AWARE | Apple Watch Alcohol Risk Estimator

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MOTIVATION

Annually among college students there are

1.5k alcohol-related deaths.

22k hospitalizations from alcohol overdose

→ There is demand for a solution to track intoxication level & prevent alcohol overdose in real time.

SOLUTION

Identify users' alcohol intake levels combined with key safety features in response to each level.

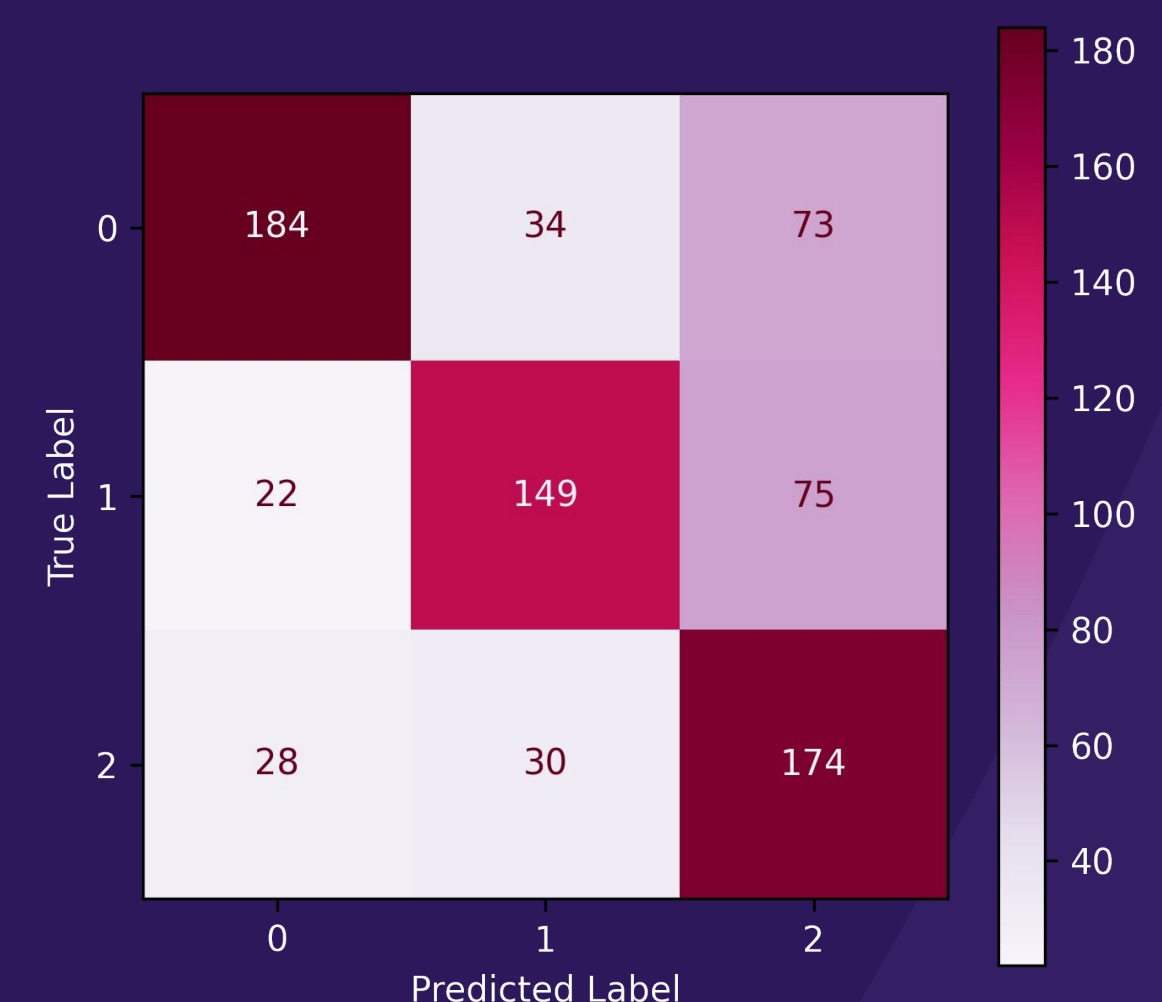| Level	Response
0: SOBER	Reminder to monitor drinking
1: TIPSY / **2: DRUNK**	Notify user, send location to contacts, and call ride service
3: CRITICAL	Notify emergency services

INNOVATION

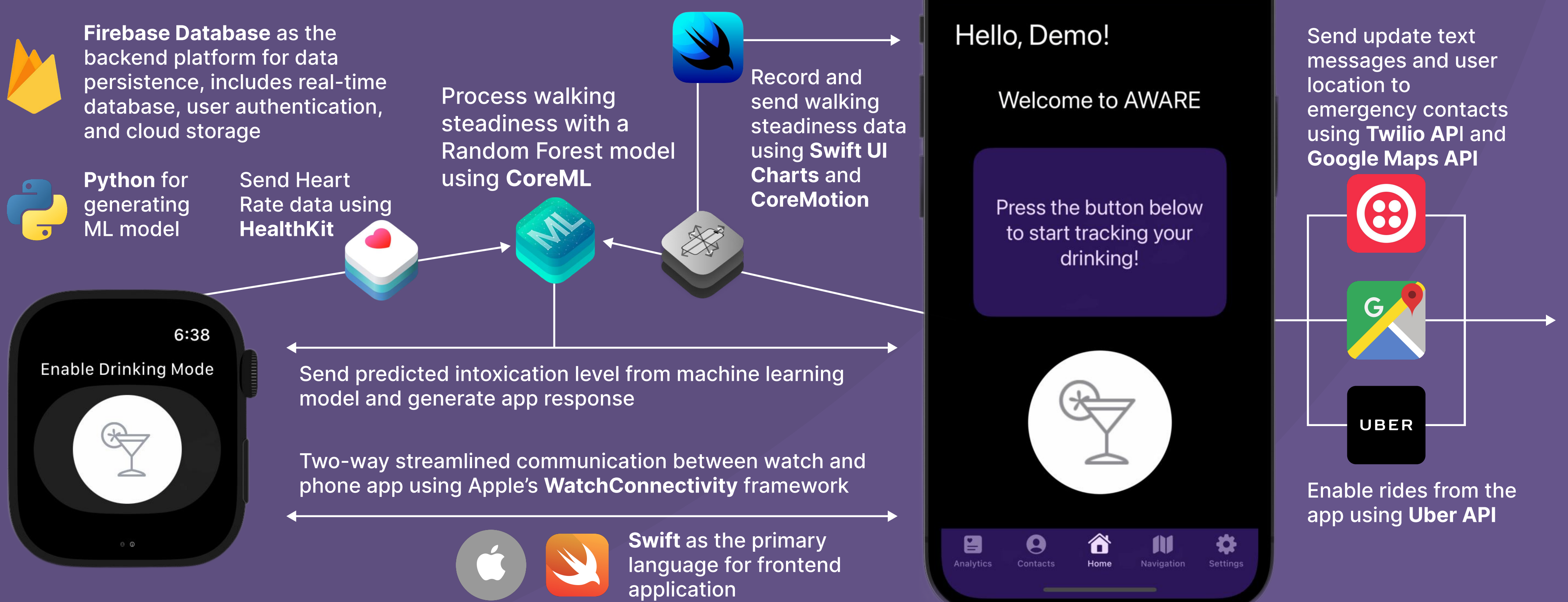**Real-time** intoxication level analysis via machine learning predictions from walking steadiness

Alerts to user and emergency contacts in order to encourage responsible drinking

Mitigation through notification of emergency services upon detection of irregular heart rate

RESULTS

Confusion matrix (True Label vs Predicted Label):

True Label \ Predicted Label	0	1	2
0	184	34	73
1	22	149	75
2	28	30	174

ARCHITECTURE

Firebase Database as the backend platform for data persistence, includes real-time database, user authentication, and cloud storage

Python for generating ML model

Send Heart Rate data using HealthKit

Process walking steadiness with a Random Forest model using CoreML

Record and send walking steadiness data using Swift UI Charts and CoreMotion

6:32 — AWARE ♡ — Hello, Demo! — Welcome to AWARE — Press the button below to start tracking your drinking!

Analytics | Contacts | Home | Navigation | Settings

Send update text messages and user location to emergency contacts using Twilio API and Google Maps API

Enable rides from the app using Uber API

6:38 — Enable Drinking Mode

Send predicted intoxication level from machine learning model and generate app response

Two-way streamlined communication between watch and phone app using Apple's **WatchConnectivity** framework

Swift as the primary language for frontend application

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