Automotive UI with Mobile Interface

Hello!

We are Team 10

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Our project

Installable Smart Dashboard

System comes with:

- Configurable dashboard display
- Automotive interface
- Installable cameras

Mobile Application

Mobile application is able to:

- Add or remove features
- Configure cameras
- Set alerts

1. Smart Dashboard

IOT for Automobiles

Modern
"Smart dashboard"
Display

Similar Products and Systems

Raspberry Pi Smart Car (DYI)

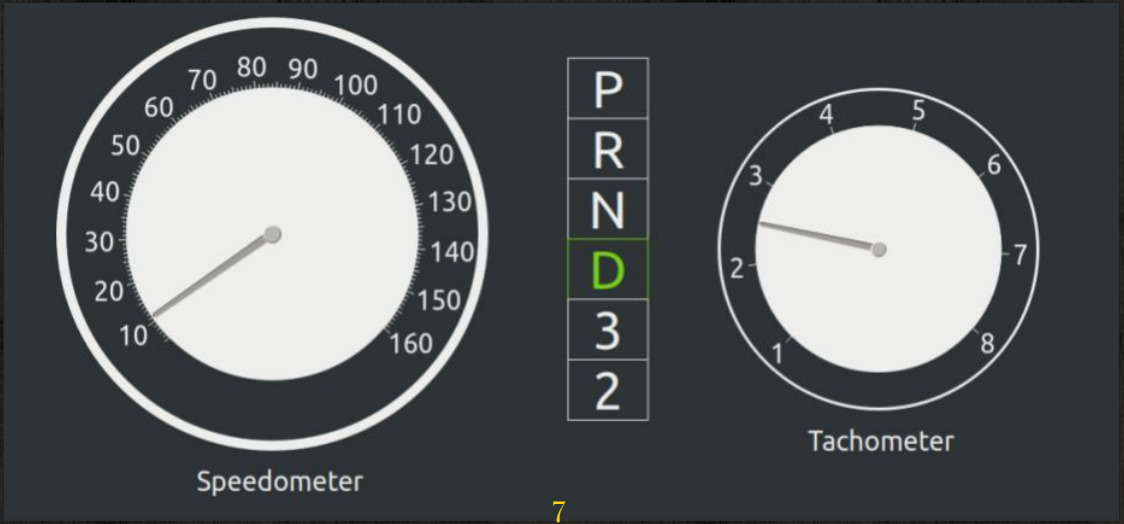
- Flexible
- Cheap
- Heavy burden on users

RAVEN

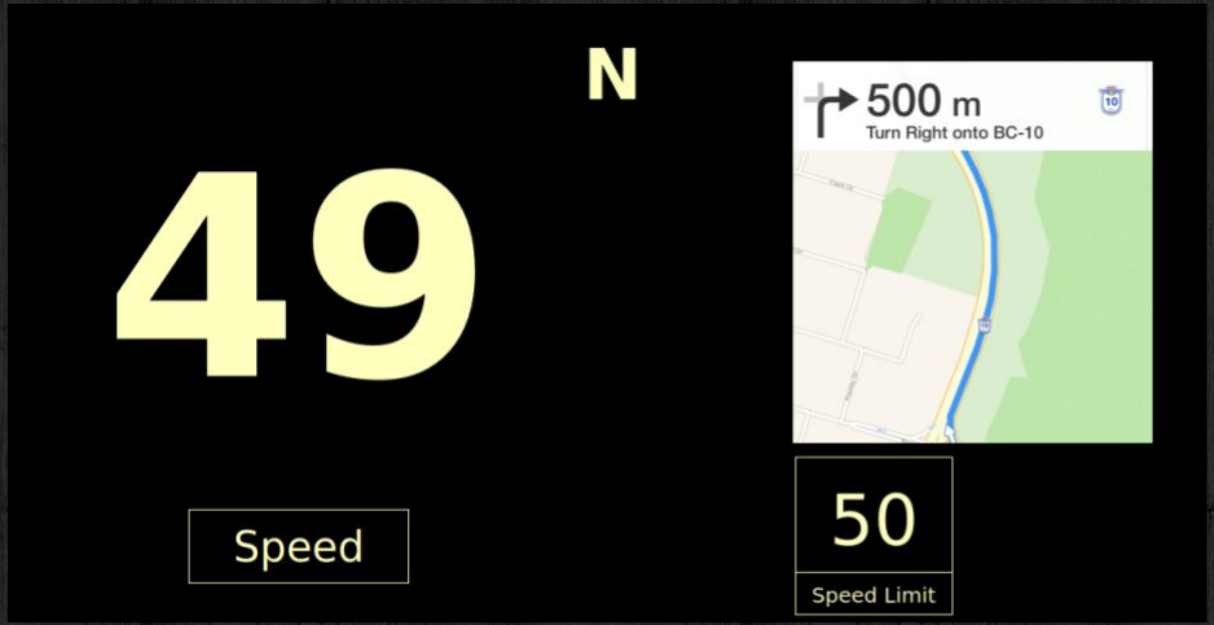
- Less burden on users
- Expensive $299 + $10/mo data plan
- Less flexible

What should the display look like?

- “Meters” look nice but they take up too much room with unnecessary information
- Automobile already has them
- Take a split second longer to interpret



Designed for Clarity and Safety



Font

MIT AgeLab study suggests ‘humanist’ lettering style is easier for drivers to read quickly

- **We chose ‘Actor’ font which is a humanist type font**
- **http://news.mit.edu/2012/agelab-automobile-dashboard-fonts-1005**

“ACTOR”

55

“Press 2 Start”

55

Color

Blue light is potentially harmful

Harvard Health Publication "Blue light has a dark side"

- Describes how light that emits the blue color spectrum may contribute to certain cancers, heart disease, obesity, and diabetes because it throws off the body's circadian rhythm.
- https://www.darksky.org/why-is-blue-light-at-night-bad/

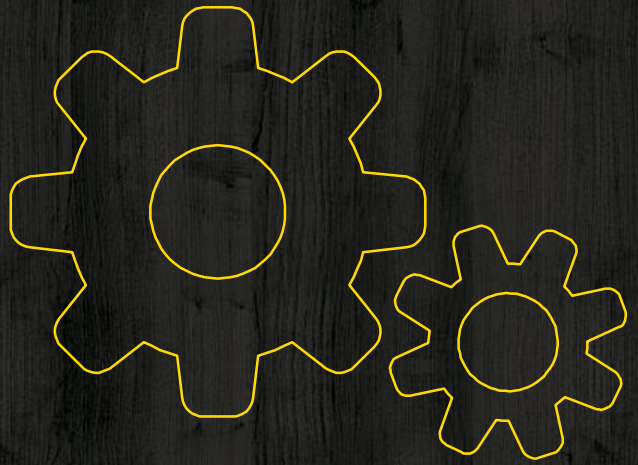
Optometrists describe how blue light has more potential to cause changes in retinal tissues because it can penetrate deeper into the eye than other wavelengths

- https://www.reviewofoptometry.com/article/seeing-blue-the-impact-of-excessive-blue-light-exposure

Blue light has potentially benefits

In-Car Nocturnal Blue Light Exposure Improves Motorway Driving: A Randomized Controlled Trial

- Describes how blue light exposure at night can improve wakefulness
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3477137/



Customizable Color

Default to a low blue light color but allow them to customize some of the color shades in the settings

2. Mobile Application

Customization, Configuration, and Alerts

Add or Remove a feature

- Users can navigate to the “Add/Remove Feature” page using the hamburger menu
- To add a feature users can select the a feature from the drop down menu
- Users can then manipulate the features on the simulated dashboard
- To remove a feature users can drag and drop the features into the trash bin
- After customization is finished users can save their changes which will update the smart dashboard

Configure Camera

Back-up Camera

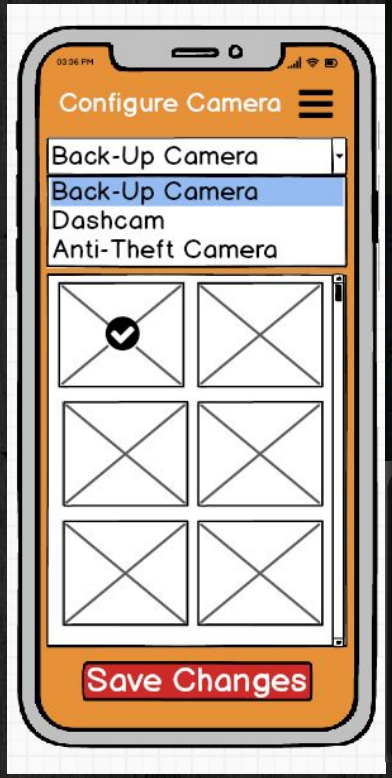
- Shows what is behind the vehicle when vehicle is reversing
- User can choose from several designs

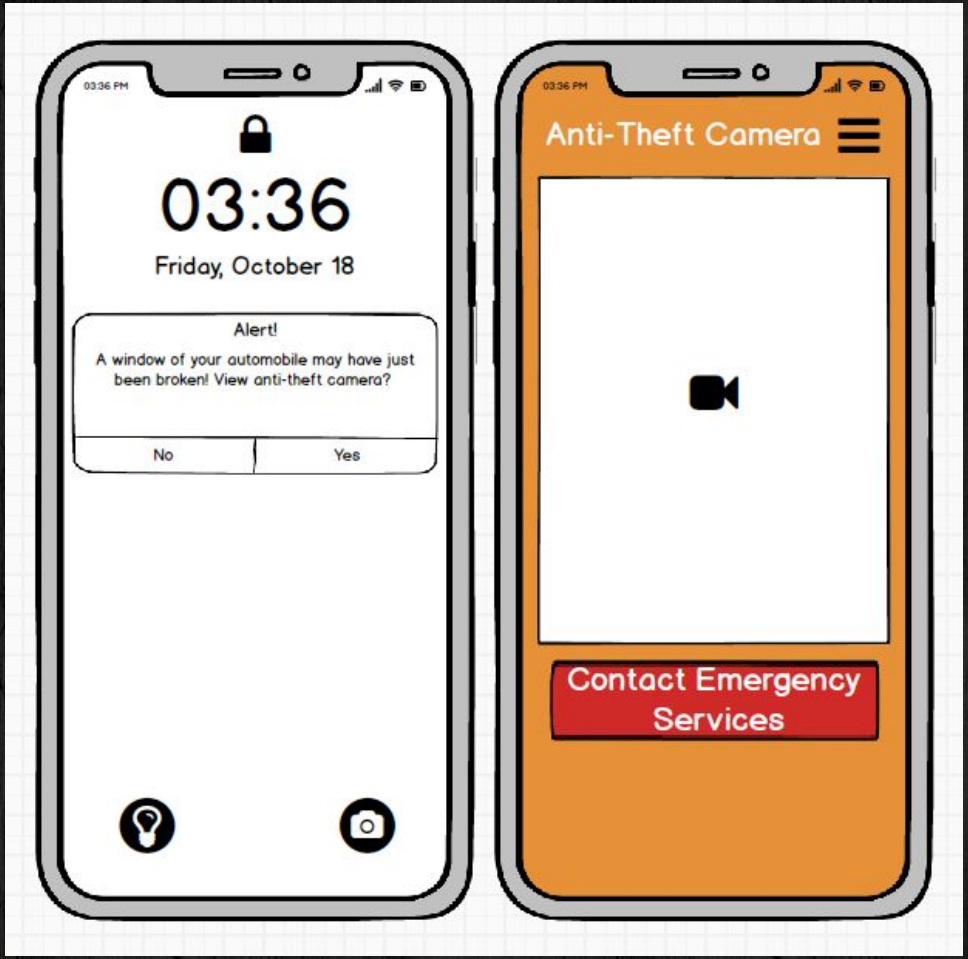
Dashcam

- Forward-facing camera that records while user is driving

Anti-theft Camera

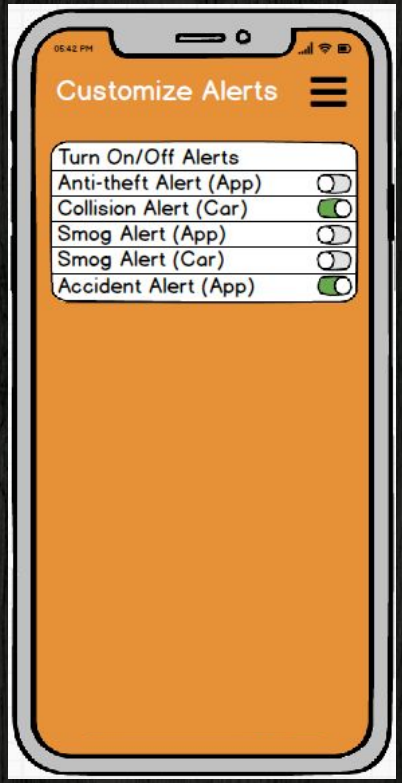
- Will record the interior of the vehicle when it is being broken into
- Users can see what the camera is seeing through the mobile app

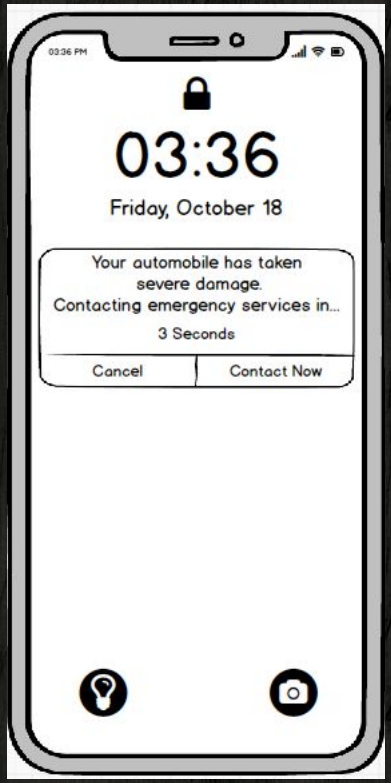



03:36 PM
03:36
Friday, October 18
Alert!
A window of your automobile may have just been broken! View anti-theft camera?
No
Yes
03:36 PM
Anti-Theft Camera
Contact Emergency Services

Customize Alerts

- Users can customize what alerts they want shown on the dashboard and on their mobile device
  - Anti-theft alert
  - Collision alert
  - Smog alert
  - Accident alert
  - Potentially more if time permits





Intended Users

- Users looking to upgrade their car
- Users that want the features of a more newer car without paying for one
- Users unhappy with the features their automobile provides
- Users that want a safer driving experience

Challenges

- Combining the smart dashboard and mobile application components
- Scope
  - Adding and removing components in the app will be high priority
  - Any feature that helps or promotes user safety will be prioritized
- Internet Issues
- Testing some of the features

Thanks!

Any questions?

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Raspberry pi project cost info

- Raspberry Pi 3 B : $39.88
- SD card : $11.99
- Raspberry Pi Camera : $24.98
- Touch Screen : $64.00
- Bluetooth SBDII scanner : $12.99
- Total : $154.84

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