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

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Bob

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Design 3

TRACKING HARDWARE & MOBILE APP

Dashboard
- Day
- Week
- Month
- Tension
- GPS
- Power
- Setting

Statistics
- Eyes on road time percentage
  - 92%
- At least one hand on wheel
  - 98%

Tips
- Do your multitasking outside the car.
- You should limit the number of passengers, as well as the level of activity inside the car.

Settings
- Profile
- Bluetooth Pair
- Alerts
- Reset
- About
Storyboard 1

PROCESSING & VISUALIZING DATA ABOUT DRIVING

1. What's up, Nicole
   Oh wow, drive safely! You are going to be sleepy when you drive

2. Hey Nick, I am going on a road trip today, so I stayed all night up packing
   Thanks, I won't fall asleep!

3. Why is it beeping and wants me to pull over??
   Beep Beep
   I am driving just fine!

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

[Images showing a car with a dashboard showing eye closure time and driving data]
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 Leaderboard
Friends National
Me 98
~~~ 95
~~~ 91

6:20 pm
DASH
Your ranking has been updated!
Go Checkout More!

>>> Slide to unlock >>>

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?