

Patrick – Detailed view (v1)

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Patrick – ALS

Requirements:

1. Be able to voice control his Latitude Run lift chair
2. It would be nice to have an alternative to the Tobii for controlling the lift chair at a point when Patrick's voice is no longer strong enough to issue commands

Solution – High Level:

1. We developed a voice activated controller that enables Patrick to give voice commands of various durations to control the lift chair
2. We plan to try a relatively new app that only runs on Android phones called Look to Speak as a lightweight alternative to the Tobii device for giving Patrick control over his lift chair

Details of the Solution

1 – Voice Control his Latitude Lift chair – Patrick has ALS and would like to make small but frequent position adjustments to his lift chair to maintain comfort. He will issue these voice commands via a Tobii device and a custom page set was created for this solution

2 – Lightweight alternative to the Tobii for controlling the Lift chair – Our plan for giving Patrick continuous control over his lift chair even after his voice is too weak to issue voice commands is to leverage a relatively new app called Look to Speak. It only runs on Android phones and can be found in the Google Play store. The basic premise is to have a finite number of commands loaded into the Look to Speak app, and the app will present the list of commands in two columns. If the desired command is on the right column, the phone's camera would detect the eye gesture of Patrick looking to the right. At this point all commands on the left side would disappear, then the remaining apps would be split across the left and right columns. Through the appropriate eye gestures whether it be right or left looking, it will be a process of elimination until only the desired command remains, then the phone will then speak that command. This solution will require that we come up with a way to mount a goose neck phone holder to the backrest of the chair. It is better to have the phone move with the backrest so subsequent commands will always be possible. This is a challenge we face with using a Tobii on a rolling cart where the screen is fixed in space. If you use the tobii to issue commands to recline a lift chair or a bed, it is too easy to fall out of the calibrated eye tracking distance and because of that subsequent commands are not possible. The likely scenario would be to have the tobii device on a rolling cart by the lift chair or bed for general communication, but then to use the phone with Look to Speak to control the positioning of the lift chair itself. It would be advised to use a phone feature like Smart Lock to prevent the screen from locking during use. The Pixel phones have Smart lock where you can specify a GPS location or perhaps a Bluetooth connection to prevent

the screen from locking. I guess the logic here is while you are at home, phone security is less a concern so as long as the phone is at the home location determined by GPS, or if it is in range to a Bluetooth device, the phone should be in a safe place and auto screen locking can be disabled.

Here is a Visio diagram of the solution.

