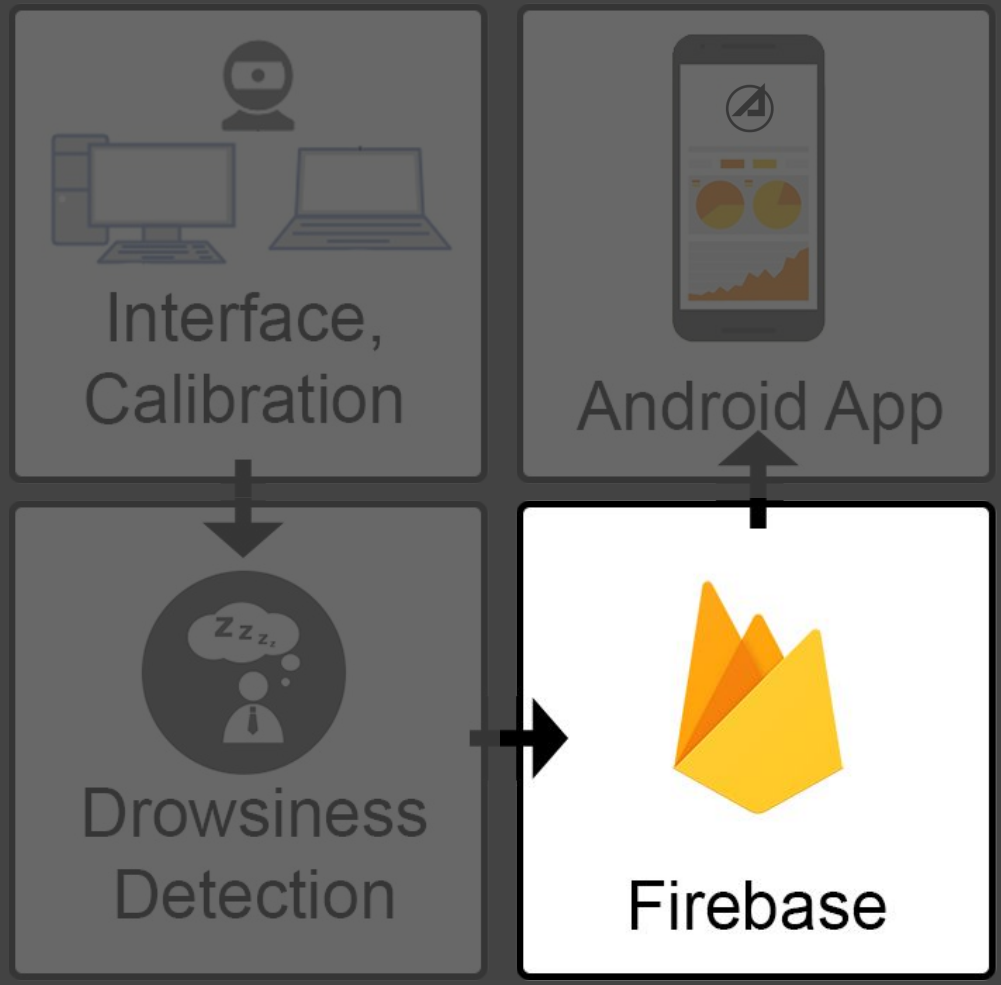
How It Works

- Feature detection
- Time series analysis
- Drowsiness threshold triggers



Demo:
Manager Workflow


Interface,
Calibration
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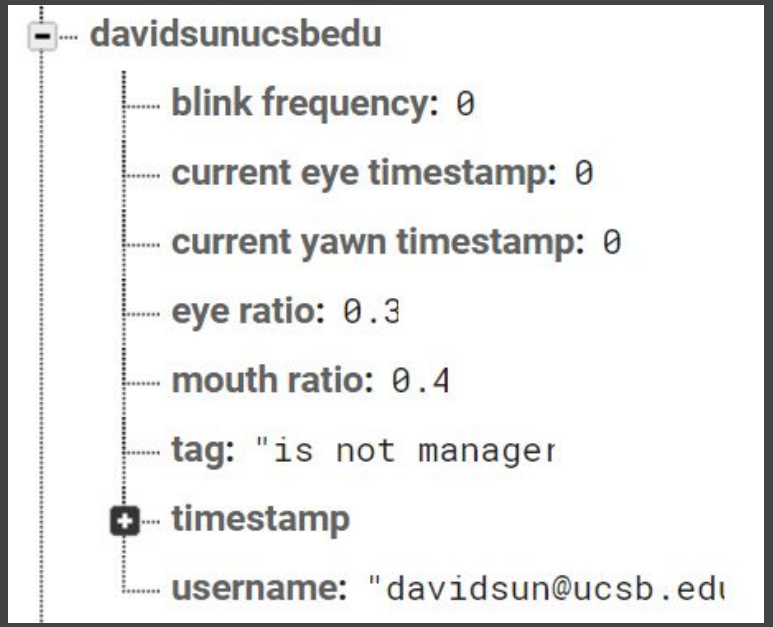
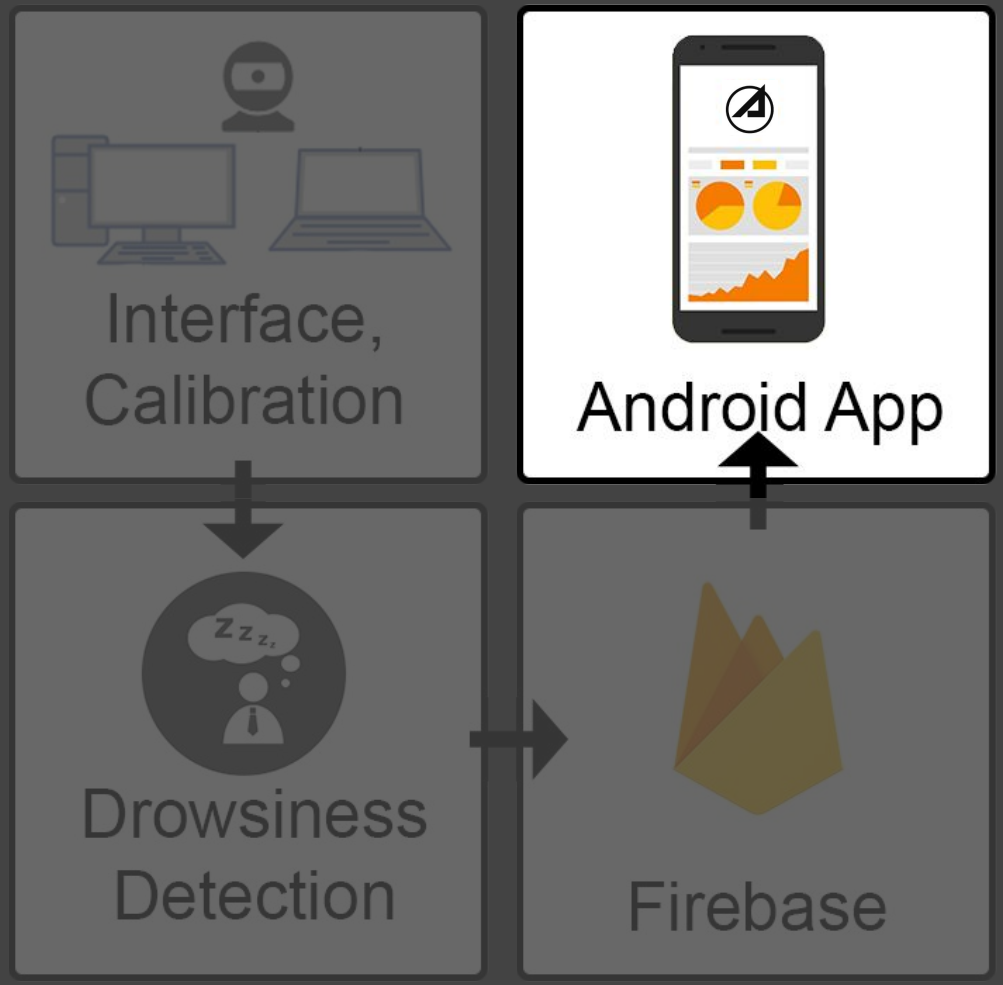
Firebase

- Stores threshold values and blink frequency
- Notifies app of updates in real time
- Stores timestamps in UTC




Interface,
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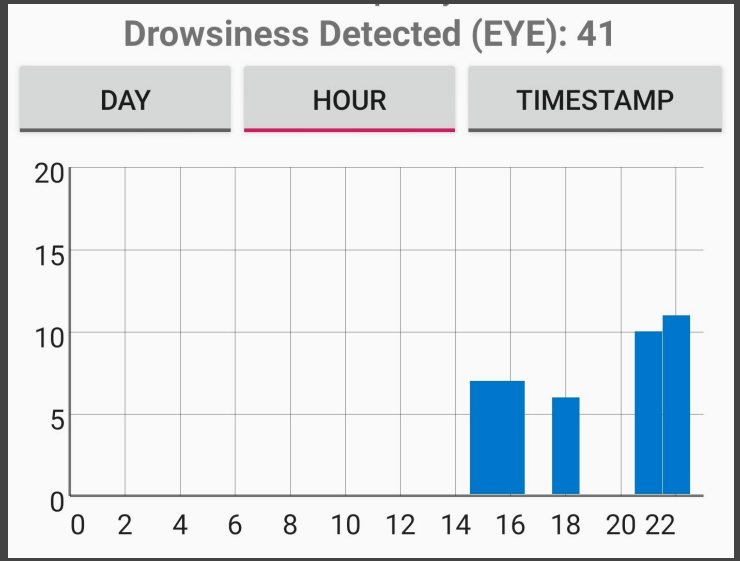
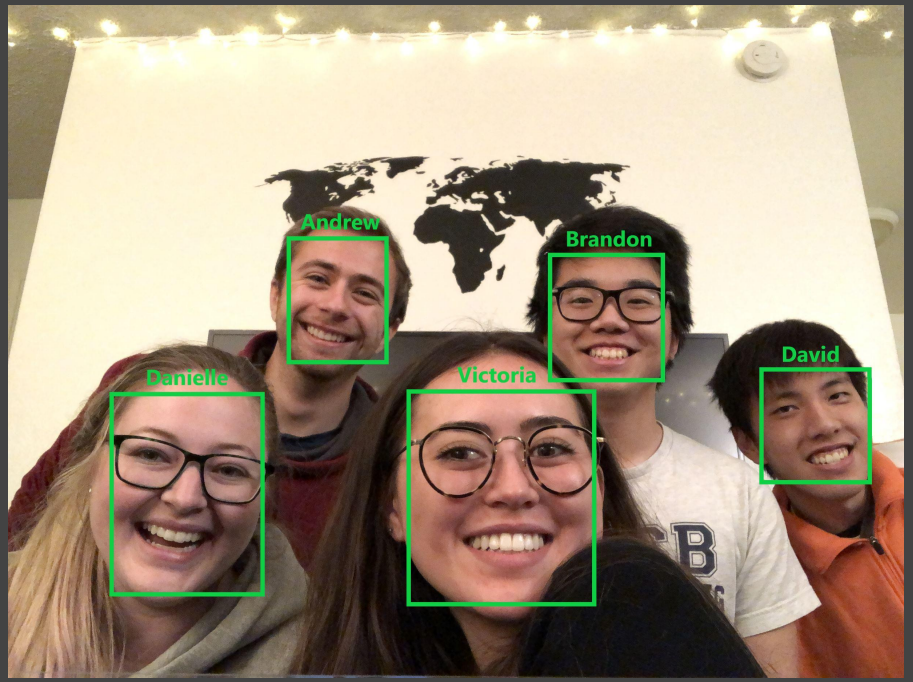
Android App

- Hour/Day drowsiness graphs
- Timestamps for detections
- Manager can see employee profiles
- Real-time updates from Firebase



Future Steps

- Log in using facial recognition
- Keeping track of user even in the presence of multiple faces
- Dockerize it for easier installation



Thanks!
Questions?