

#tractorexperience-dgk

CSC 591, Spring 2018

Stage 4: Prototype

Team

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Tools



For creating a static dashboard visual we used **balsamiq** and icon upload to add components to the dashboard. Balsamiq provides an interactive tool which is free to use and provides a vast collaborative platform.



To make a visual background animation for the input use cases we used **Adobe Animate**. "An" tool provides a layer by layer integration of all the components which

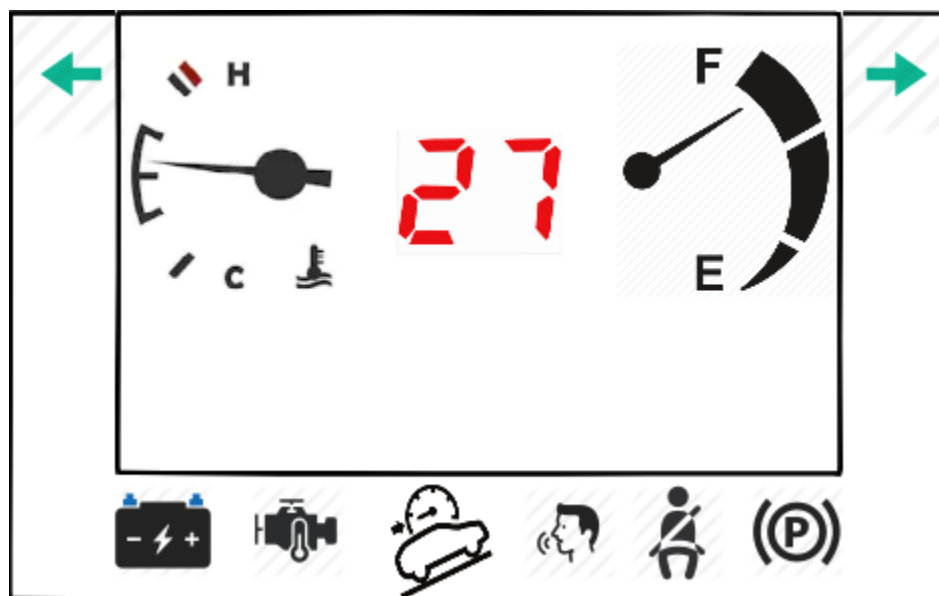
allows us to modify background and different objects in correspondence with the required use cases.

Roles

To create the prototype we all assembled at Graduate Visualization lab in D.H. Hill library. We created a static dashboard prototype using the tool Balsamiq. The static dashboard that we created would form the outline structure for all our use cases. After we created the dashboard outline the next was to implement the different use cases. We gathered around a Mac Station in graduate commons which had Adobe Animate installed. One person was responsible to work towards the animation and other were providing inputs and suggestions.

Prototype

Dashboard



The prototype of the new dashboard designed on Balsamiq is shown above. Apart from the speed, five main indicators are shown at the bottom. These are: battery level, engine health, inclination sensor alert, voice interactive dashboard indicator (whether it is enabled or not), seat belt indicator and payload indicator (to alert the user if the vehicle is overloaded).

Use Cases

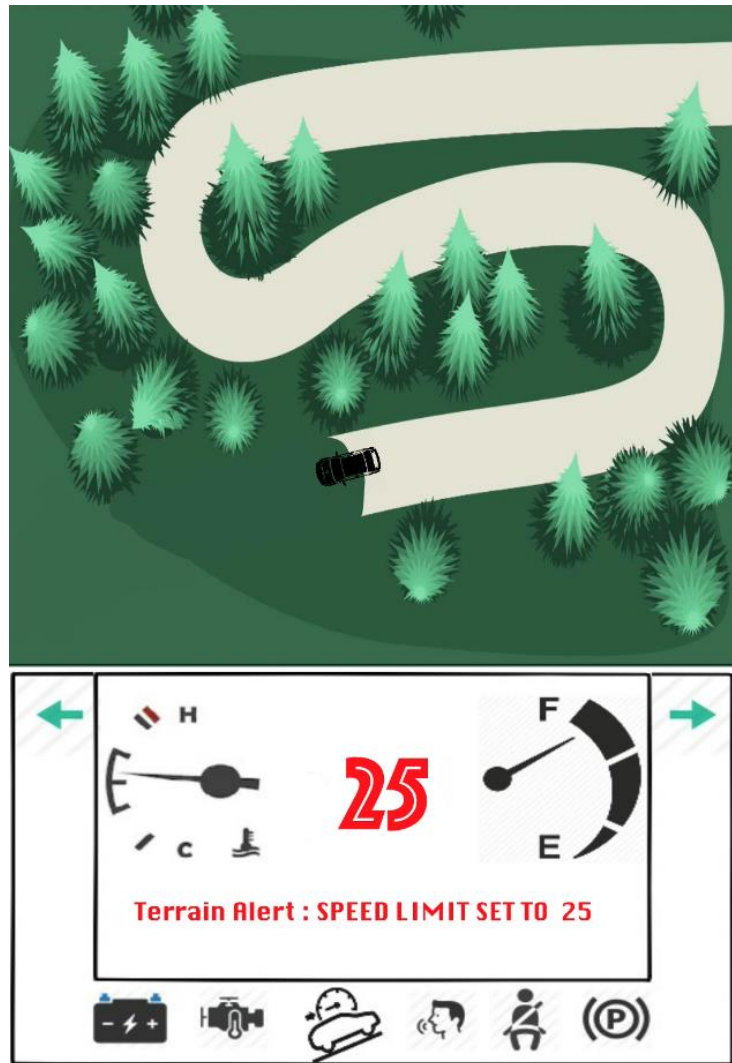
We prototyped the following four use cases using Adobe Animate to demonstrate how the dashboard would change and alert the user, either through voice or visuals, in the following scenarios. The prototypes can be viewed online:

<http://tiny.cc/tractor-prototypes>

1. Terrain Detection

Demo: <http://tiny.cc/tractor-terrain>

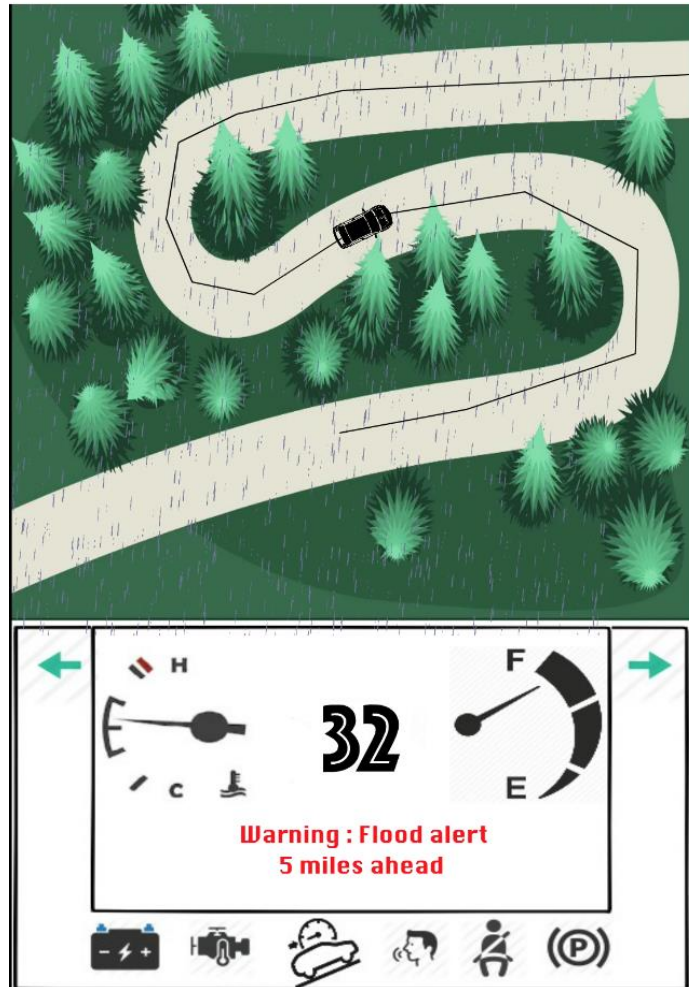
Screenshot:



2. Weather Detection

Demo: <http://tiny.cc/tractor-rain>

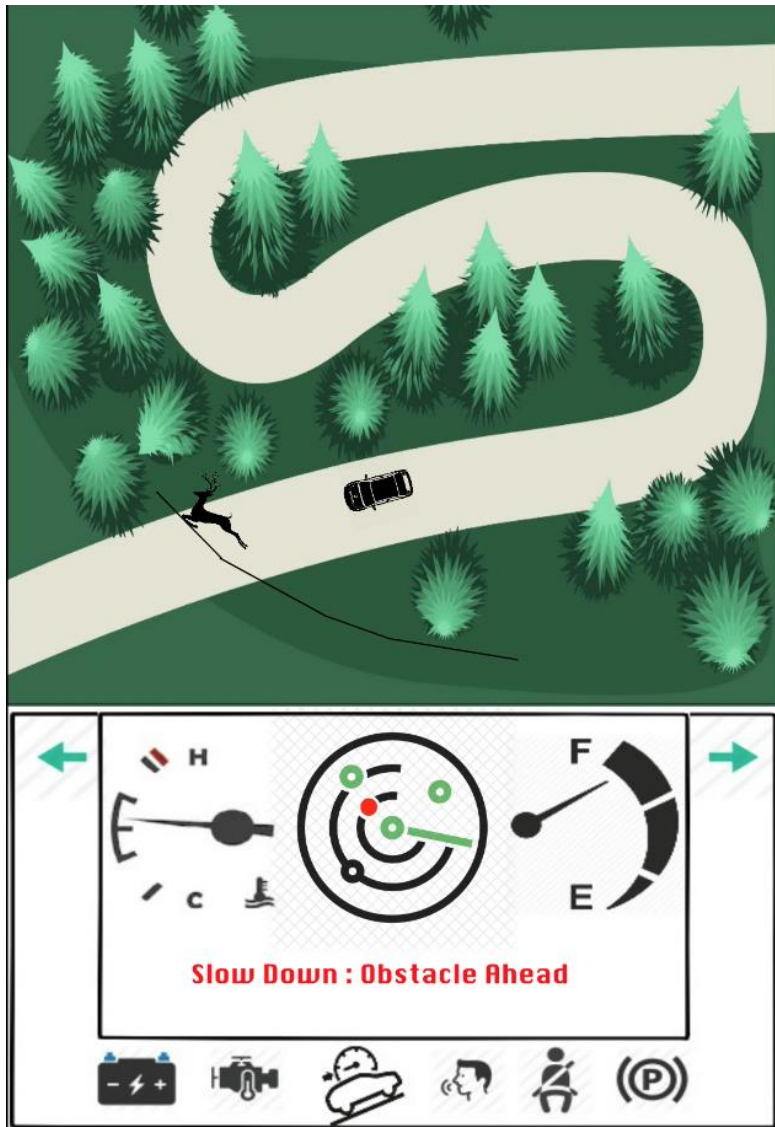
Screenshot:



3. Infrared Detection

Demo: <http://tiny.cc/tractor-infrared>

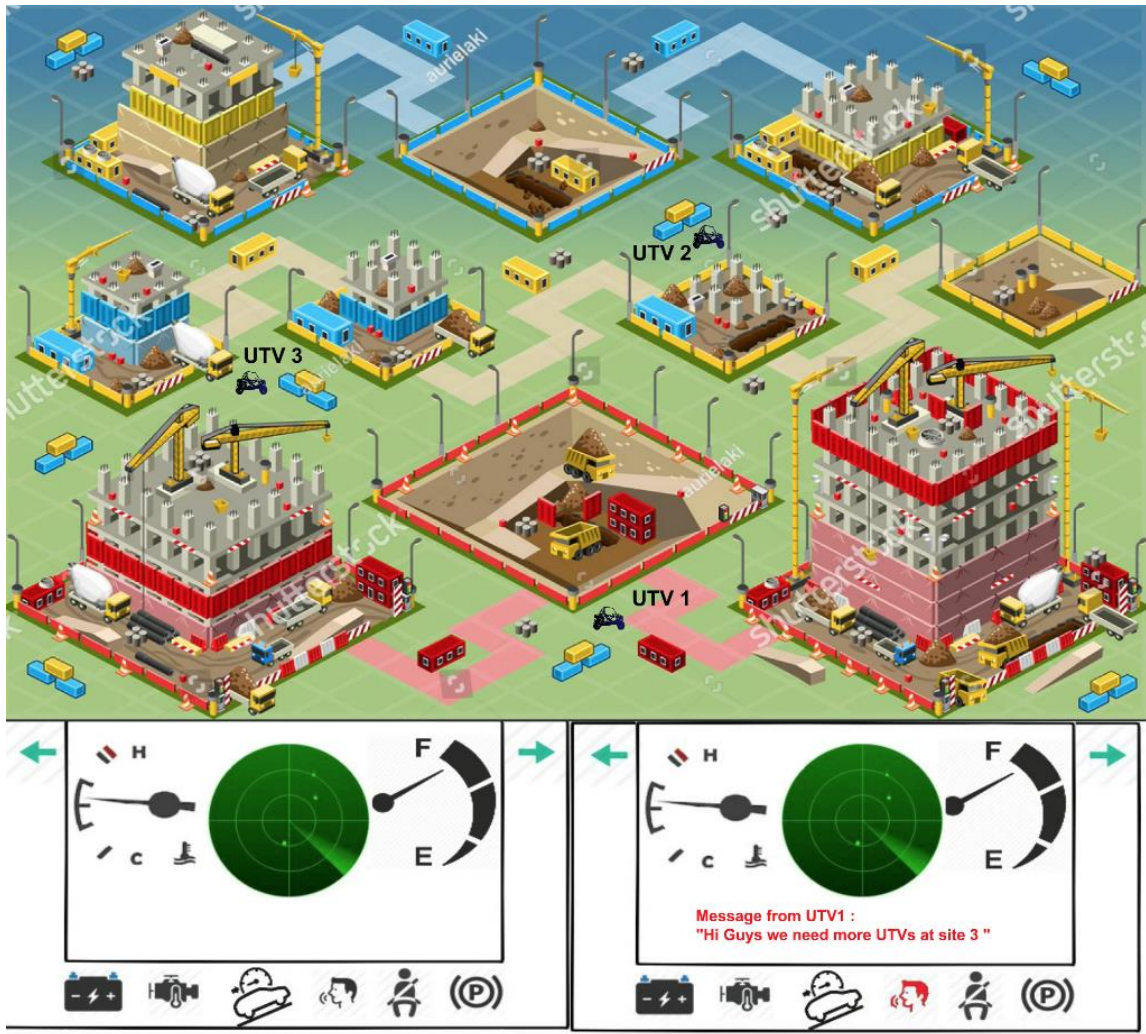
Screenshot:



4. Inter-UTV Communication

Demo: <http://tiny.cc/tractor-communication>

Screenshot:



Trial

Our prototype imitates real uses-cases as we have recorded videos that highlights dashboard behavior in different scenarios.

We faced some problems using Adobe Animate. Some of the problems are as listed below:

1. Animate is not compatible with gif. One work around we found was repeating a frame multiple times to create a gif like visual in our animation.
2. While using Adobe Animate one problem that we faced was syncing sound with our animation. Animate supports very specific sound formats and to

implement text-to-speech and speech-to-text we had to use quicktime player to record the audio and video as a single unit.

References

- <https://support.balsamiq.com/tutorials/>
- <https://coherent-labs.com/create-motion-path-animation-animate/>
- <https://forums.adobe.com/thread/1421359>
- <https://forums.adobe.com/thread/547216>
- <https://forums.adobe.com/thread/2121912>