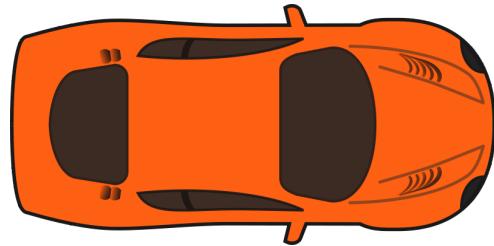


ChargEd



Energy Management System for Electric Cars

Erin, Harry, Jonas, Nick

Problem

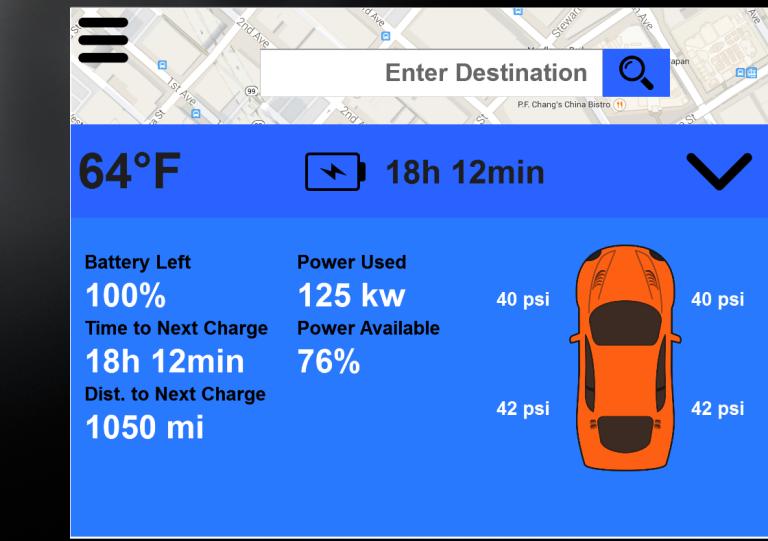
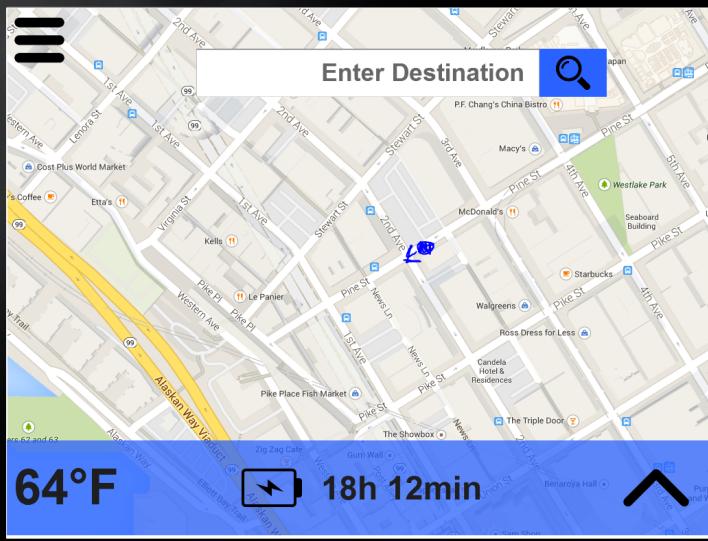
Today's electric automobiles are unreliable and out of touch with their operators.



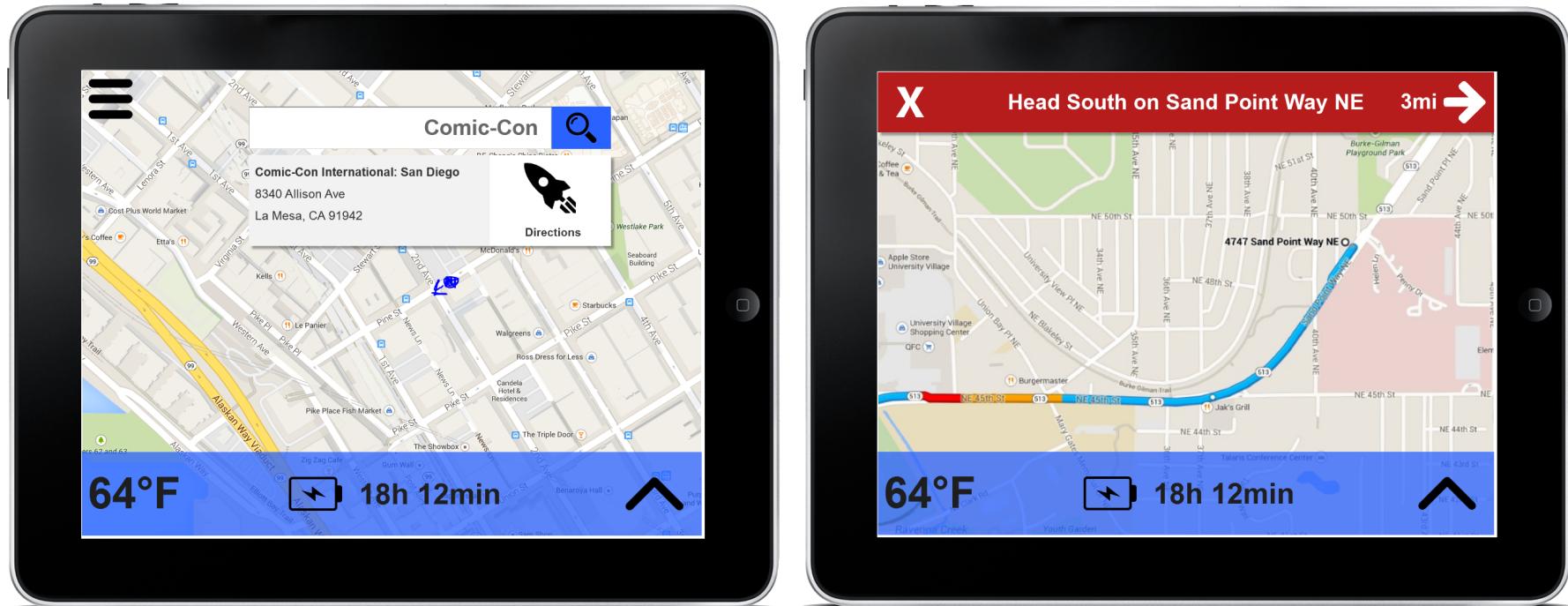
Solution - Our Design

- Energy Management UI in the dashboard.
- Hands On the Wheel
 - Voice control
 - Switch energy modes from the wheel
 - Large target areas on dashboard
- Intelligent battery monitoring system
- Focus on getting the user home
 - “I don’t want to wait 3 hours at a charging station”

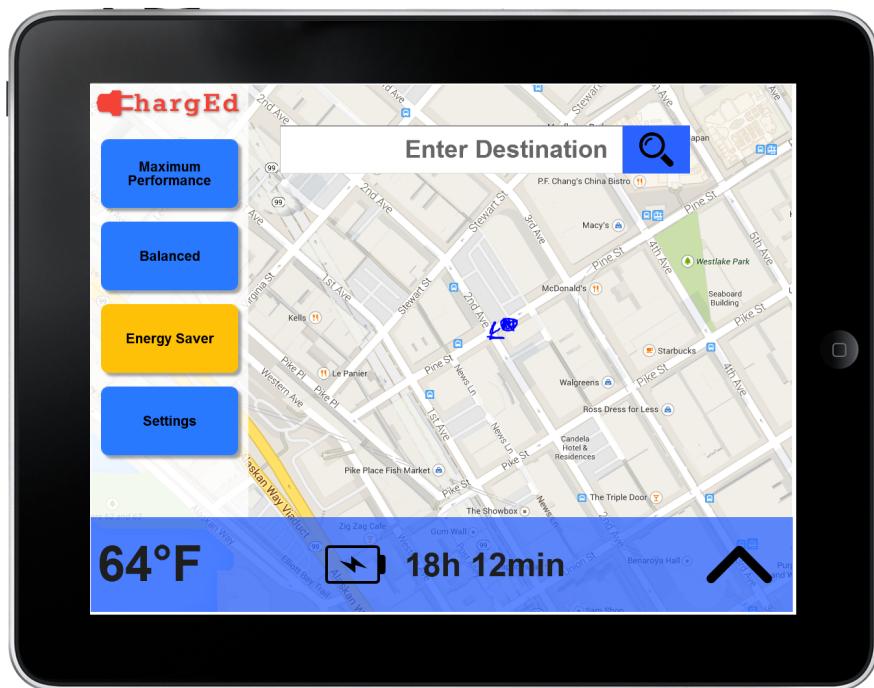
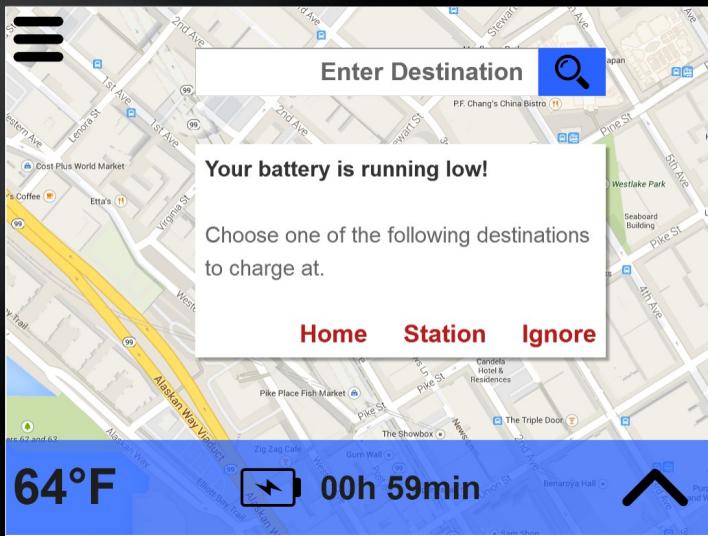
Our Design



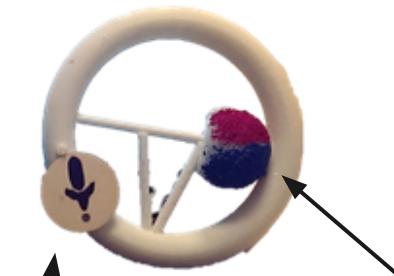
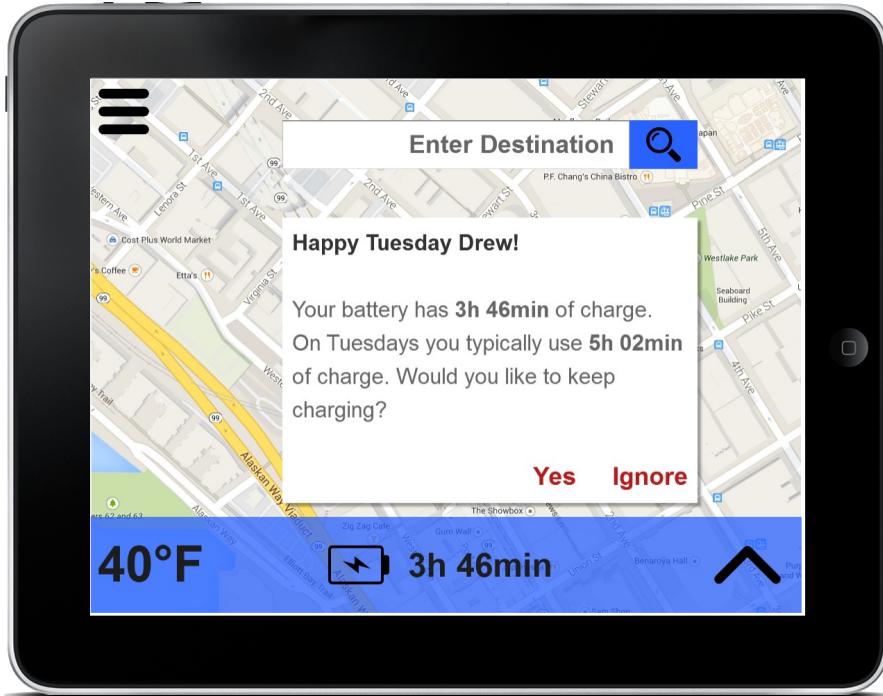
Our Design



Our Design



Our Design



Change Energy Mode Using Steering Wheel
Voice Activated Interface Control

VIDEO HERE

[https://www.youtube.com/watch?
v=INHPcGBWRA0](https://www.youtube.com/watch?v=INHPcGBWRA0)

Findings

	Average Time for Completion (s)		Average Likeability		Average Ease of Use		Average Errors	
	6a	6b	6a	6b	6a	6b	6a	6b
Task 1	41.125 ± 13.26	18.49 ± 7.33	6 ± 1.85 Somewhat Liked	9.33 ± 1.12 Very Likable	6.75 ± 1.28 Somewhat Easy	9.12 ± 0.93 Very Easy	1.63 ± 2.07	0
Task 2	40.625 ± 9.15	17.89 ± 16.56	4.75 ± 2.19 Neutral	8.23 ± 1.92 Very Likeable	5.25 ± 1.75 Neither Easy nor Difficult	9.78 ± 0.71 Very Easy	2.25 ± 1.83	1.22 ± 1.56
Task 3	55.125 ± 67.77	14.75 ± 14.22	6.38 ± 2.56 Somewhat Liked	9.23 ± 1.39 Very Likeable	6.25 ± 2.43 Somewhat Easy	9.23 ± 1.30 Very Easy	1.75 ± 2.76	0.33 ± 0.71

Faster Task Completion

More Likeable

Easier to Use

Fewer Errors

Findings- Improvement

- Begin with one main menu with energy modes
 - Menu in bottom tab
 - Battery icon
- Larger target area for pull out menu



Future Iterations

- Self-driving electric car that can route for complex itineraries while still getting the user home to charge
- Mobile app that connects to in-car dashboard
- More smart recommendations based off energy usage statistics
- Biofeedback to adjust temperature and dashboard lighting



Questions?