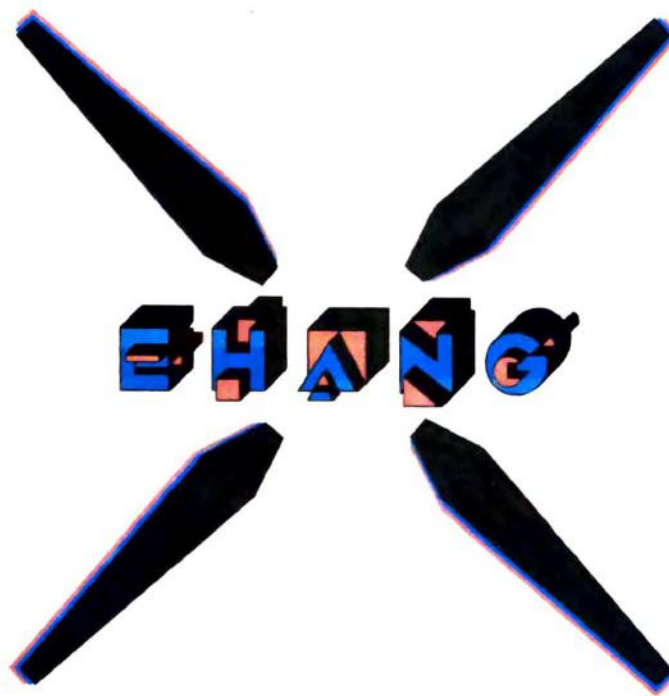# User Interface Development and Design for EHANG

Attention: Amanda Taylor, Program Manager

Presented by Alexander Golin, User Interface Designer

March 28, 2017

Alexander Golin
74 Bromfield Road
Somerville MA, 02144

February 21, 2017

Amanda Taylor
Program Manager
EHANG

Dear Ms. Taylor,

Thank you for choosing Golin Bros Design Co to design a new in-flight companion application for EHANG! We are very excited to share our designs with you, and we think you will find them very clear and straightforward, and we believe you will enjoy our approach to branding, as it is consistent with the company's clean and modern aesthetic.

This report contains the complete design process, beginning with the identification stage in which we created personas to represent probable users. We also developed a style guide based on our understanding of user characteristics and the company as a whole. These guidelines helped shape the design phase of our process, in which we began creating a wireframe to capture the general flow and feel of the interface. Following wireframing, we refined our design into a final aesthetic concept, and we have included a description of the UI architecture, complete with a diagram which illustrates the highly linear and recovery-friendly structure of our design.

Please contact Golin Bros Design Co with any questions or concerns you have about the designs. We look forward to moving forward with you all at JustoCat very soon!

Sincerely,

Alexander Golin

User Experience Professional
Golin Bros Design Co
646-872-8987
agolin95@gmail.com

Design Brief

Throughout the design process, Golin Bros Design Co remained painstakingly aware of the high stakes nature of EHANG as an aerial transportation service, so we made simplicity and clarity our priority from the very beginning. Two major concepts arose from this desire, one of which is the highly linear and very forgiving structure of the UI. There is one primary context that is constantly providing the user with all the crucial information about their flight. The other concept we developed in an effort to make this novel experience more user friendly and less daunting was a personal copilot programmed into the interface. His name is Tom, and he guides the user through all of the necessary safety protocols and helps them set up their trip. He's always available to the user via interface interaction or via vocal commands (he responds to "Pilot to Copilot"), but he will not interrupt a user if they do not want him to, unless there is something absolutely critical. Tom can serve as a tour guide to the area outside, and can help you locate things to do or places to visit.

Users always have configuration information available to them from any screen after they have made it through the setup procedure with Tom, and the map-based informational view is prioritized, since it viscerally conveys geographic and temporal information. Users can also opt to replace this view with a more scenic camera view from the outside of the copter, and in a similar way, if they are not interested in the trip itself, they can choose to browse the store rather than look at the map or the camera view. That said, crucial flight information is never removed, and Tom's assistance is available from any location in the process.

We think that the modern and sleek design paired with the linear simplicity and single context architecture will make this application very pleasant and easy to use, and we hope you think so too!

User Persona Development

Julie is a college junior at a University in the Boston area. She is originally from New York City, and she is very close to her family, so she likes to visit home frequently. Normally she uses the bus or the train out of Boston, and she loves being able to get some of her work done while traveling home. With a demanding course load, Julie finds it difficult to manage weekend trips home, but she still tries her best. On trips like these, she feels it's absolutely imperative that she be able to get her work done while traveling back to New York. Julie is very interested in the idea of being able to use EHang to travel between home and school, because she hopes it would be able to cut down on the travel time, however she is wary of the price. Bus tickets are fine, but even a train ticket is usually reserved for more special occasions. Julie is about as apt with technology as the average college student, so she is not very worried about being able to utilize EHang.

Mark is a 53 year old publishing executive living in New York City. He spends Monday through Thursday in the city and stays in an apartment near his office, but he returns to his primary home in Pennsylvania on Thursday nights via the public bus. On Sunday night he boards the bus again and returns to New York. Mark is hoping to spend more and more time out in Pennsylvania, but the traffic jams of New York keep him from being able to quickly move between residencies. Mark thinks that EHang may be exactly the solution he is looking for, and he is certainly willing to pay extra money to avoid the traffic jams and public environment of the bus. Ideally, Mark would like to be able to use EHang to commute directly from Pennsylvania to his office each day, provided the travel time reduction is significant. Additionally, Mark would be interested in using a long range EHang service to avoid economy air travel when he has a business trip. Mark's exposure to the digital publishing industry has left him not only very tech savvy, but also deeply curious about technological advancements such as EHang.

Style Guide

1. Utilize no more than two colors for branding purposes.
2. Utilize no more than three additional colors for primary UI feature coloring.
3. Utilize colors in psychologically meaningful ways.
4. Utilize no more than one font for body and label text.
5. Utilize a special, more intentionally designed font for titles and headers.
6. Utilize consistent spacing between objects that are in a group.
7. Utilize consistent item sizing for objects within a group.
8. Utilize consistent a border radius across items and sections.
9. Always allow the user to go back.
10. Use no more than 5 items in a group or list to lower cognitive load.
11. Allow easy access to audio, display, and temperature settings at all times.
12. Allow user to issue emergency alert with extreme ease.
13. Prominently display map on main screen.
14. Always show flight information, no matter what screen.
15. Utilize an animated sequence demonstrating safety procedures on welcome screen.
16. Keep advertisement location constant across screens.
17. Ensure that design is modern and sleek, like the product.
18. Utilize a generally minimalist design to keep cognitive load low.
19. Do not sacrifice clarity for minimalism.
20. Dual encode functions and features using icons and text where possible.
21. Include EHang store functionality only where necessary, as it's not primary to flight.
22. Utilize a design that can have a dark and a light version depending on time of day.
23. Ensure there is always high contrast between text and background.
24. Do not require users to interact to maintain flight safety.
25. Do not trust users to be tech savvy.
26. Reinforce professional and trustworthy nature of the EHang.
27. Utilize strong branding cues.
28. Ensure all text is readable, even by people with hindered vision.
29. Ensure all color contrasts consider colorblindness.
30. Ensure there are ADA compatible measures taken to facilitate use by most people.

Wireframe Development

Welcome to EHang

(Welcome Animation)
(Animated Safety Instructions)

Figure 1: Welcome Screen Template

9.42am   3/5/17   EHang   1.5 Flight Hours Remaining

Temperature | Audio | Display   FM AM AUX USB BT

My Trip

Explore

Help

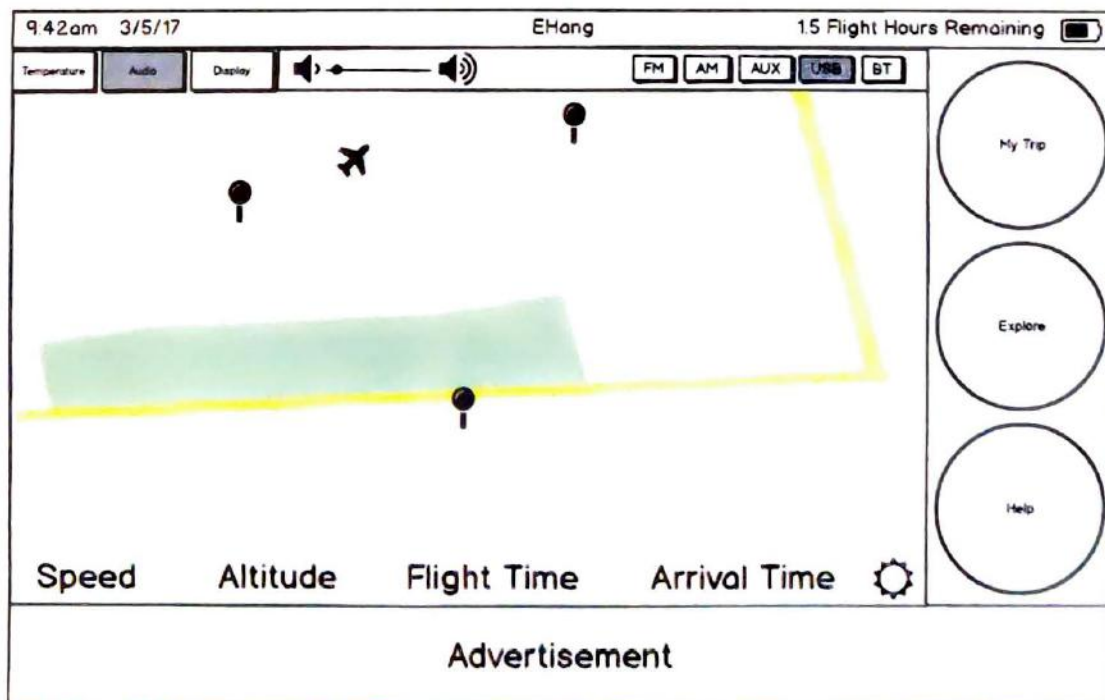Speed   Altitude   Flight Time   Arrival Time

Advertisement

Figure 2: Main Page Template
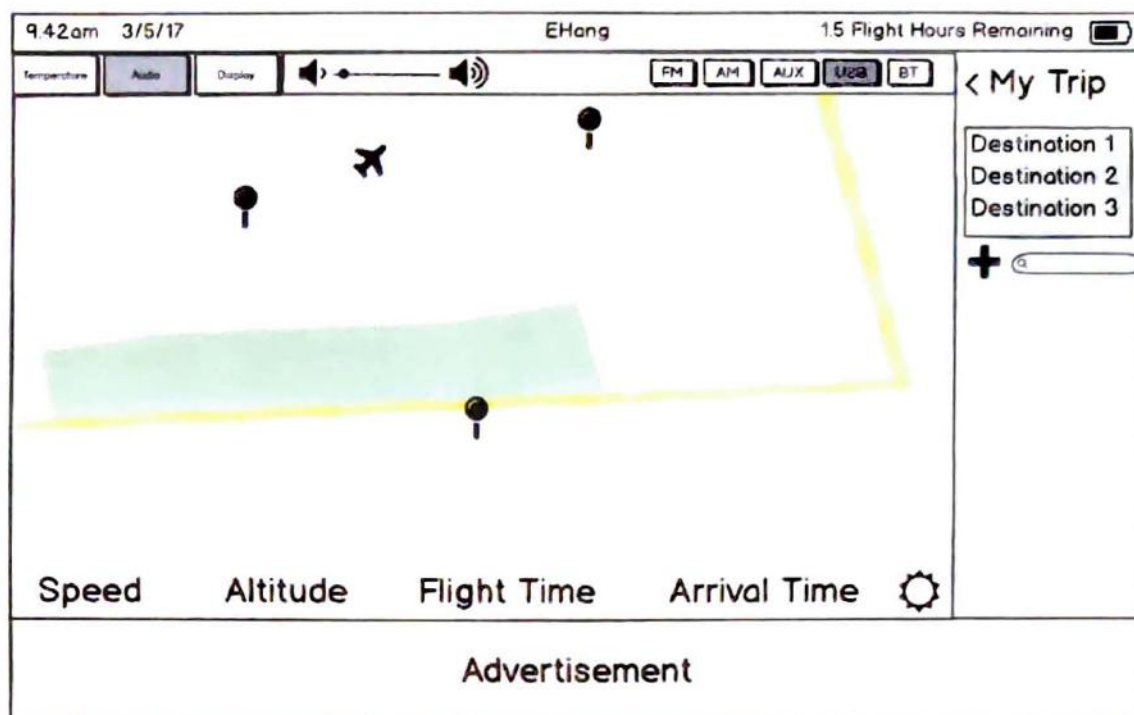
Figure 3: My Trip View Template
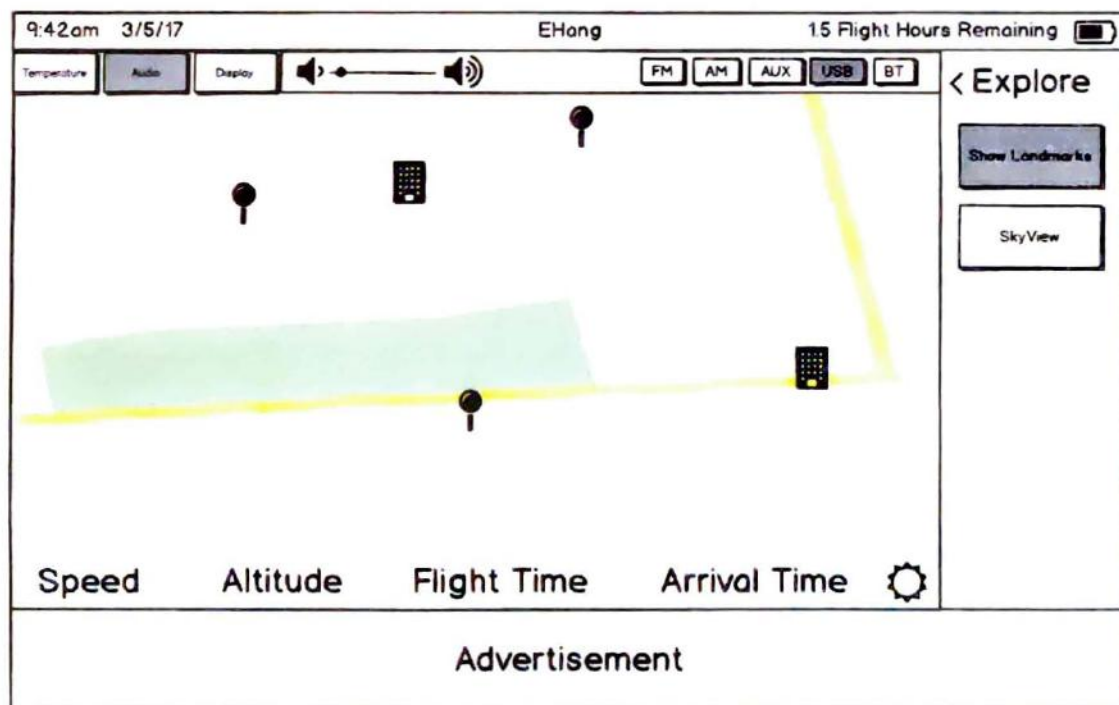
Figure 4: Explore View Template
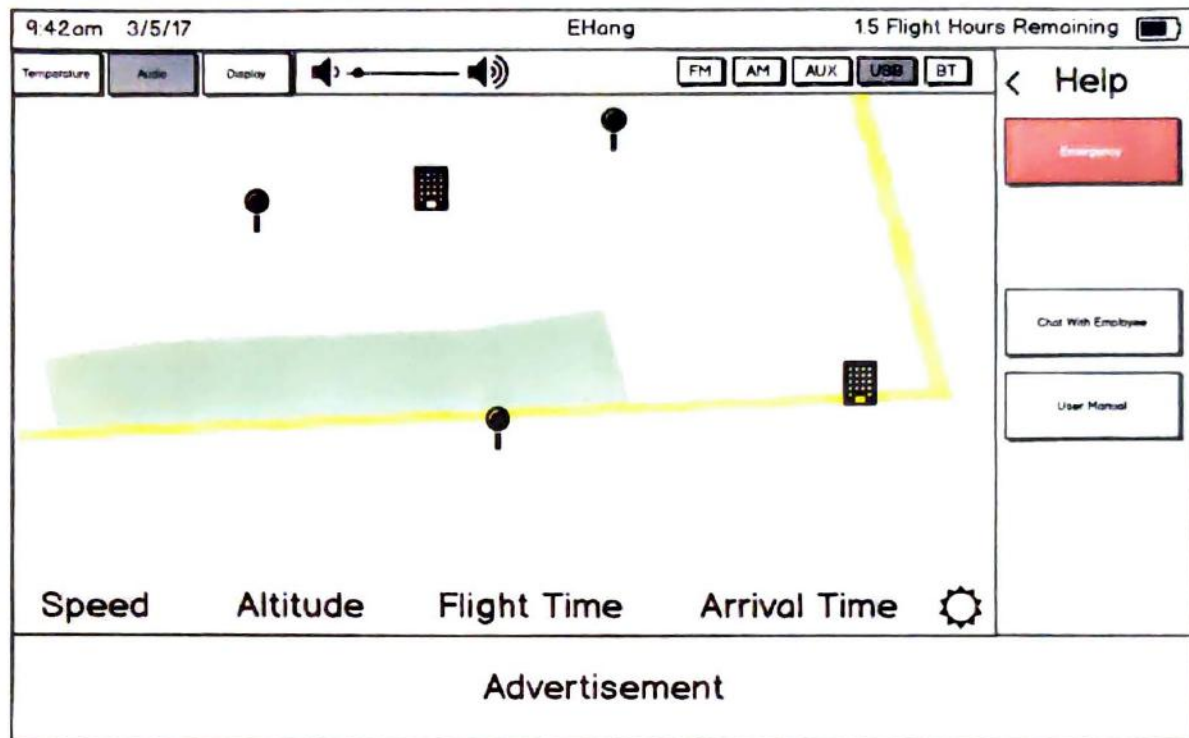
Figure 5: Assistance View Template

Final User Interface Structure
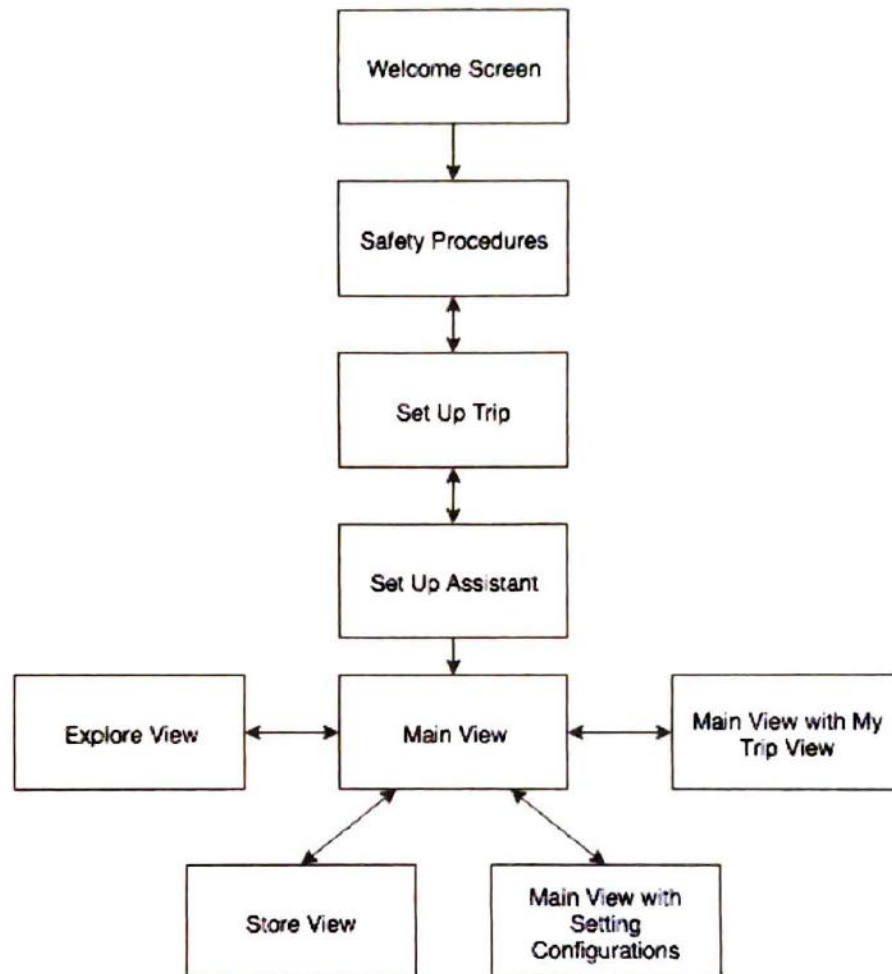
Figure 6: UI Architecture Diagram

Throughout the design process, one of our primary goals was to maintain as much of a single context as possible, and we feel we achieved this well. After the linear and straightforward orientation and trip set up processes, everything can be achieved within the main view context. The only exception to this rule is when the user opts to utilize the camera view or visit the digital store. Even when the user chooses to do this, the command bars on the screen remain constant, so it never feels like the primary context is departed from. In addition to achieving the desired linear structure, we also adhered closely to our design guidelines which we set up in the identify stage of our process.
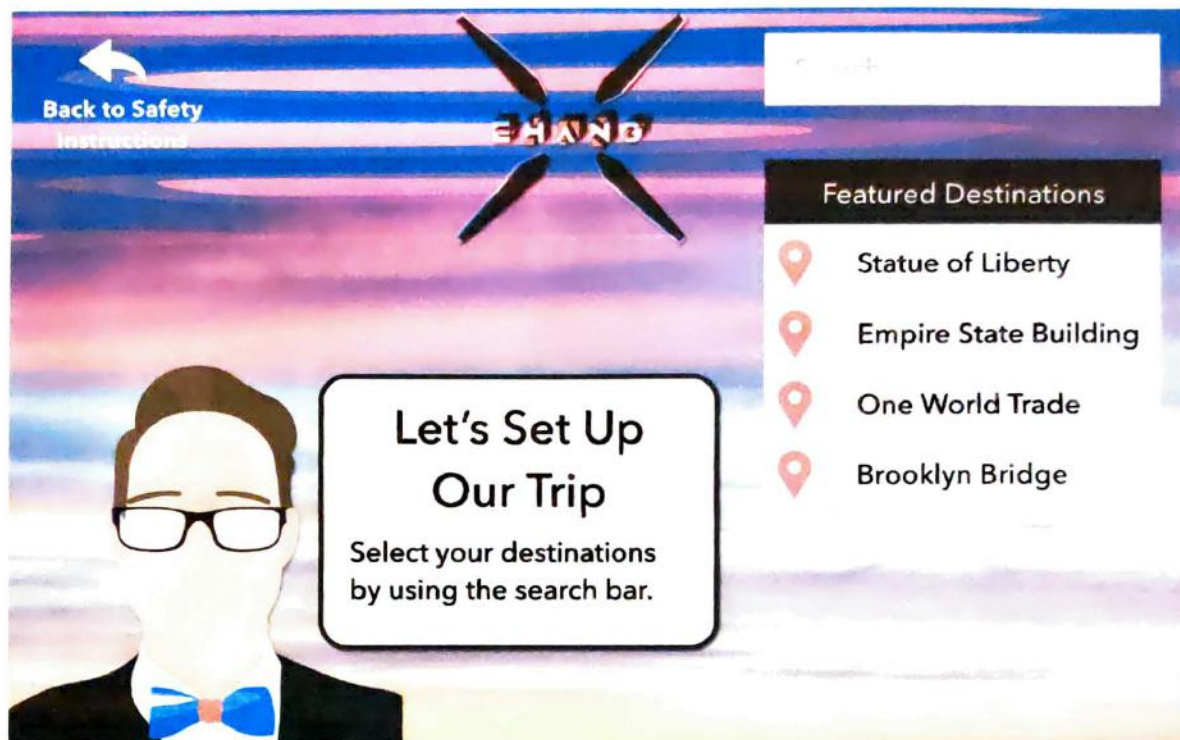
Figure 9: Trip Set Up with Recommendations
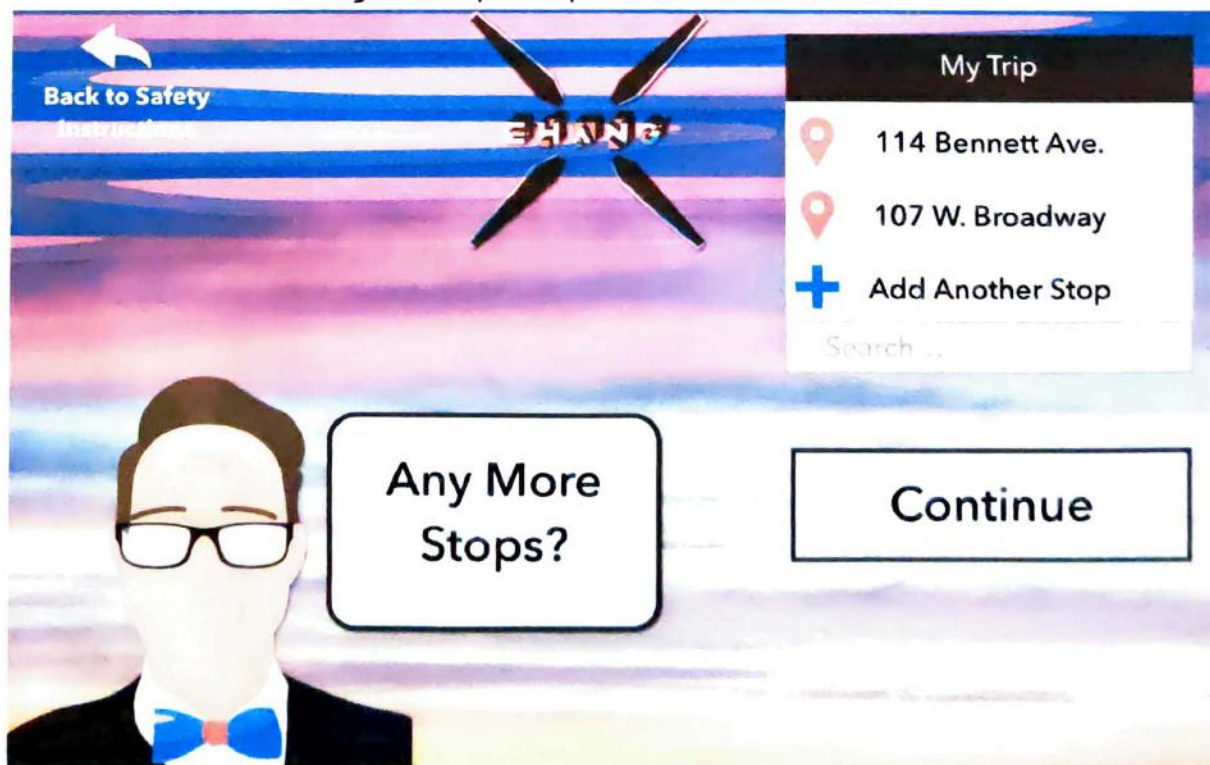
Figure 10: Mid-Trip Setup
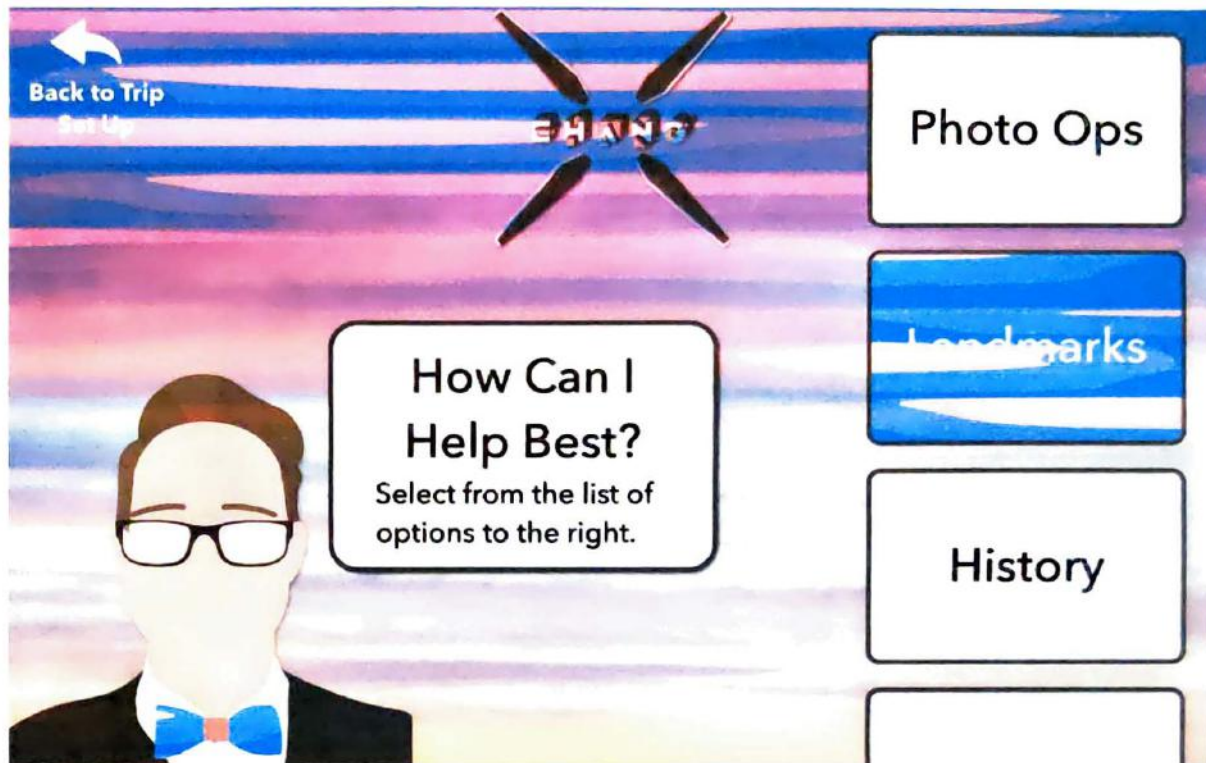
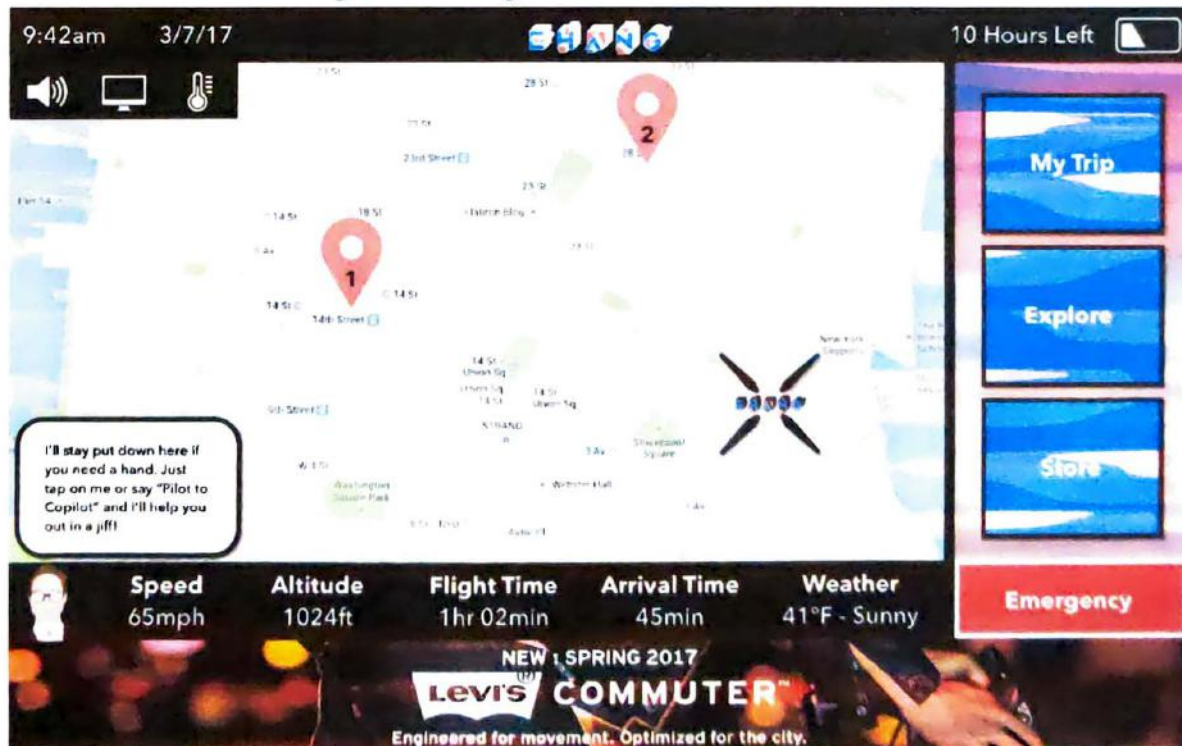Figure 11: Setting Tom's Assistance Parameters

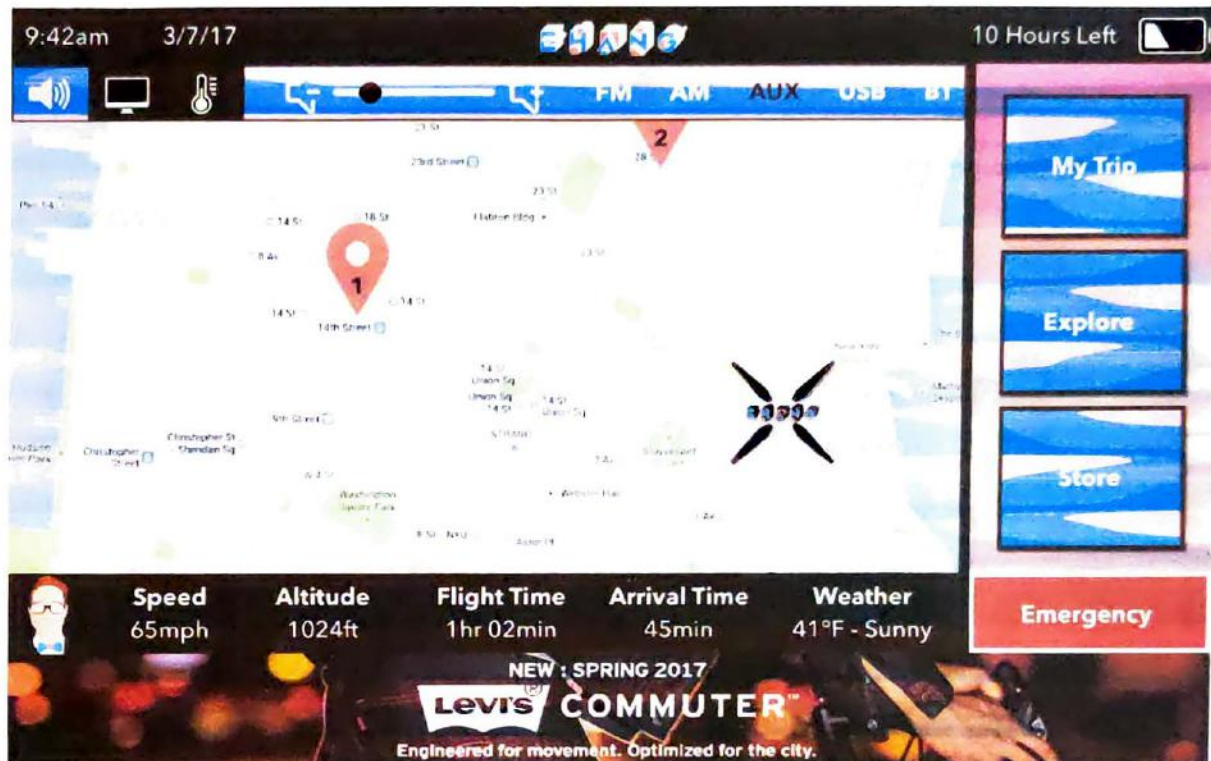Figure 12: Main View with Tom's Initial Help Text

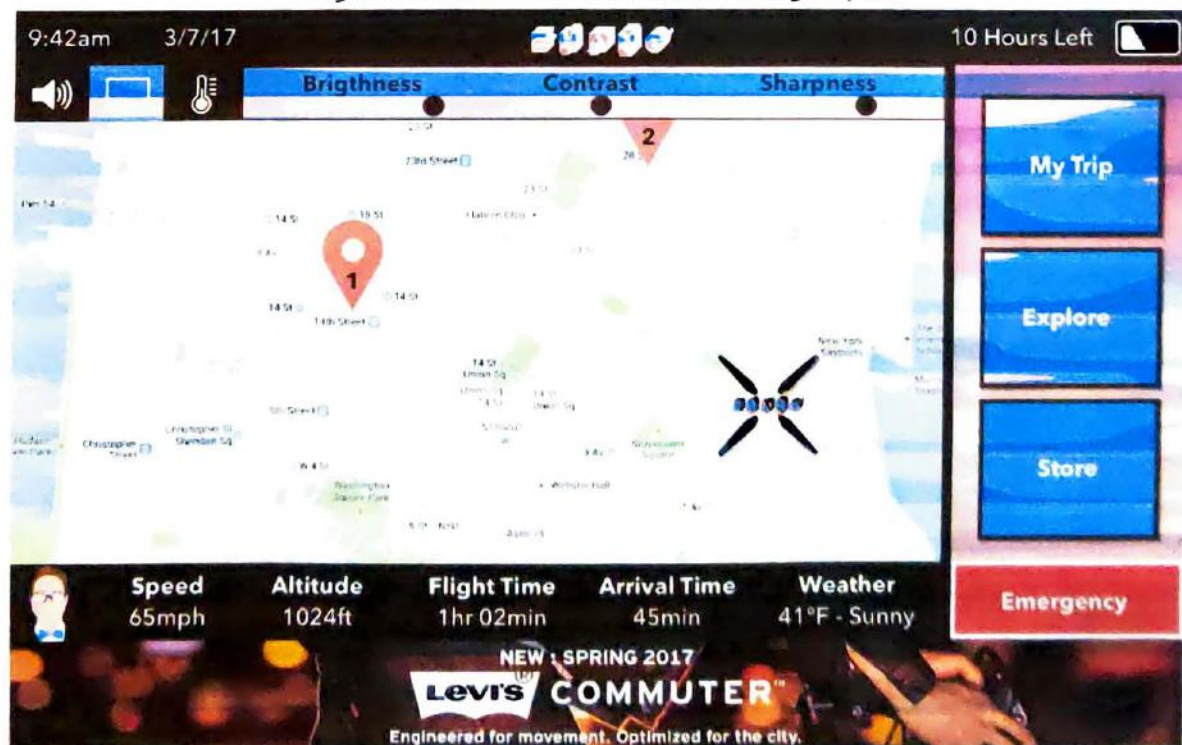Figure 13: Main View with Audio Settings Open

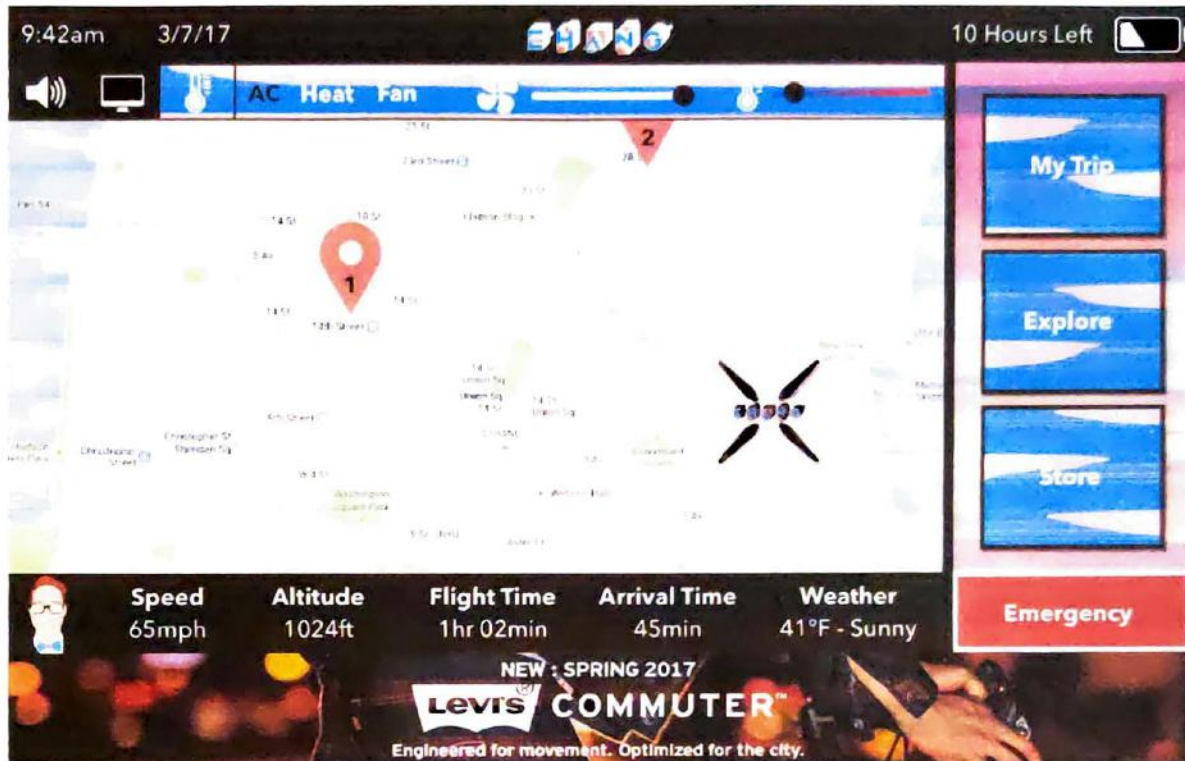Figure 14: Main View with Display Settings Open

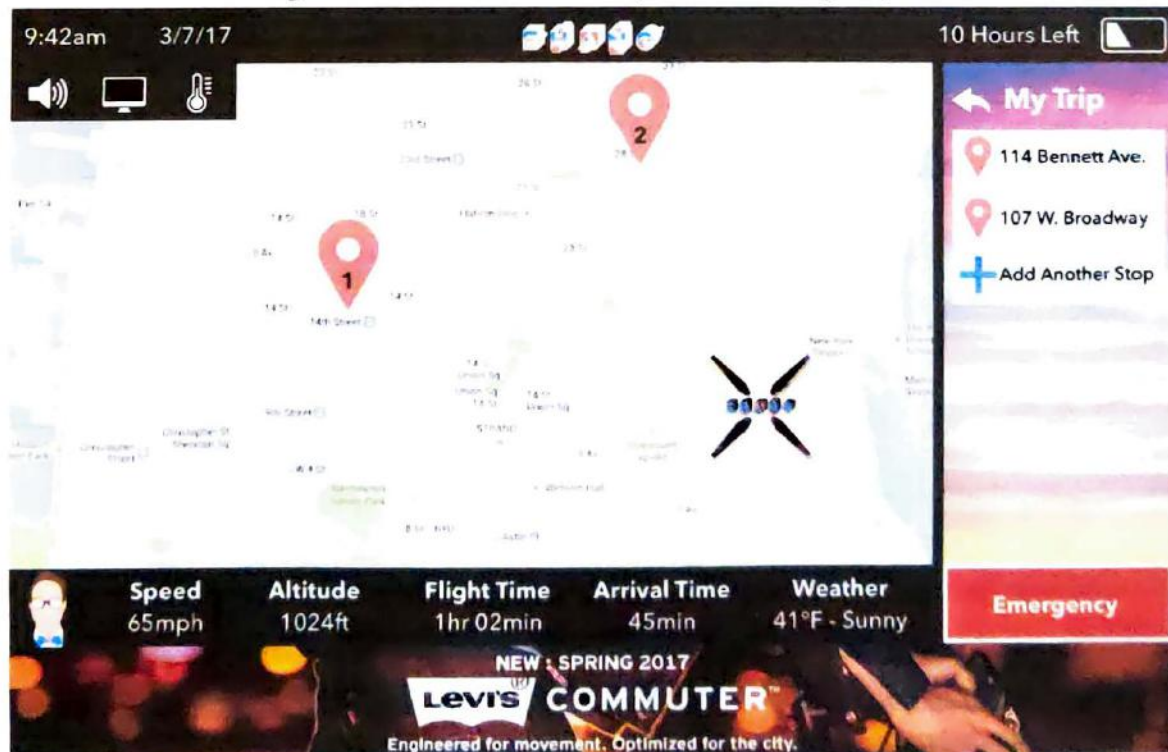Figure 15: Main View with Temperature Settings Open
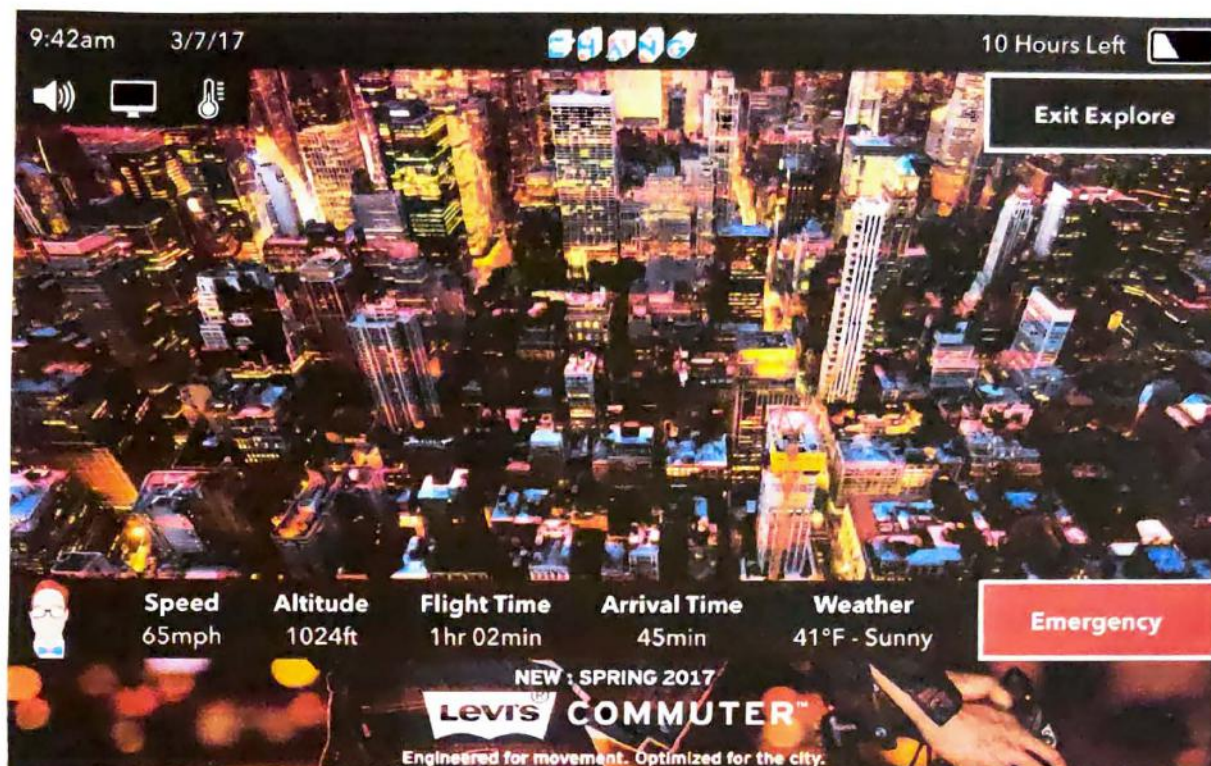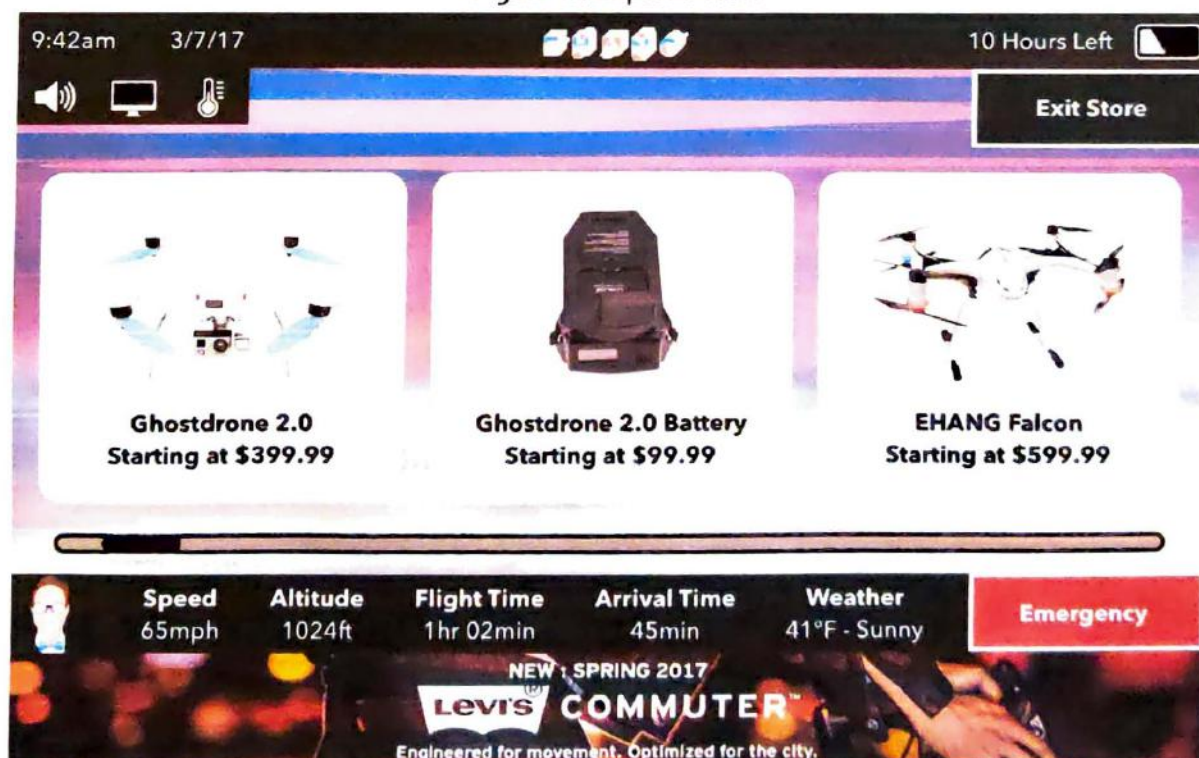

Figure 16: My Trip View (Maintains Primary Context)

Figure 17: Explore View

Figure 18: EHANG Store View