

# Christopher L. Project – Detailed view (v1)

By Bill Weis

## Requirements:

1. Be able to control his Drive bed using eye gaze
2. Need the ability to contact caregiver using eye gaze
3. Need a backup mechanism to incline the bed when eye gaze is out-of-range

## Solution – High Level:

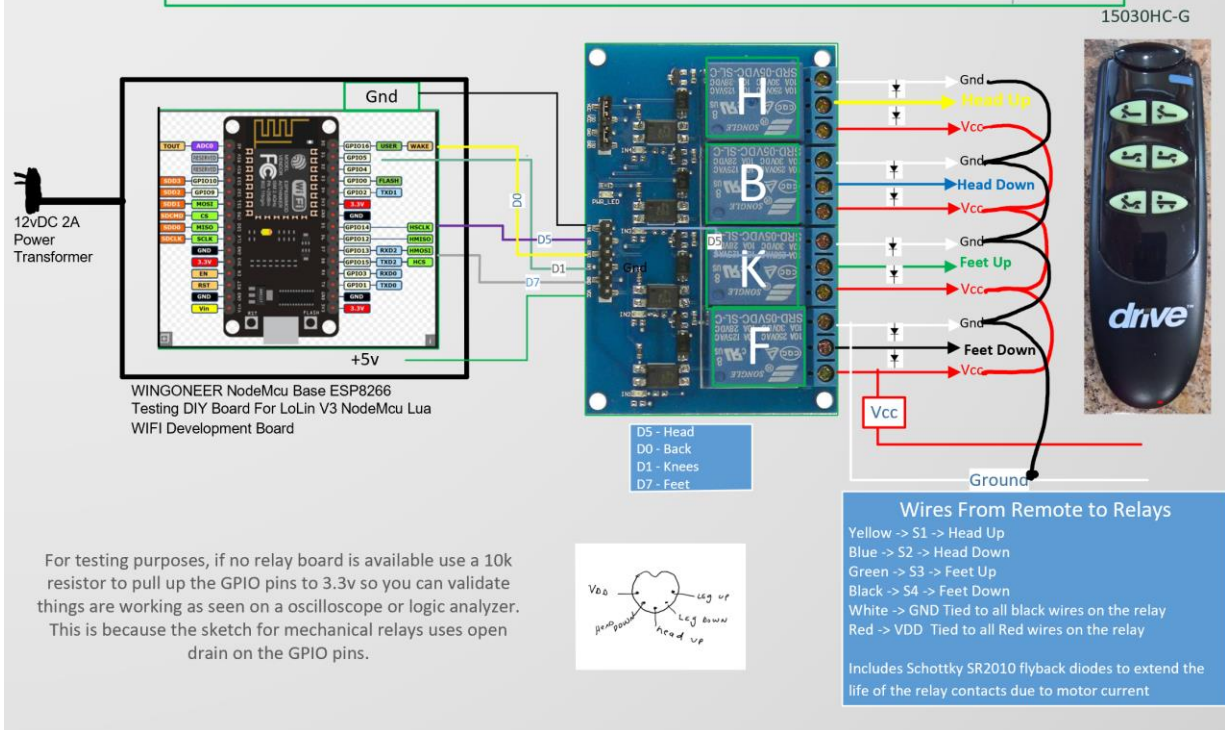
1. Designed a voice activated bed controller which gave Christopher the ability to control all desired functions of his adjustable bed using eye gaze control.
2. We developed a solution where Chris could contact a caregiver using eye gaze control.
3. We provided a Google Pixel 3A phone and a gooseneck mount to run the Look To Speak app and/or the EVA Facial Mouse app

## Details of the Solution

**1 – Voice Control his bed** – Christopher has a Drive Delta 1000 bed with a hard wired remote. He wanted the four functions of Head Up, Head Down, Foot Up and Foot Down to be voice activated. Unfortunately, due to the way the bed controls are wired, it is not possible to provide an alternative way of controlling the bed aside from having the caregiver unplug our bed controller and replacing it with the original hand held 15030HC-G pendant.

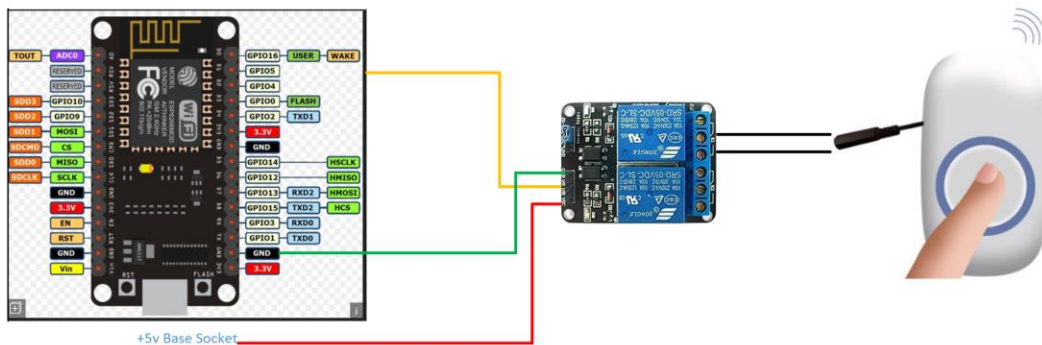
The functional engineering drawing on the next page shows the connections between the microcontroller and the relays, as well as the relays to the bed.

**Voice Controlled Bed Controller for Semi-Electric Drive bed (Chris L.)**  
**Bill Weis 6/2/2023**  
**S/N 21098.06**



**2 - Contact caregiver using head mouse and clicker** - Chris has a compromised voice from complications of ALS and needed a way to contact his caregiver when needed. We used a combination of a off-the-shelf solution from AdaptiveTechSolutions along with a custom box we built that contains a relay. The push button switch that comes with the Attendant Call solution has a 1/8" plug that can be used for external control of the push button. Our relay box is powered by an Amazon Smart Plug, and the normally open contacts of the relay are connected to the 1/8" plug. The relay is configured to energize (closing the NO contacts) upon power. The smart plug is controlled by Chris using the Alexa app on a tablet, a head mouse, and a clicker. Chris can turn on the smart plug using this approach which ultimately activates the Attendant Call noise devices. Their solution comes with a wall mount noise maker and a pager-like device that you can carry as you move around the house or nearby outside. These wireless receivers work with 433Mhz signals so the distance when outside is limited to the area close to the house.

Christopher L. - Voice/Tobii Activated  
CA-SP3 Call attendant  
6/2/2023



www.AdaptiveTechSolutions.com – Wireless Attendant Call Button part WDBA-FX-M-PLUG. (Remove Switch Adaptation = No You want the external 1/8" plug wired connection to connect to the relay. This solution could have also been done using an Amazon Smart Plug and a small relay box where the relay was configured to close n/o contacts on power up.

**3 – Use a Google Pixel 3a XL phone with the Look to Speak app and/or the EVA Facial Mouse app as alternate ways to control home automation devices –** We provided Chris with a Google Pixel phone and a gooseneck mount so he can evaluate the effectiveness of using the Look to Speak app as an alternative method of controlling some of the bed movement commands as well as the Call Attendant device. He has been using the EVA Facial Mouse app on his tablet, and he will also be evaluating the effectiveness of using that same app on the Google Pixel 3A phone.