

***Marcellous E. – Spinal Injury  
Detailed View by Bill Weis***

Requirements:

1. Be able to voice control his semi-electric bed that has a 15030HC-G remote
2. Be able to voice control a box fan
3. Be able to voice control a lamp
4. Be able to voice control his TV
5. Be able to intercom between Marcellous room and mom's bedroom

Solution – High Level:

1. We designed a voice activated bed controller for his bed
2. We provided an Amazon Smart Plug so Marcellous could voice control his box fan
3. We provided an Amazon Smart Plug so Marcellous could voice control his lamp
4. We provided an Amazon Fire TV Cube so Marcellous could voice control his TV
5. We configured two Echo dots for the Drop In feature

**Details of the Solution**

**1 – Voice Control his bed** – Marcellous has a semi-electric Drive bed with a 15030HC-G hand remote. We provided Marcellous with the ability to raise/lower the head and foot ends of the bed using voice commands that run for specific durations. The solution is based on an ESP8266 Microcontroller and mechanical relays. Schottky diodes were added to protect the relay contacts and prolong the life of the relays. Marcellous can control his bed using both the Alexa and Google device smart speakers.

**2 – Use voice to control a box fan** – We configured an Amazon Smart plug so Marcellous could use voice commands to turn on and off his fan.

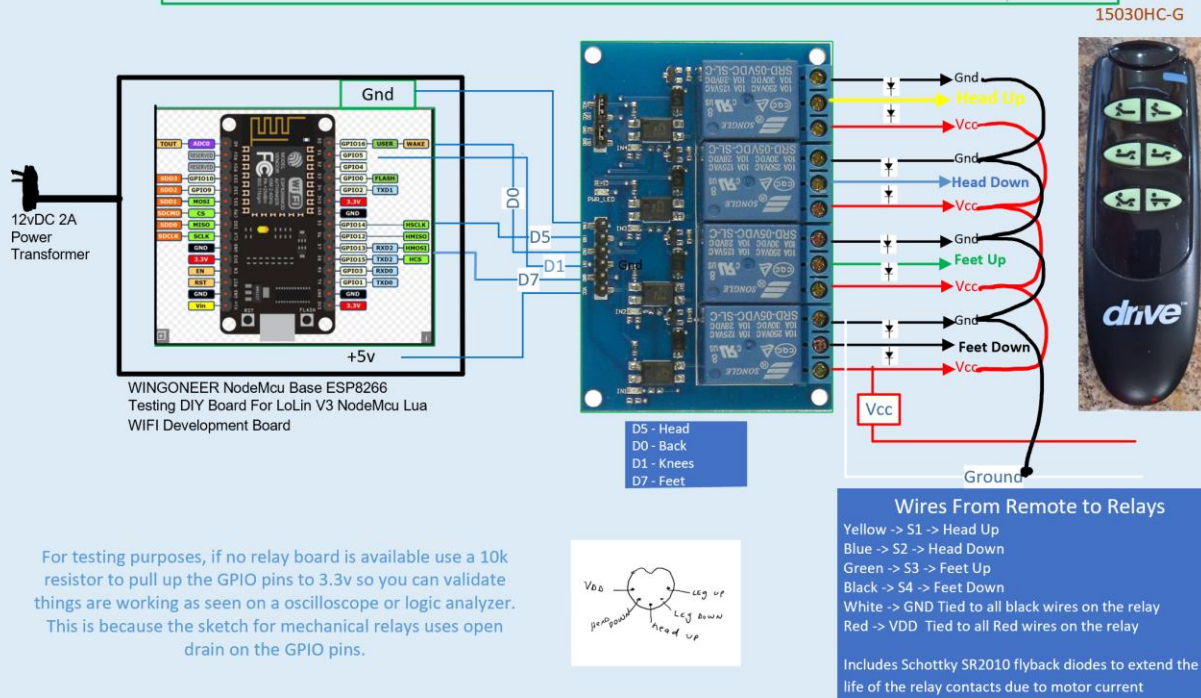
**3 – Use voice to control a lamp** - We configured an Amazon Smart plug so Marcellous could use voice commands to turn on and off his lamp.

**4 – Be able to control his TV with voice commands** - We installed and configured an Amazon Fire TV Cube which gives Marcellous the ability to control his TV

**5 – Be able to intercom between Marcellous' bedroom and his mom's bedroom** – We enabled the Drop-In feature so Marcellous could simply drop in on his mom's echo dot.

Here is a Visio diagram of the solution.

Voice Controlled Bed Controller based on ESP8266 E-12 NodeMCU  
for Drive Delta 1000 bed (Marcellous E.)  
Bill Weis 2-26-2022  
S/N 20078.11



For testing purposes, if no relay board is available use a 10k resistor to pull up the GPIO pins to 3.3v so you can validate things are working as seen on a oscilloscope or logic analyzer. This is because the sketch for mechanical relays uses open drain on the GPIO pins.

## 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)