

***Bill Osad – Progressive MS***  
***Detailed view by Bill Weis***

**Requirements:**

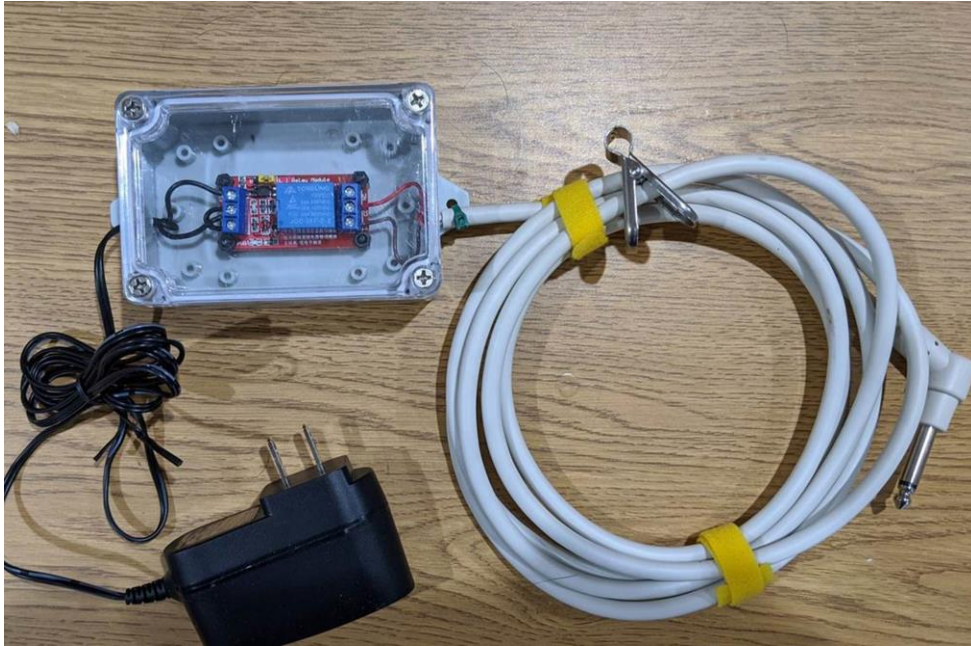
1. Be able to use voice to call his nurse.
2. Be able to voice control his adjustable bed

**Solution – High Level:**

1. Designed a solution that allows Bill to use voice commands to call his nurse by providing an Amazon Smart switch and a small relay box with the Nurse Call light cable attached.
2. Designed a voice activated bed controller which gives Bill the ability to control the Head Up/Down and Foot Up/Down functions of his adjustable Invacare bed. We also provided the means for all 6 functions including Head Up, Head Down, Feet Up, Feet Down, Bed Up and Bed Down to be manually controlled. He can control the bed using Google and Alexa.

**Details of the Solution**

**1 – Call Nurse Button via voice** – Bill has Progressive MS and is essentially a quadriplegic. At night, the nursing staff would place a chin switch so he could tip his head forward to activate the Call Nurse button. There have been times where the switch would move out of position leaving him with no way of contacting the nursing staff during the night when he needed assistance. We designed a solution using a small box that holds a relay and wired to the normally open contacts on that relay are the wires for Call Nurse. Power to the relay box is controlled by an Amazon Smart plug which he can turn on by voice. An Amazon routine was created which turns the relay on for 5 seconds then automatically turns it off. This simulates the way the call button works which closes the contacts as long as you hold the button.

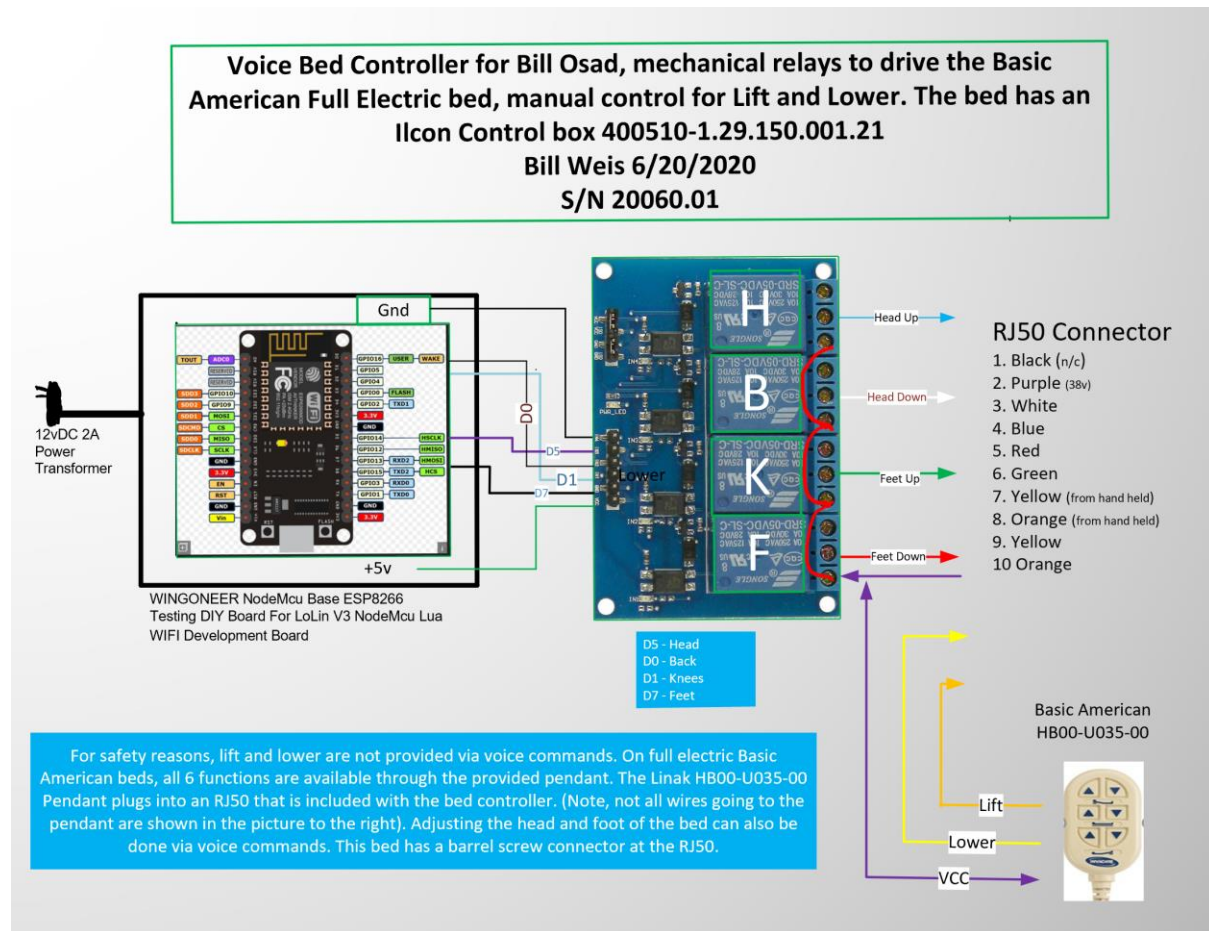


**2 - Voice Control his bed** – Bill has a full electric Basic American bed which is controlled by a pendant similar to the Invacare 1115290. (The pinout for the Basic American pendant is wired differently than the Invacare 1115290 however. This bed is a 6-function bed which includes Head Up, Head Down, Foot Up, Foot Down, Bed Up and Bed Down. For safety reasons, Bed Up and Bed Down require use of the provided 1115290 pendant which is functional through the use of the RJ45 connector that we added to our controller. Bed Up and Bed Down is a feature that is only used by a caregiver anyhow, and the caregiver can continue to perform Bed Up and Bed Down as they always have. All 6 functions are still controllable via the 1115290 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 Bill with the ability to move the head and foot of the bed up/down for different durations. Routines were created on both Amazon and Google to make these voice commands customized for Bill's preference.

Here is a Visio diagram of the solution.



## 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)