

Device

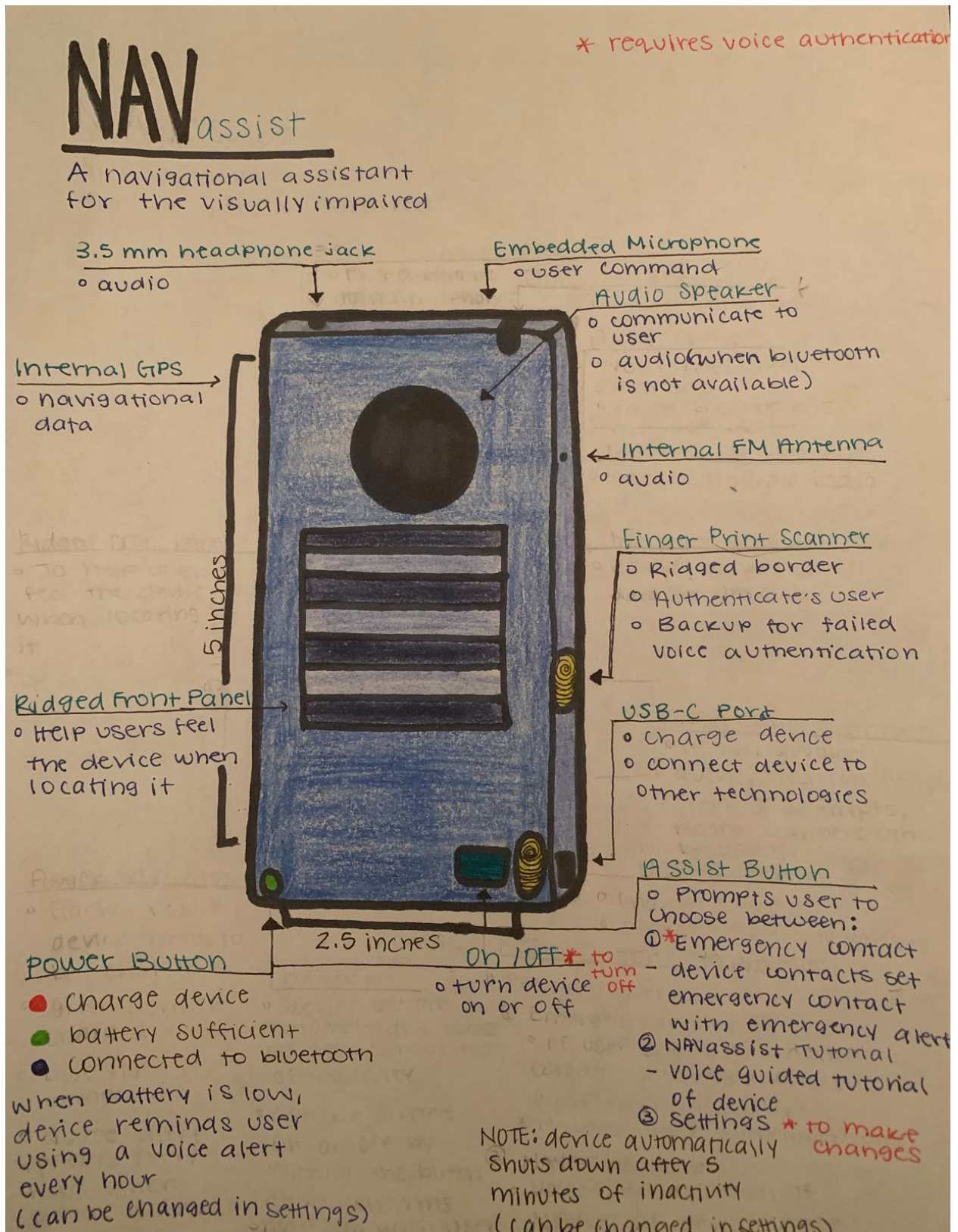
NavAssist

Description

NavAssist, a small handheld device, is designed to help aid the visually impaired in navigational tasks, specifically traveling in self-driving vehicles. NavAssist interacts with a vehicles interface to allow the use of vocal commands rather than traditional methods to operate the vehicle. NavAssist is equipped with an internal GPS system that supports navigation and include a microphone and speaker for users to communicate with the device. It is Bluetooth capable, allowing it to easily interface with new vehicles. For older vehicles and other technology, there is a USB-C port available. Older vehicles are able to use an FM broadcast option to play the NavAssist communications through the car radio rather than the NavAssist speaker. A 3.5mm headphone jack is also available for similar use. NavAssist will not follow voice commands unless they match voice authentication, which is designated at setup and can be change in the settings. If voice authentication is not working, the user can authenticate their identity using one of the two fingerprint scanners (with ridged edges) on the device, which is also done at setup and in the settings. By saying the command “Find NavAssist” in proximity to the device, it will ping until the user scans their fingerprint. This is to help the visually impaired user find the device. The ridged fingerprint scanners and front plate allows users to easily feel for the small, pocket sized device. The simple and easy to use NavAssist, designed with the visually impaired in mind, allows users to turn on their vehicle, set a destination, and go, with simple voice commands. The last feature, included for the safety of users, is the Assist Button. This button, which can be felt by the rough pattern on the buttons surface, has three user prompts: 1. Emergency Contact, 2. NavAssist Voice Guided Tutorial, and 3. NavAssist Settings. The user can also use the voice command “Assist me” if the device is out of reach. The device features are further described in the diagram on the following page.

User Interaction Example

1. The user enters the vehicle with the NavAssist and turns on the vehicle using the “Turn On Vehicle” command. Users can also set the name of the vehicle, which can be useful if they have multiple vehicles.
2. To set a navigation destination, the user can command addresses such as “Navigate to 2400 Colorado Ave, Boulder, CO” or saved location such as “Navigate to My Parking Lot”. The NavAssist determines a course, and asks user to confirm address/location after repeating it back. Once confirmed, NavAssist asks user if they would like further course information or would like to start their travel.
3. The user commands, “Start Course” and the vehicle is safely guided to the destination by NavAssist. The NavAssist alerts the user of any course changes, delays, and other important notifications through a voice notification either through the cars speakers or NavAssist speakers (depending on setup).
4. During course, and at any other time while using NavAssist in a vehicle, the user is able to use voice commands to control features such as the Audio Input (Radio, USB, Bluetooth), Audio Controls (Next, Back, Volume), Temperature Controls (Temp Up or Down, Air Direction, Off/On, Seat Heater), Windows, Car Lock, etc.



User Interaction Examples

