

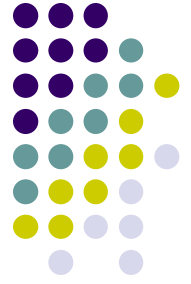
Ubiquitous and Mobile Computing

CS 528: *Safe Drive App*

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Introduction to Safe Drive App

Safe Drive factors

- Over a quarter of car crashes in America are caused by cell phone use.
- For each year, 100,000 police-reported car crashes are direct result of driver fatigue.

Safe Drive App

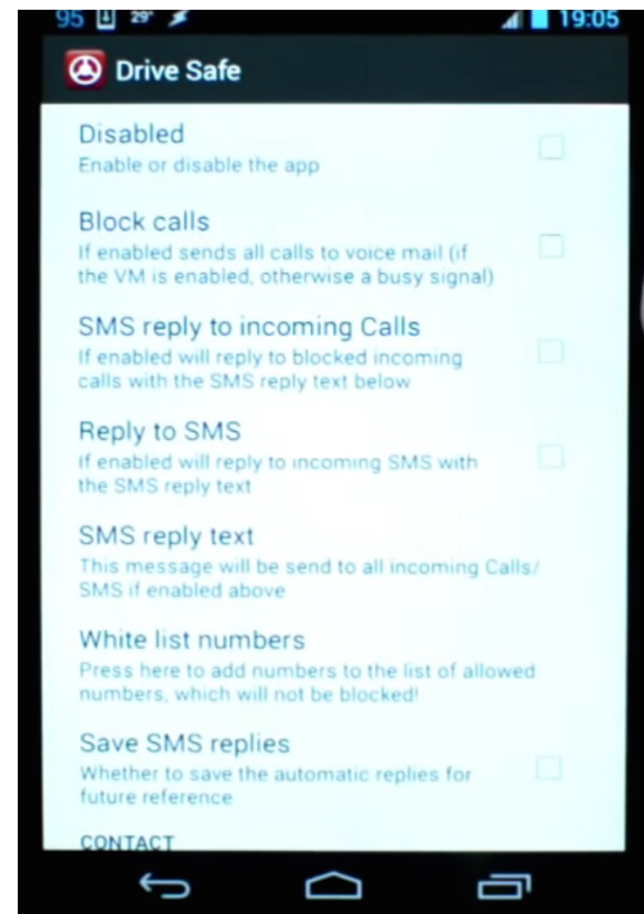
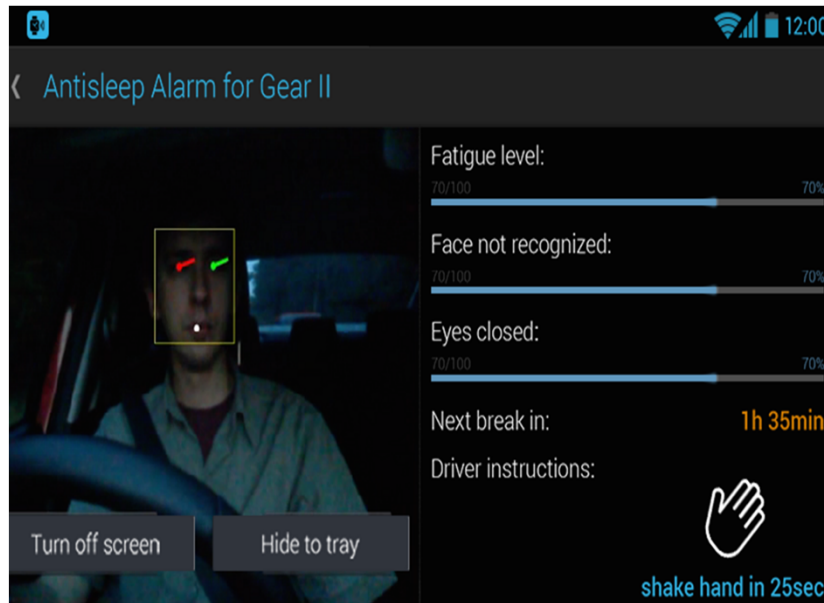
- Automatic reply a SMS for incoming phone calls
- Using front camera to monitor driver's drowsiness
- Voice interaction with driver regularly
- Alarm driver



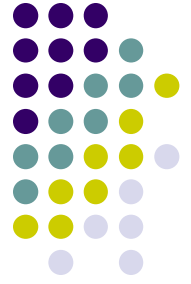
Related Works: Anti-sleep Alarm



- Apps developed
 - Antisleep Alarm
 - Drive safe



Methodology



Safe Drive App

- Main Activity
 - Survey, Face monitor, Quit
- Survey Activity
 - Tired level, Road type
- Face tracker Activity
 - Detect sleepy eyes in real time
 - Trigger alarm if sleepy eye detected



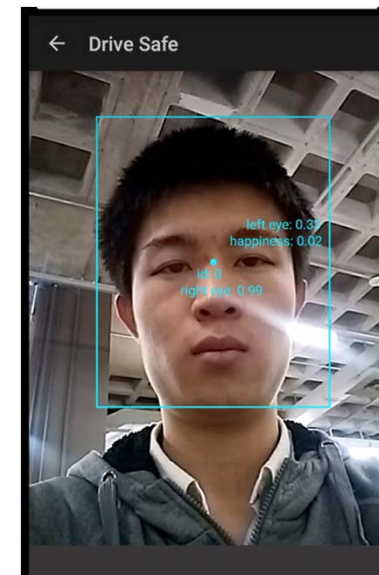
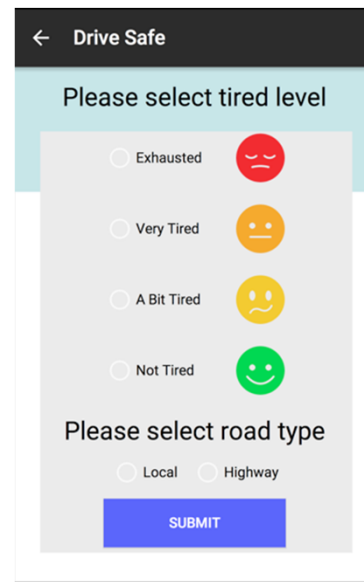
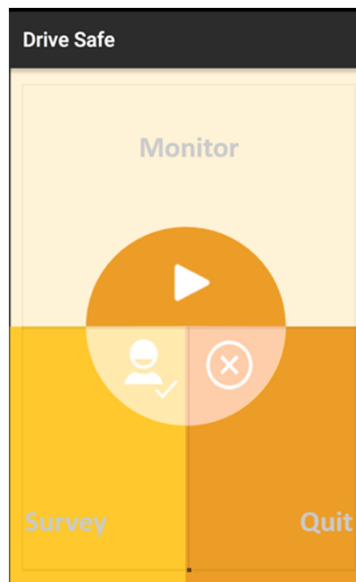
Implementation

- Mobile Vision API from Google
 - Face tracker
- Voice Actions layer
 - Handle driver's voice interactions with the app
 - Voice Interactions API
 - Speech Recognition
 - Speech-to-Text
- Telephony layer
 - Handle incoming phone calls
 - SmsManager class enables SMS operations

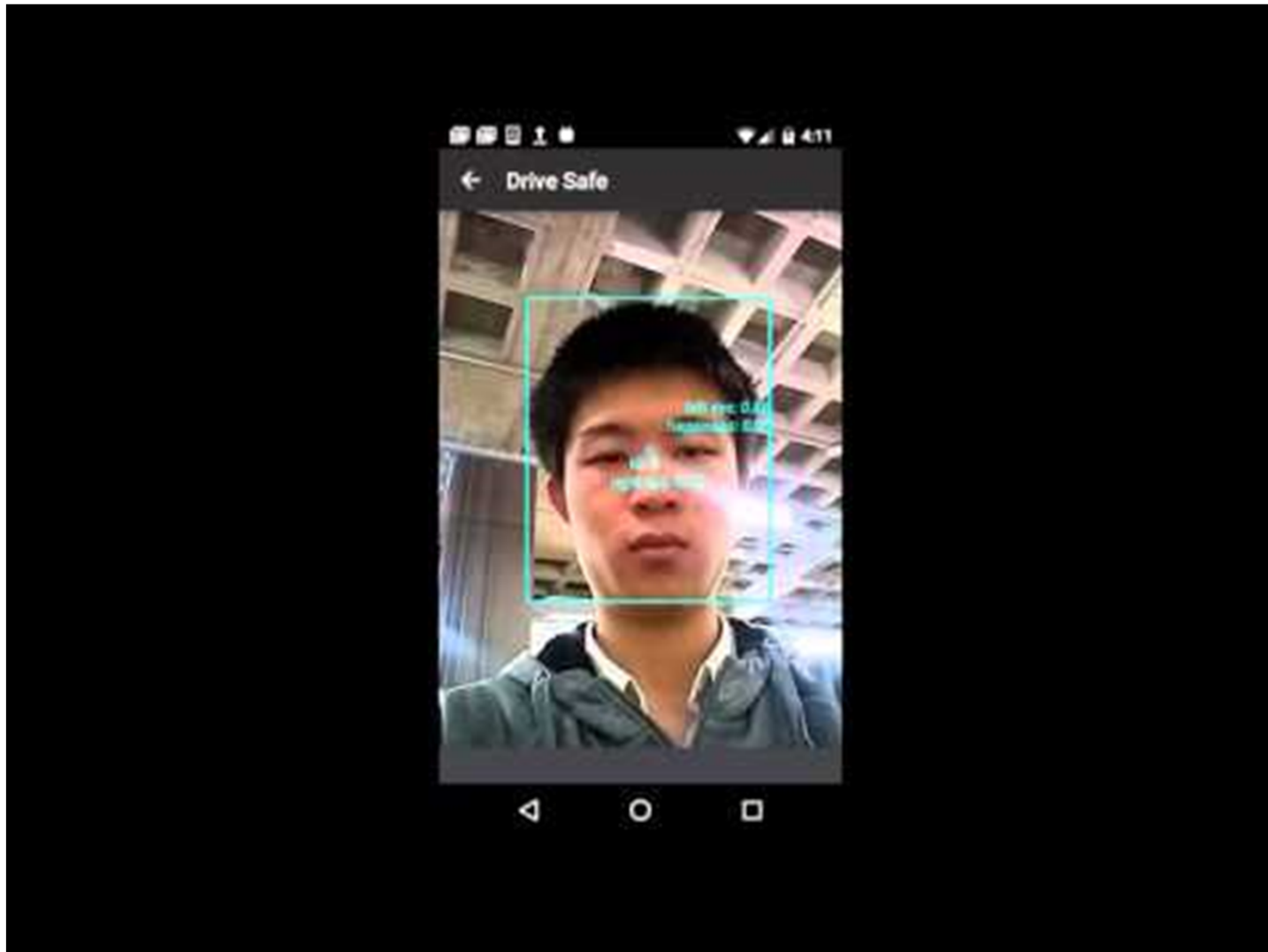
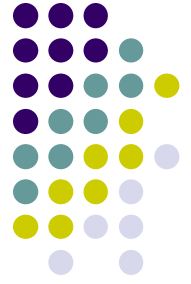


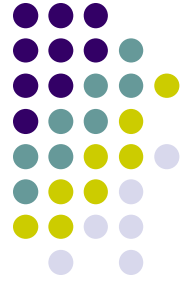
App demonstration:

- User Interface:
 - User Survey:
 - Set interaction frequency with user;
 - Monitor:
 - Monitor user face;
 - Send alert based on survey;
 - Block the incoming phone call and reply SMS automatically
 - quit app:



App demonstration:





Discussion/ Future work

- Allow user to define the alarm sound(song, etc)
- Add launch screen instruction and Help menu