

## ***Heather Butz - Quadriplegic***

### Requirements:

1. Be able to voice control her adjustable bed.
2. Be able to voice control the lights in her ceiling fan
3. Be able to voice control her TV (Direct TV Dish)

### Solution – High Level:

1. Designed a voice activated bed controller which gives Heather the ability to control the Head Up/Down and Foot Up/Down functions of her adjustable Southwest Specialty bed. We also provided a port on our bed controller so the wired remote could be connected and could continue to be used as a manual means of controlling the bed in parallel to the voice solution. She can control the bed using Google and Alexa.
2. We provided 4 Lix bulbs so Heather can turn her lights on and off by voice.
3. We provided an Amazon Fire TV Cube for controlling the TV

### **Details of the Solution**

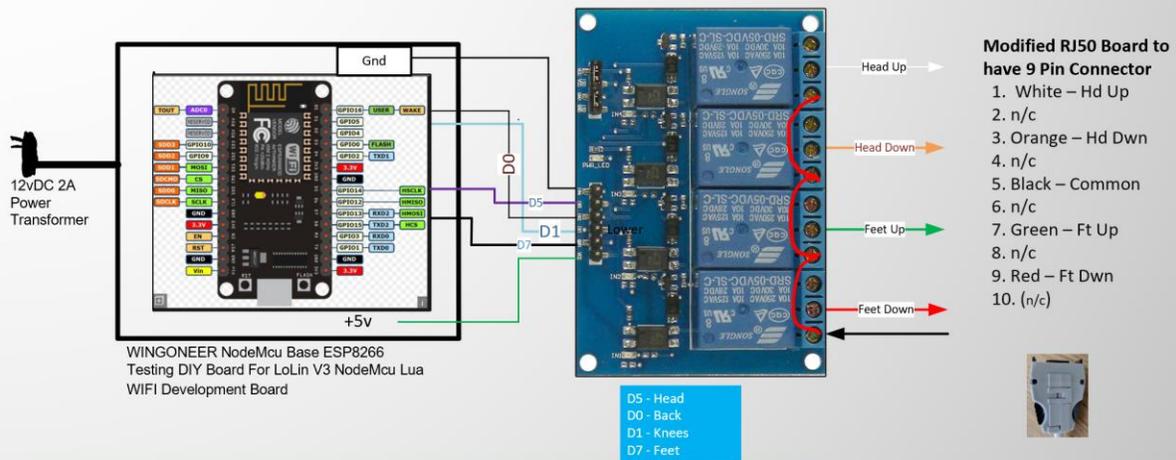
**1 – Voice Control his bed** – Heather has a semi-electric Southwest Specialty bed which is controlled by a 400LV-4LVWS5 pendant. This bed may be a rebranded Invacare bed and it is a 4-function bed which includes Head Up, Head Down, Foot Up, and Foot Down. To make sure the bed could still be controlled in times when there is a disruption of wifi or internet, we provided a 9 pin connector to our bed controller where the original remote can plug in. As a result, the bed can be controlled by either method, voice or hand pendant.

The voice commands can be issued through Alexa as well as through the Google Mini. The benefit of being able to voice control the bed via either smart speaker is redundancy as well as to be able to compare the performance of Alexa vs Google.

We provided Heather with the ability to move the head of the bed up/down for durations of 2,3,4,5,6 and 8 seconds. She also has commands to move the foot end of the bed up/down for 2,3,4 and 5 seconds. Routines were created on both Amazon and Google to make these voice commands customized for Heather's preference.

Here is a Visio diagram of the solution.

**Voice Controlled Bed Controller for Heather Butz, mechanical relays to drive the Southwest Specialty semi electric bed model 5890PMI.**  
**The pendant has a 9 pin connector**  
**Bill Weis 9/5/2020**  
**S/N 20068.02**

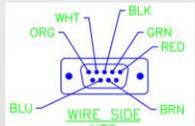


- Modified RJ50 Board to have 9 Pin Connector**
1. White – Hd Up
  2. n/c
  3. Orange – Hd Dwn
  4. n/c
  5. Black – Common
  6. n/c
  7. Green – Ft Up
  8. n/c
  9. Red – Ft Dwn
  10. (n/c)



400LV 4LVWS5

I was able to solder a 9 Pin connector assembly to an RJ50 Breakout board so the hand control can plug into the voice activated bed controller as a backup means of controlling the bed.



- Black – Red Lower Feet
- Black – Green Raise Feet
- Black – White Raise Head
- Black – Orange Lower Head



**2 – Be able to Voice Control the lights in her ceiling fan** ■ Heather has a ceiling fan with 4 light bulbs. We replace the standard light bulbs with LIFX A19 Mini Day and Dusk White Wi-Fi Smart LED Light Bulb, Dimmable so that they could be controlled by Alexa or Google.

**3 – Ba able to control her TV which uses Direct TV Dish** – We provided an Amazon Fire TV cube so Heather could control her TV (power on/off, volume up/down/mute, and tune to entertainment on her Direct TV dish.

## **Resources**

[Amazon Echo](#)

[Alexa Support](#) (Contact Support via the Amazon Alexa app - can have them call your number)

[Google Home getting started](#)

[Google Home Help Forum](#)

[Google Home Support](#) Phone number for Google Home hardware support = 855-971-9121 (24/7 days a week)

[Logitech Harmony Knowledge Base](#)

[Logitech Harmony Support](#) Phone # for Support = 866-601-5644 (M-F 8am to 6pm PST)

[Lifx](#)

[Wemo Support](#) Phone number for Support = 1-844-745-wemo (9366)