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