User Experience Portfolio

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(open me in Adobe Acrobat for my interactive elements to work.)

Range Projection

This project started out of two different people within the same organization working on the two halves of the same problem completely unbeknownst to each other. The result is something that is quite useful and now on a path towards two different production variations for model year 2015.

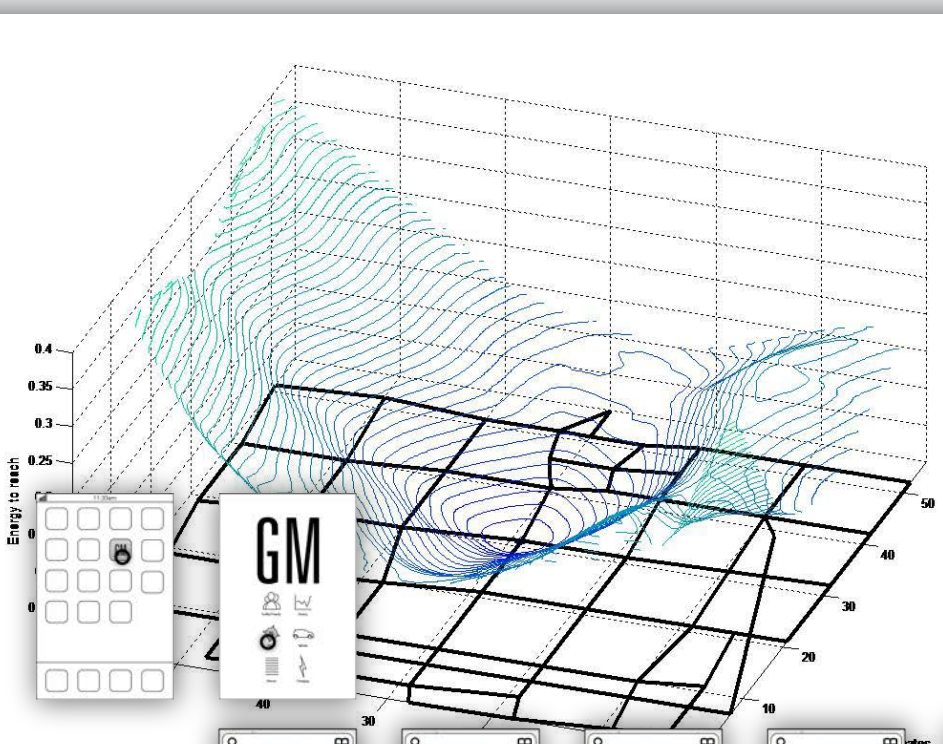
Working as an interaction designer within GM led to a number or occasions on which I was able to see and comment on the development of mobile applications for different vehicles. From my perspective, they were all disappointing. The work that I saw centered around a tired set of features that turns your phone into a keyfob. I decided as a part of Research and Development it was my place to make a mobile application that demonstrated a new piece of functionality. I hoped that such an application would help change the idea of what a mobile application for a GM vehicle could be.

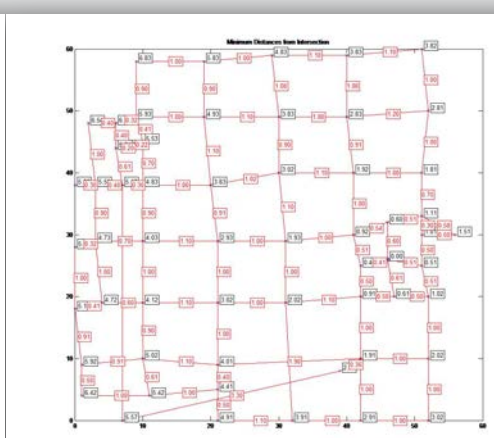
Having previously done work on the Volt, I decided to continue focusing on developing functionality for the Volt.

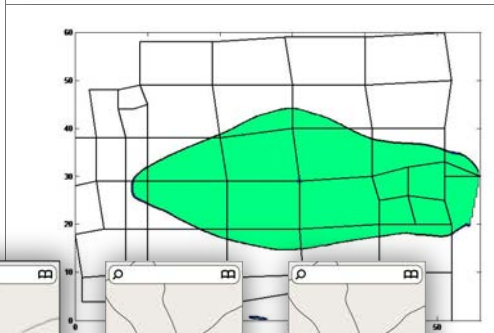
The Volt is unique in the history of GM - a production powertrain in which an electric motor drives the wheels. This electric motor is powered by a large battery pack in the vehicle that can be charged off of a wall socket and once depleted, a small on-board gasoline engine. This architecture provides the opportunity for a user to drive their vehicle solely off of electricity from the power grid, achieving an incredibly efficient driving experience.

However, this highly efficient driving experience is only achievable if the user only ever drives within the range of the electrical charge of the battery. During my initial ideation I realized that although the vehicle provides a simple representation of remaining electrical range, there was no effective way of understanding wether your next trip would push you into the realm of burning gasoline.

I had found a new and useful piece of information that allowed the user to make driving decisions based on their vehicle's actual and future range. Not only had I found our opportunity, but it was something that belonged on a mobile device. By freeing the information from the vehicle, the driver is able to easily make driving decisions that allow them to be a more efficient and environmentally friendly driver.



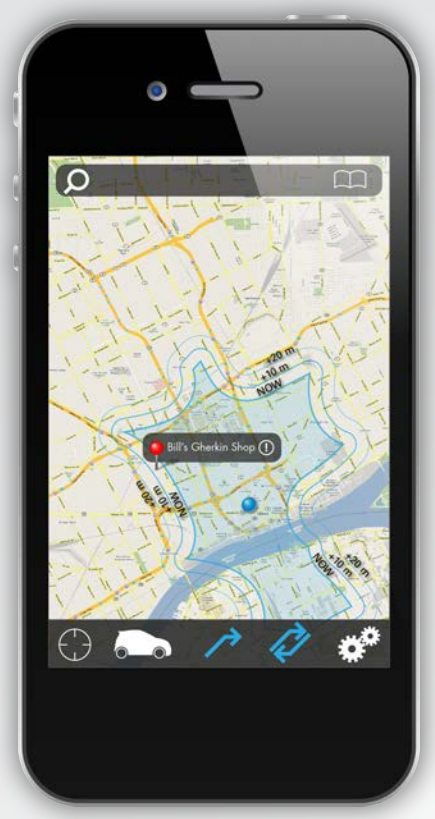


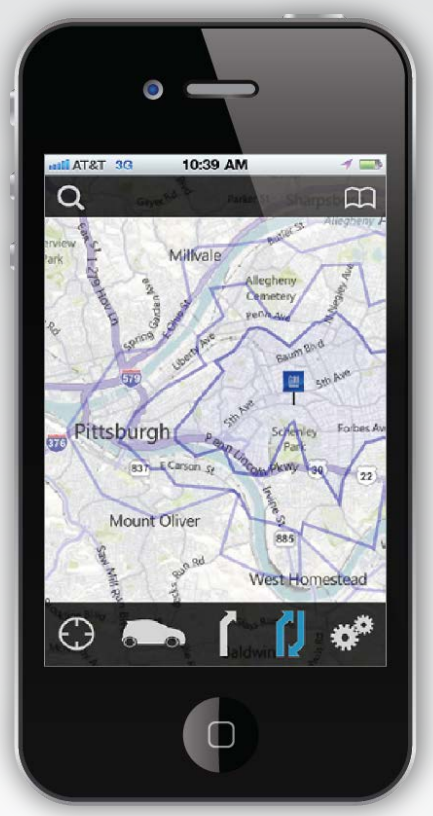


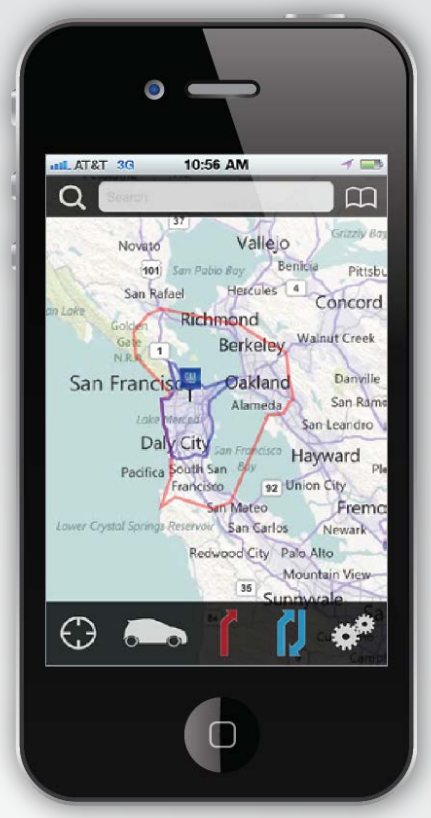
After putting together a quick prototype and showing it internally, I was put in contact with another individual within R&D that was working on the very algorithm needed to run my interface. Ed Tate.

Looking at the output of his algorithms and working together with Ed, we began to collect the pieces we would need to create a working prototype. Ed would handle the algorithm and I would handle the design.

Proof of Concept





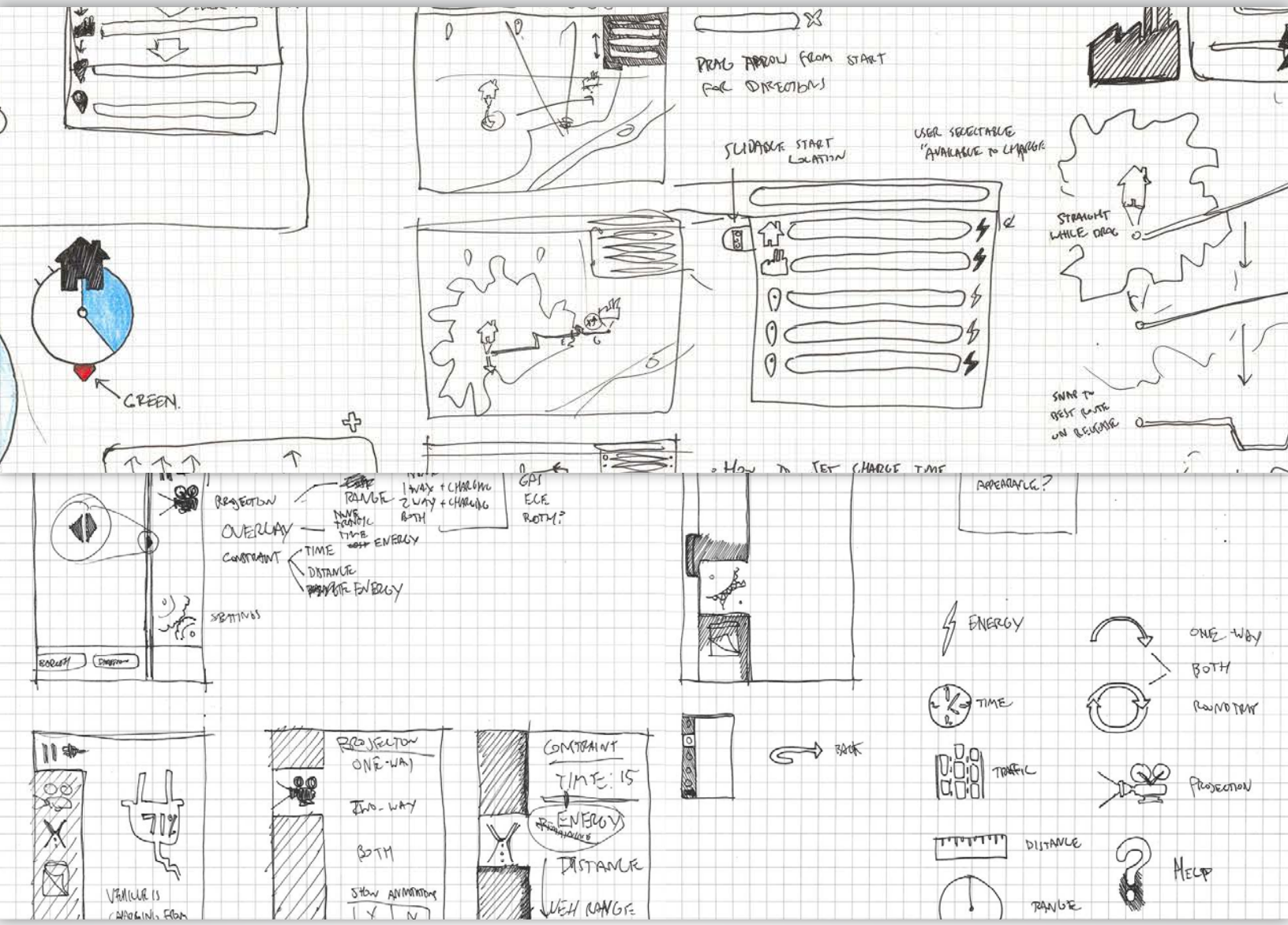


If you would like to see the concept interaction movie, click on the phone.

We began development early in the project process as the backend was as novel as the UI. Ed used the inital interface I hade thrown together to drive his first algorithm prototypes.

The intial concept next to two couple of screen captures from the first working proof of concept. The range projections are being live generated based on geographic conditions and vehicle remaining range.

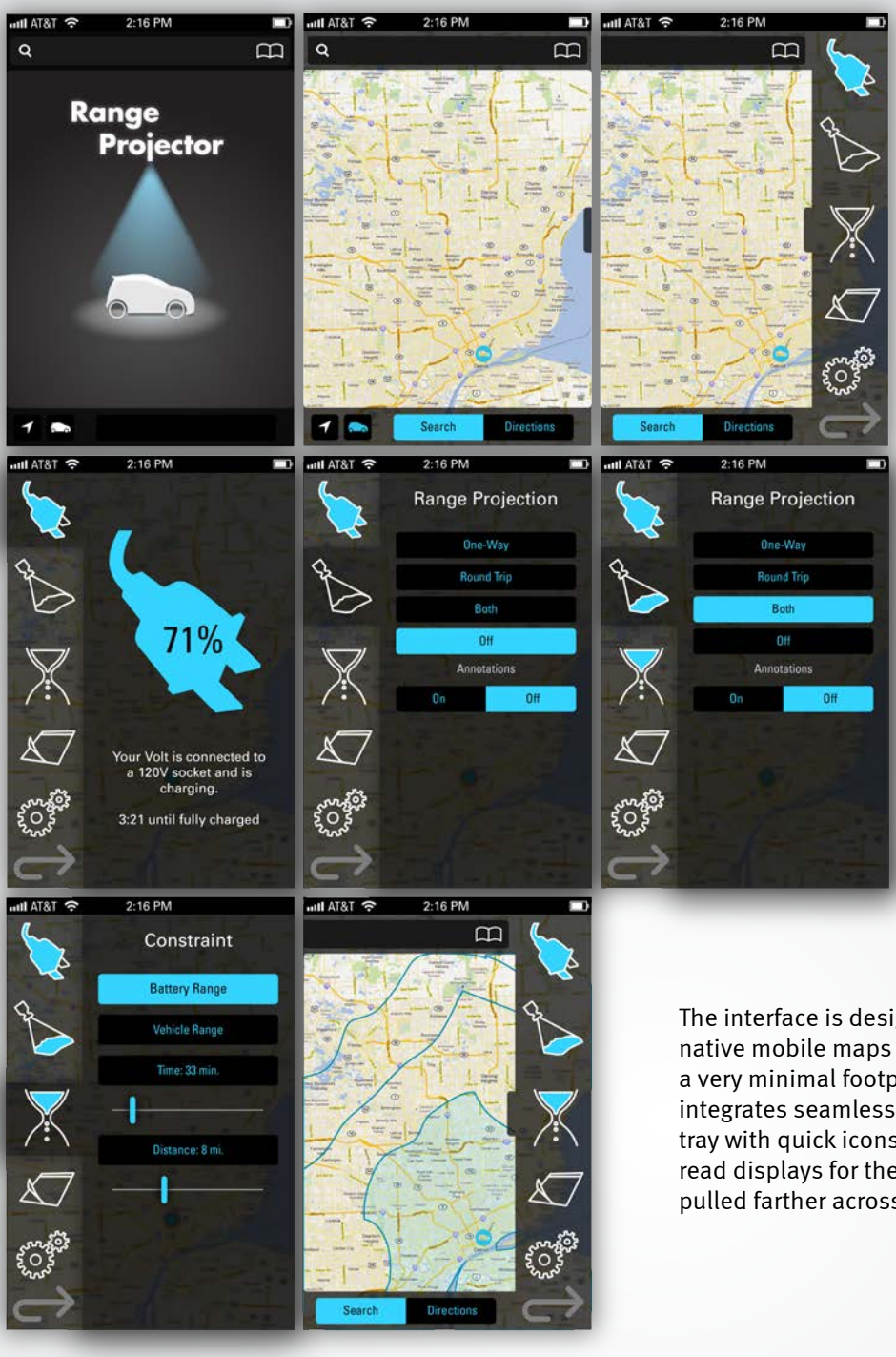
Sketching



As work on the algorithm progressed I had time to develop a full set of needs and desires to work around. I went back to the drawing board and started the UI over from scratch.

Above are a couple of pages of wireframe sketching that eventually led to the finalized UI.

Mobile

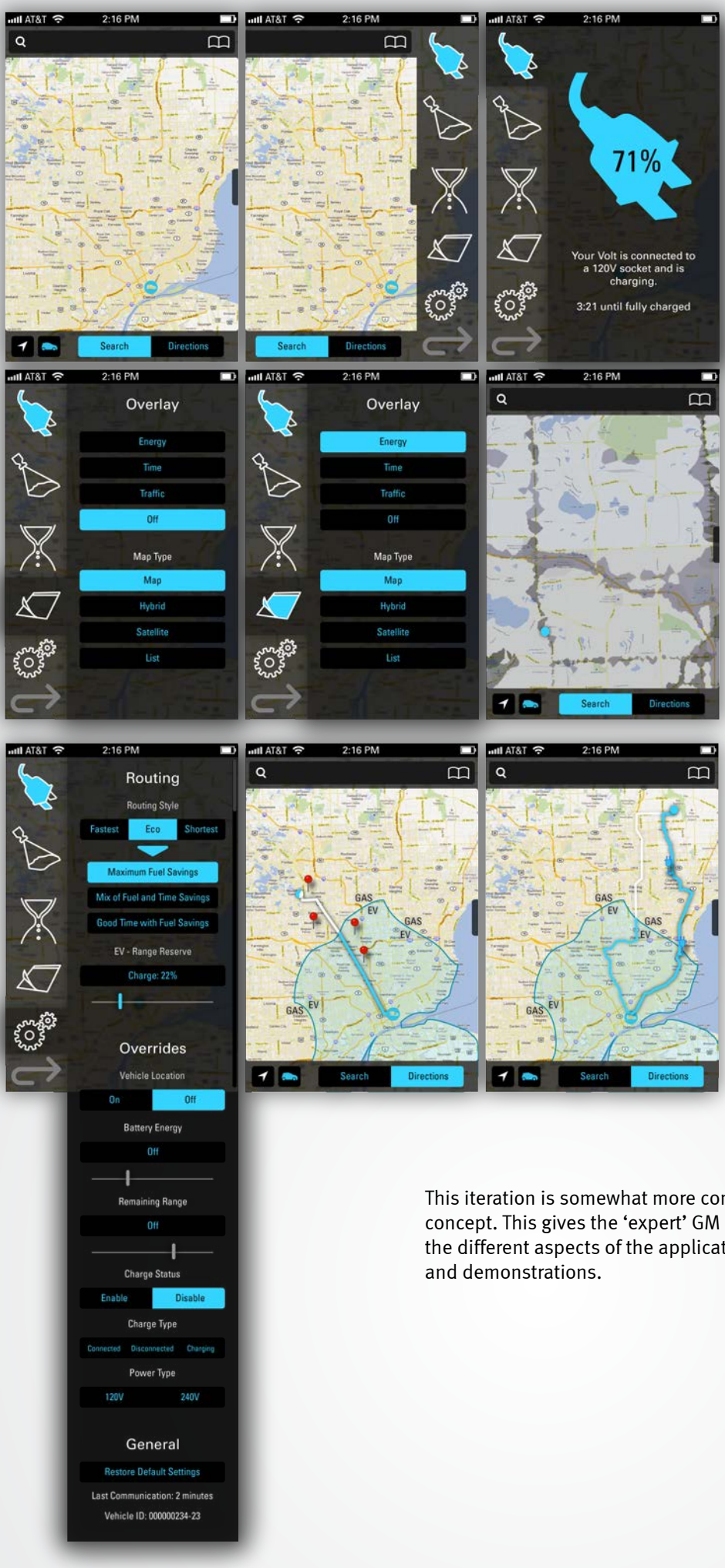


Planning for the future

The application gives the user the ability to work with the car to both save money and the environment. With the information provided by the application, one can adjust one's schedule to the benefit of all.

Click on any one of the screens to the left to launch an interactive mockup. This is one of the materials delivered to the developer.

The interface is designed to be an integral part of the user's native mobile maps software. As such it is intended to have a very minimal footprint while not in use, but when desired it integrates seamlessly. Actuating the side tab reveals a slide out tray with quick icons that function as both buttons and quick read displays for the status of the projection options. When pulled farther across the screen, the full menu is revealed.



Knowledge is power

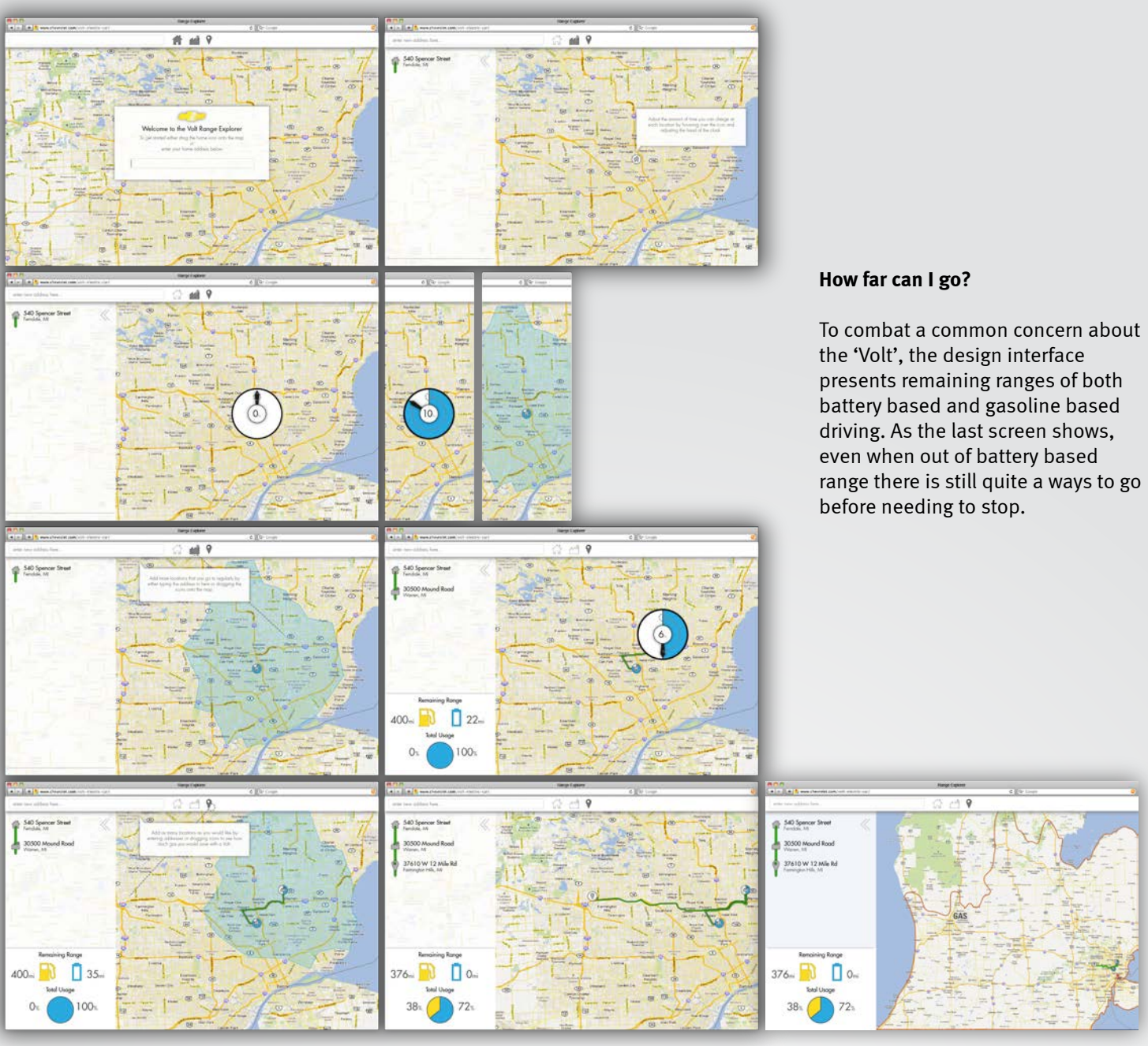
If a user wants to merely bask in the sea of information, he can apply overlays to the maps that show the relative costs of different roadways based on all of the data used to calculate projections. For those people interested in learning what roads to avoid and which ones to take more often.

This iteration is somewhat more complicated due to it's purpose as a proof of concept. This gives the ‘expert’ GM internal user the ability to control many of the different aspects of the application to better tell a story during presentations and demonstrations.

Web

As an additional utilization of the back-end being developed to run the mobile concept, I created a web based interface with similar capabilities but different goals. The interface is intended as a exploration and learning tool for someone looking at buying their first electric or partially electric vehicle.

Most people lack accurate understandings of the spatial relationships between the places that they travel to, even places they go everyday. Because of this that many people that I have talked to about the electric vehicles seem apprehensive. They project their misunderstanding of distance onto the vehicle and it manifests as dislike of the vehicle.



How far can I go?

To combat a common concern about the 'Volt', the design interface presents remaining ranges of both battery based and gasoline based driving. As the last screen shows, even when out of battery based range there is still quite a ways to go before needing to stop.

This web based interaction, that would be located on the Volt website, allows a potential buyer to map out their typical day's travel. Each location is added along with potential vehicle charging time. As more locations are added, the user sees a range projection based on the last location in their sequence. Additionally he is presented with a estimate of the percentages of electric and gasoline based driving he would do in a particular day.