How many of you have ever engaged in distracting behaviors while driving?
Problem

Distracted driving as a result of:

Texting,
Calling,
Scenery,
Makeup,
Drinking,
Exhaustion...
94% of crashes are driver-related

Leading cause = recognition error

Recognition error = error due to driver inattention and internal/external distractions
How bad can it be?

Each day in the United States, over 1,161 people are injured and over 8 people are killed in crashes that are reported to involve a distracted driver.
How can we encourage safer driving habits?
Design Research: Methods

Interviews
Fly-on-the-wall observation
Design Research: Participants

Professional: drive instructor, bus driver
Casual: experienced driver, inexperienced driver
Design Research: Takeaways

- Mobile devices are major distractions
- Passengers encourage safer driving
- Drivers are not aware of how much time they are distracted
- Audio and voice controls are not highly distracting
- Users are concerned about privacy
Tasks

1. **Learning** consequences of distracted driving
2. **Receiving** alerts of distracting behavior while driving
3. **Sharing** and **comparing** safe driving habits
4. **Tracking** eye and body movements of driver in real-time
5. **Processing** and **visualizing** data on driving behavior
6. **Monitoring** driving behaviors in employees/children
Design 1
STAND-ALONE MOBILE APP
Design 1
STAND-ALONE MOBILE APP
Design 1

STAND-ALONE MOBILE APP
Design 2

MONITORING HARDWARE & WEBAPP

Rearview Mirror Hardware

- Sensors & camera
- On/off switch
- Bluetooth
- Speaker for alerting

Our device clips onto the rearview mirror
Design 3

TRACKING HARDWARE & MOBILE APP
Storyboard 1

PROCESSING & VISUALIZING DATA ABOUT DRIVING

1. What's up, Nicole
2. Hey Nick, I am going on a road trip today, so I stayed all night up packing
3. Oh wow, drive safely! You are going to be sleepy when you drive
4. Why is it beeping and wants me to pull over??
5. I am driving just fine!

Zzz

Beep Beep

Wow, I guess Nick was right, I was falling asleep a lot!
I better take a nap before driving again
Storyboard 2

COMPARING & SHARING DRIVING HABITS

Central Parking Garage

See you tomorrow, Ashley!

Drive safely, Adam!

Ashley’s Home

Yeah, I am the best driver!

Adam’s Home

Let me check my national ranking today!

Oh man, my safety score is below the national average! I really need to be more focused while driving!

AT&T

6:20 pm

DASH
Your ranking has been updated!
Go Checkout More!

>>> Slide to unlock >>>

AT&T

Leaderboard

Friends National

Me 98

~~~ 95

~~~~ 91

AT&T

DASH

Leaderboard

Friends National

National Driving Safety Score Distribution:

Me
Summary

- Flexibility and communication is key for teamwork
- Research before designing
- Iterate through many sketches--evaluate them all!
- Don’t sweat the small details about implementation
Questions?