Attention: Amanda Taylor, Program Manager

Presented by: Lexie Kirsch, User Interface Developer

March 14th, 2017

Lexie Kirsch
11 Winthrop Street
Medford, MA, 02155

March 14, 2017

Amanda Taylor
Program Manager
ePilot

Dear Amanda Taylor,

Thank you for authorizing Pollex Designs to proceed with the conceptual design of the EHANG 184 AAV's user interface.

In this report you will find the style guide used in the design of the interface, the personas considered throughout the design process, a structure diagram that illustrates the interface flow, templates that reflect the style guide, and a design brief that explains the design rationale. Finally you will find example screens of the interface that demonstrate the ePilot's variety of functional capabilities.

I look forward to hearing your feedback.

Sincerely,

Lexie Kirsch
User Interface Developer
Pollex Designs

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Style guide

1. The welcome screen will incorporate the EHANG logo
2. The welcome screen will be personalized to user
3. No text will be smaller than 20pt font
4. A sans-serif font will be used for legibility
5. Text will be written in contrasting color to background color
6. Important alerts will be placed over a warm-colored background
7. A limited color palette will be used: primarily black, white, and blue
8. A menu bar for key functions will be included
9. The menu bar will be located at the bottom of every screen during flight
10. The menu bar will have no more than five plus or minus two elements
11. Clicking an element using the menu bar will open that screen and close the current
12. A bar with the time will be visible at the top of most screens
13. Buttons will have dimensionality to be distinguishable from static information
14. Buttons will have rounded edges
15. Buttons will have at least a 2pt line thickness
16. Button centers will be separated by at least 0.5 inches
17. Text about button's purpose will be included
18. A help button will be accessible from every screen during flight
19. All content will be evenly spaced and aligned
20. Icons will be similar in terms of complexity, use of color, and line weight
21. Icons will have at least a 2pt line thickness
22. Icons will be accompanied with text to prevent misinterpretation
23. Some screens will include an extra element accessible by swipe navigation
24. Swipe navigation will be supplemented by clickable arrows
25. Advertisement displays will take up 15% of all screens during flight
26. Progressive disclosure will prevent take-off until user has fastened seatbelt
27. The user's position during flight will automatically update on the map
28. The user's preferred display and climate settings will be remembered as default
29. The user will be able to request an emergency landing at any point during flight
30. Simple language will be used throughout the interface

Personas

Annie, 36, is a photographer. She lives in Colorado with her husband and two huskies. She loves going on adventures to different places and capturing them with her camera. She brings her camera everywhere. During the summer, she loves to go hiking and river-rafting, and during the winter, if she's not photographing the trees and icicles, she's skiing. Although she prefers to photograph nature, she's often hired as a wedding photographer, particularly because one of her best friends is a wedding planner. They've been friends since college and work well together. It was this friend that introduced Annie to the EHANG 184. She thought it would be a good opportunity to take some photographs from a bird's eye view, and Annie agreed. She uses the EHANG 184 to capture nearby lakes and mountains from an alternative height and angle, and she intends to use the system again in a few months to capture a large outdoor wedding. Although she loves the EHANG 184's multiple camera views, sometimes she wishes she could control the system herself, so she could slow down the vehicle at certain points to take specific shots.

Harry, 65, is a retired lawyer from Silicon Valley. He retired last year, feeling it was finally time to stop making money and start spending it. His children are very independent, but nonetheless he set aside a great deal of money for their use, should they ever need it. Now, he thinks, it is time to focus on himself. Since his retirement last March, he has started to collect cars. His favorites are his Tesla, Bugatti, Lamborghini, and Ferrari. He likes to drive fast. He always has. It terrifies his children, but they know it makes him happy, and he hasn't been in an accident in over ten years. Besides, he got those charges dropped. He celebrated that victory with a new car. He thinks special occasions should be celebrated lavishly. That's why he bought his wife an EHANG 184 for their anniversary. She felt claustrophobic in its confined space, so Harry tends to be the one who uses it. He wishes it were faster but loves the look on his golf-buddies' faces when he lands it at the country club and steps out. He's the only one who has one and the envy of everyone.

User Interface Structure Diagram

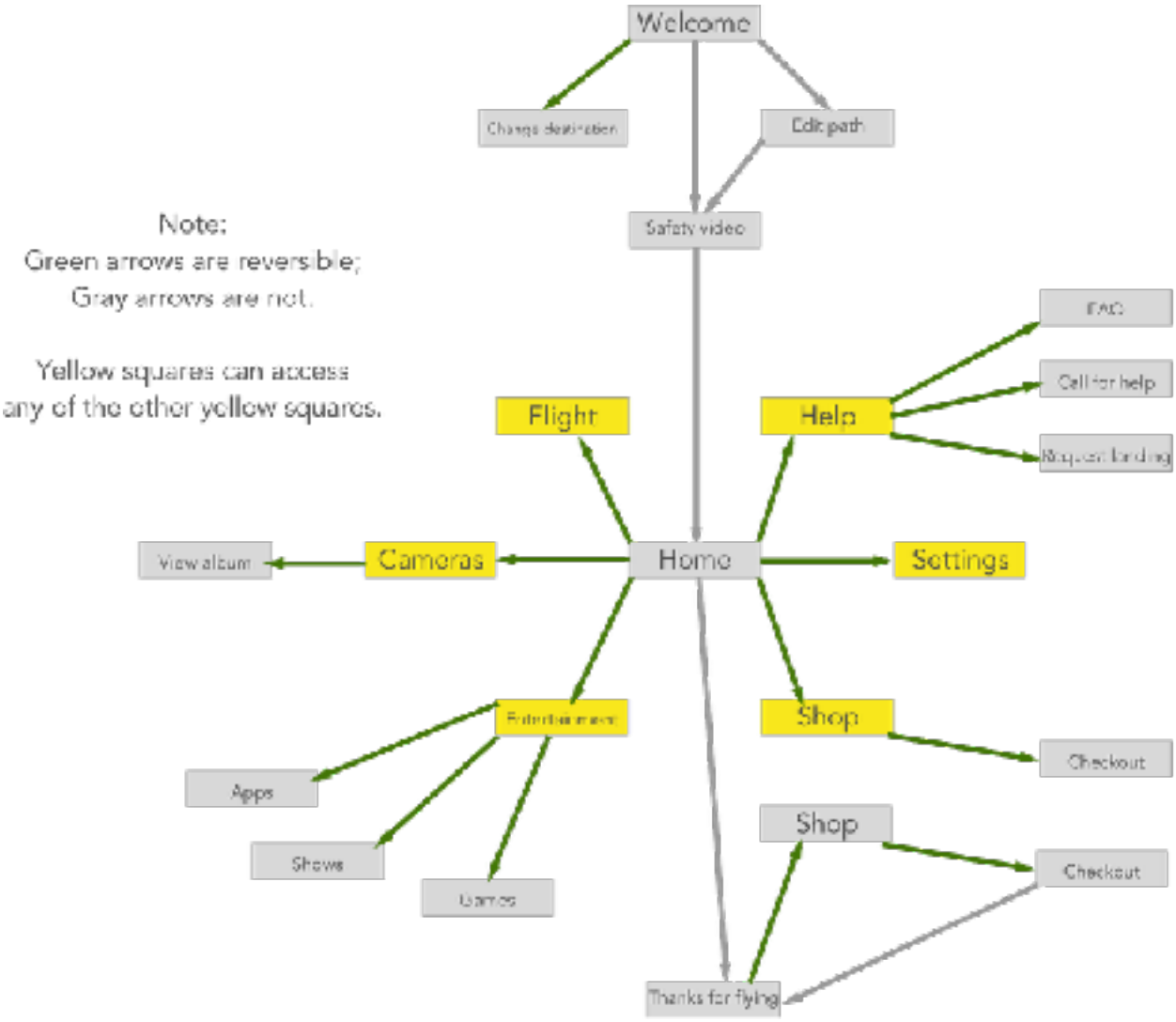

Figure 1. Shows the user interface structure diagram. The menu bar items (in yellow) allow this structure to be webbed, but certain features are linear (e.g., the user is not permitted to change destinations once the flight has begun) making this a hybrid structure.

Templates

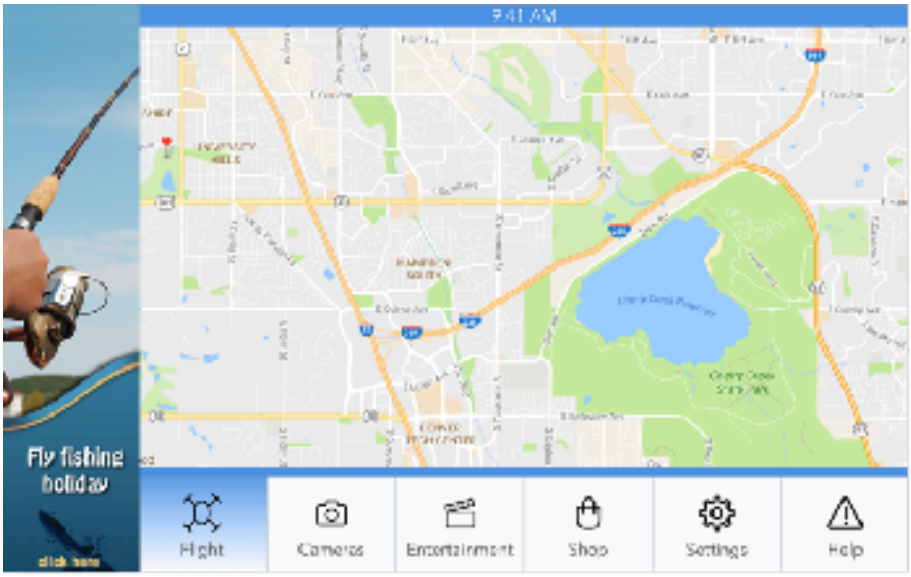

Image 1. Shows the flight screen, which includes a map of the area.

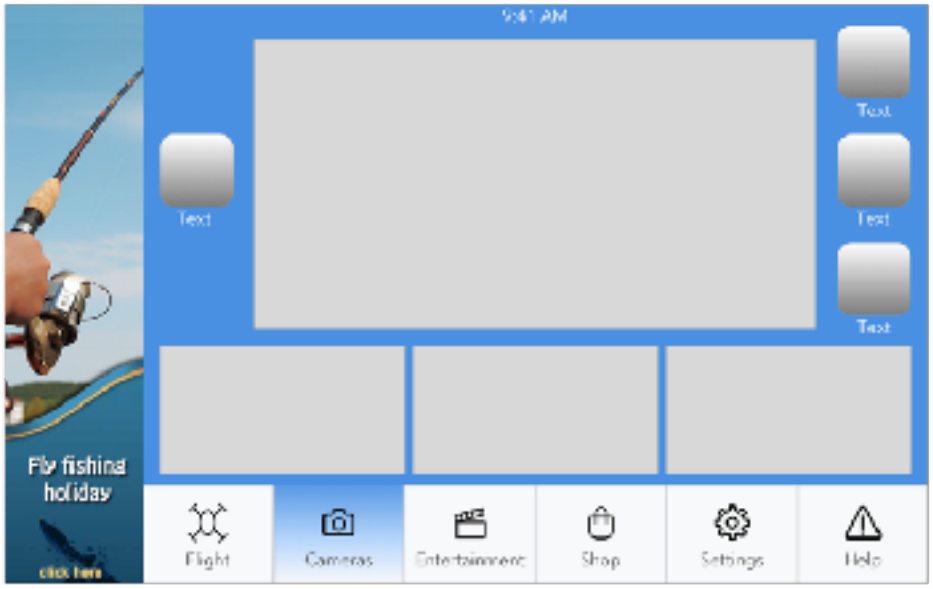

Image 2. Shows the camera screen, which will allow the users to view their surroundings from multiple different camera angles.

Image 3. Shows the shop screen, which will allow the users to purchase various items.

Image 4. Shows the settings screen, which will allow the users to adjust different settings such as screen brightness and vehicle temperature.

Design Brief

This interface incorporates the EHANG brand by displaying its logo on the welcome and thank you screens and the color blue—consistent with the vehicle chairs—as the background color of all screens.

For efficiency, the main functions of the interface are organized into six categories—flight, cameras, entertainment, shop, settings, help—each of which can be accessed by the click of a button using a menu bar at the bottom of all screens during flight.

With Annie's persona in mind, multiple camera views are included with the option to take videos and snapshots of the trip. Also included is the option to customize the flight path, so Annie can fly and hover over specific scenic areas to take her photographs.

With Harry's persona in mind, a "selfie mode" option is included on the cameras screen, so Harry can take photos and videos of himself using the ePilot and use them to brag to his golf-buddies. Also included in the shop is a "how's my flying" bumper sticker, so Harry can brag to his friends that not only does he drive in style but also *fly*.

With both personas in mind, the user has the option to control the speed of the flight for an additional price.

For the user's convenience, the interface is personalized, storing information such as the user's name, common destinations, points of interests, entertainment preferences, and settings such as brightness and climate. The interface can use the travel data to streamline future trips, the entertainment preferences to recommend songs, shows, and games, and the settings information to make the user as comfortable as possible. Certain aspects of the interface, such as flight parameters, are also manipulable by the user using swipe navigation, so the user is not overwhelmed with information that is not considered important yet has easy access to information that is.

Although the primary purpose of the ePilot is transportation, these stylistic choices and features are important for the user's efficiency and overall satisfaction.

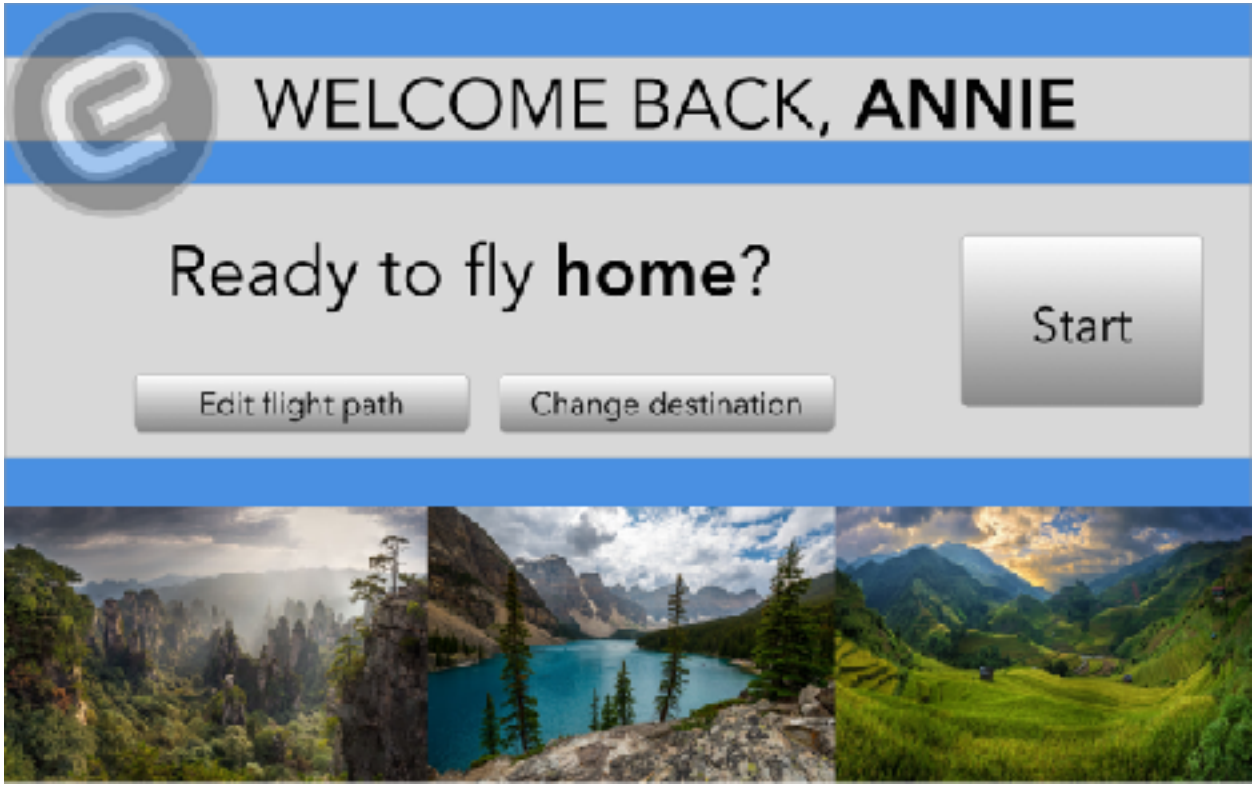

Image 5. Shows the welcome screen. The user is welcomed by name, and her destination is identified by its name, which in this case is its relation to her. The user has the option to edit the flight path, change the destination, or start the safety briefing.

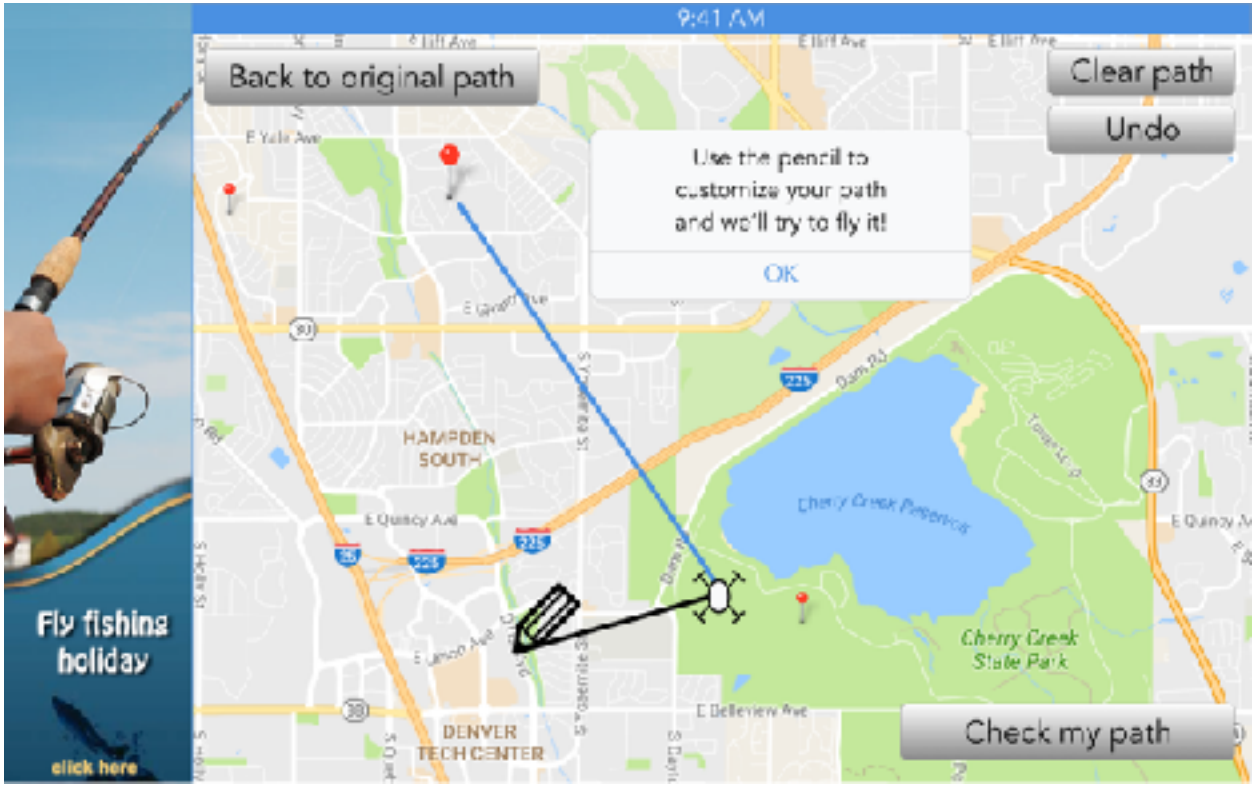

Image 6. Shows the screen to edit the flight path. The user uses the pencil to draw a preferred path, and the system will check the path to make sure it is safe. The user will then have the option to control the rate of the flight and other details (e.g., hover while flying over the water), which will also be confirmed by the system. These changes to the original flight path will come at an additional cost, which will vary based on the changes.

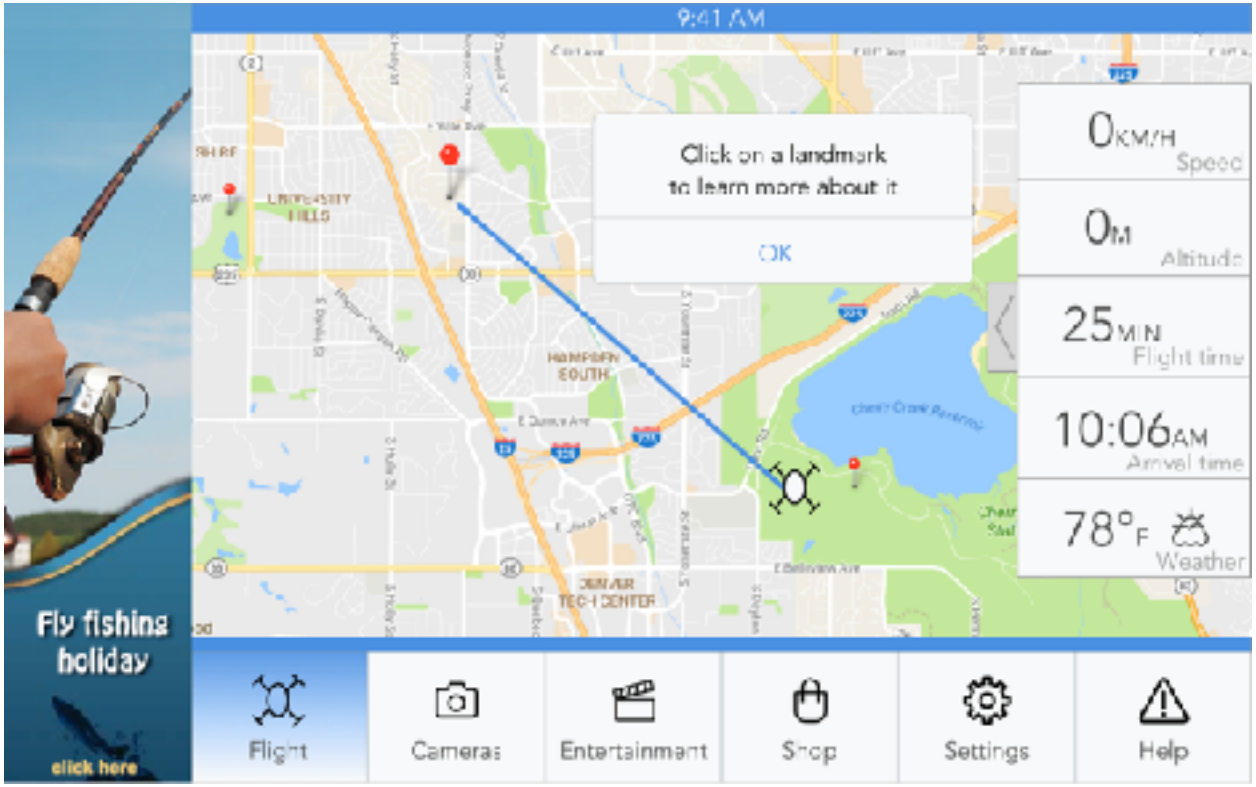

Image 7. Shows the flight screen once the safety briefing has been completed. The user can view the flight's progress on its route along with various flight parameters. The user can also click on any points of interest to learn more about them. These landmarks can be saved for future trips.

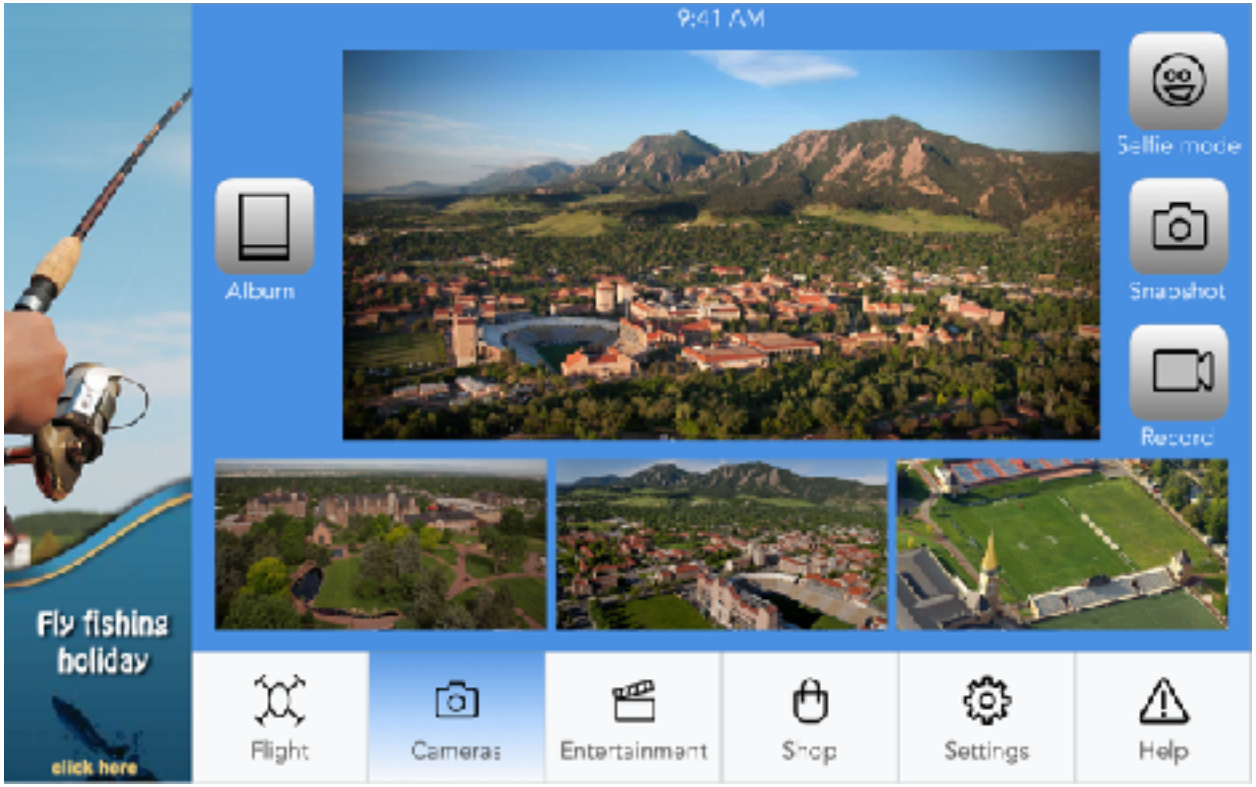

Image 8. Shows the camera screen, where the user can view the surroundings from multiple cameras, including one within the vehicle for selfies. The user also has the option to take snapshots or videos of these views, which can be purchased through the shop.

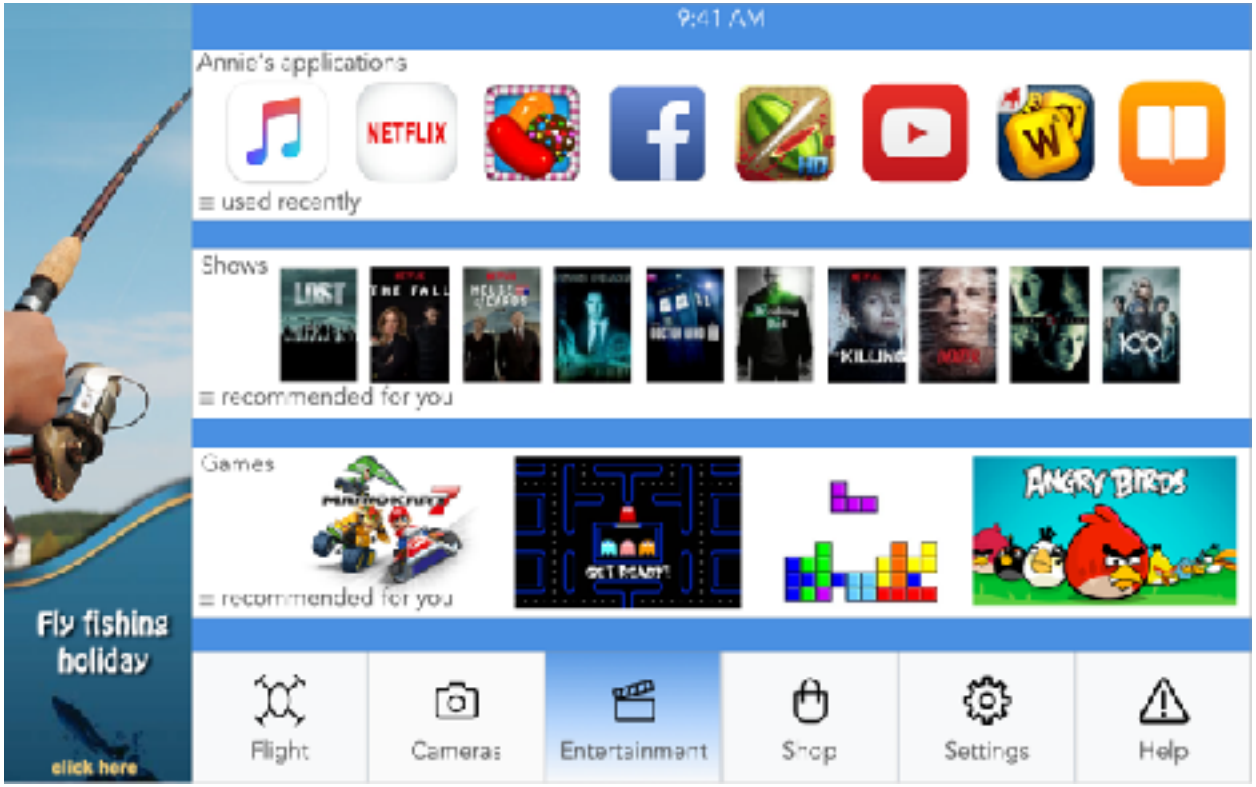

Image 9. Shows the entertainment screen, where the user can watch shows, listen to music, play games, etc. The user can connect a personal phone to the system to use personal applications that are not offered by the interface. The user can also control the order of the available options by different settings, such as by recommendation, popularity, frequency of use, etc.

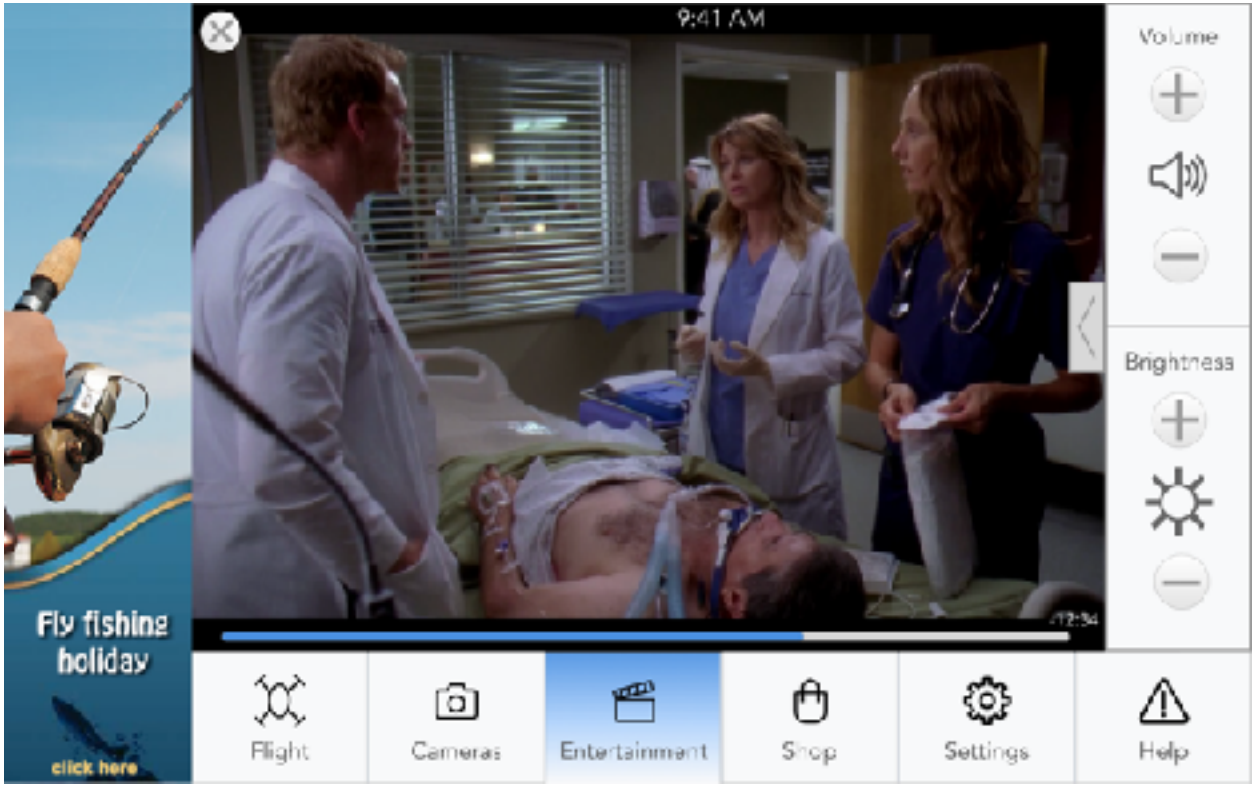

Image 10. Shows the entertainment screen when the user is watching a show. Using slide navigation, or the clickable arrow on the right side of the screen, the user can control relevant settings—volume and screen brightness. The user can pause the video by double tapping the screen and resume it in the same way. Unlike with music, the show will automatically pause if the user switches screens.

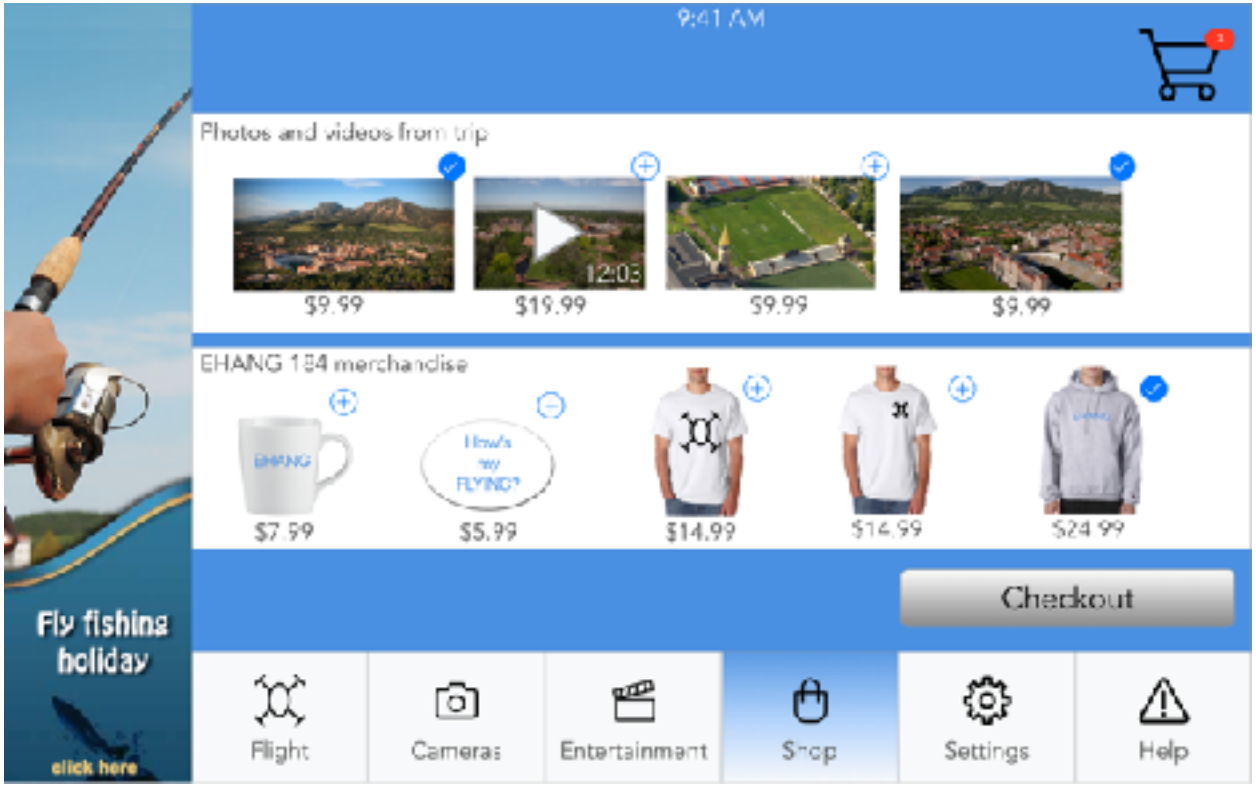

Image 11. Shows the shop screen, where the user can purchase photos or videos from the trip or buy EHANG 184 merchandise such as cups, stickers, shirts, and sweatshirts. If the user consents, the interface will remember the user's credit card information to streamline future purchases.

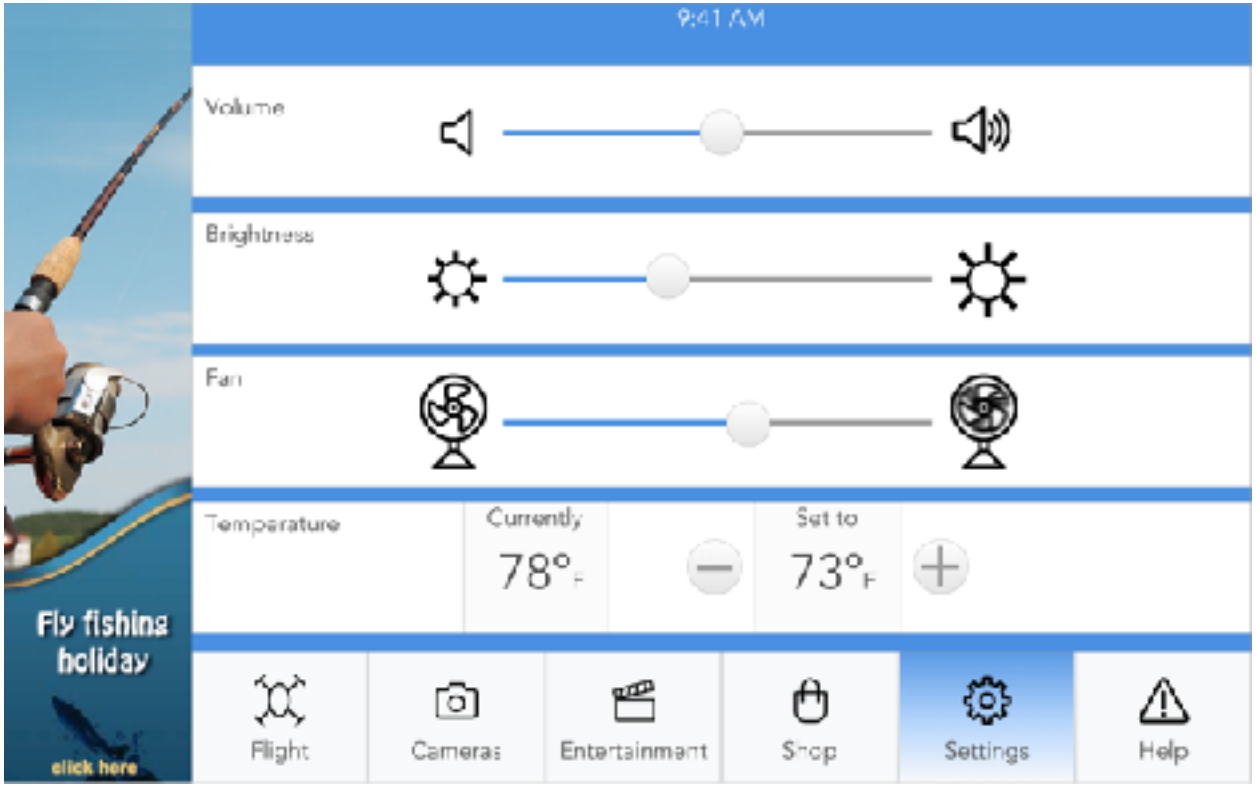

Image 12. Shows the settings screen, which allows the user to adjust the volume of the music, the brightness of the screen, and climate controls.

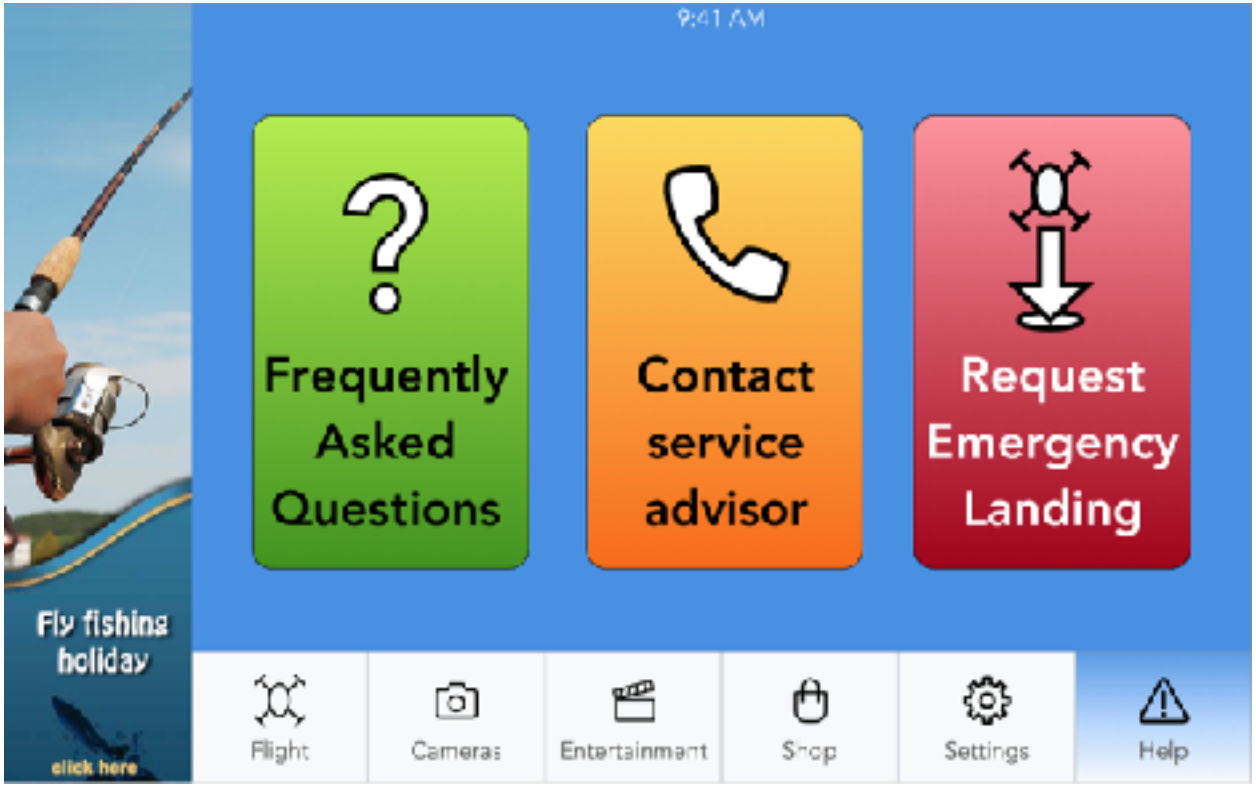

Image 13. Shows the help screen. The options vary by color to reflect the immediacy of the help required.

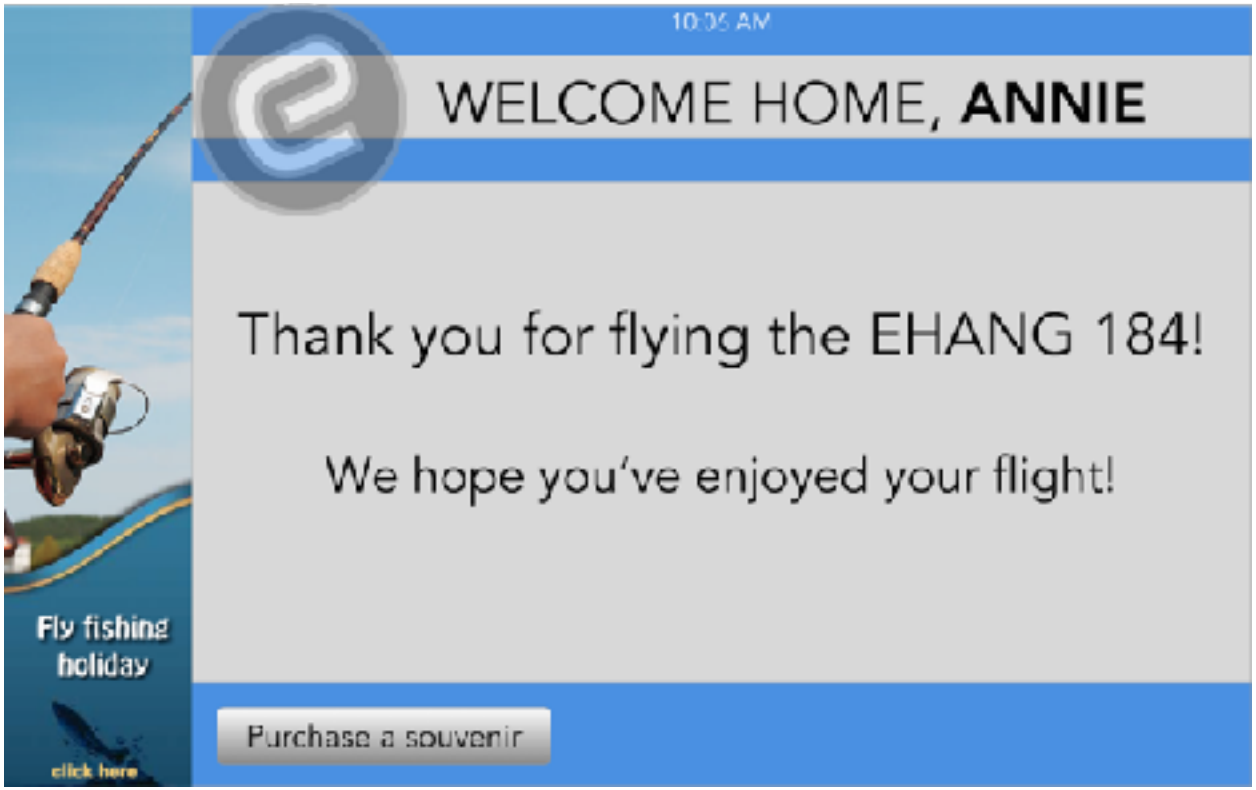

Image 14. Shows the final screen of the interface, which thanks the user for flying with the ePilot and allows the user to revisit the shop for a souvenir from the trip.