

Joel F. Project – Detailed view (v1)

By Bill Weis

Requirements:

1. Be able to voice control his Sylvania TV
2. Be able to control his Drive bed using eye gaze

Solution – High Level:

1. We provided an Amazon Fire TV Cube to enable Joel to give voice commands to control his TV
2. Designed a voice activated bed controller which gave Joel the ability to control all desired functions of his Drive adjustable bed.

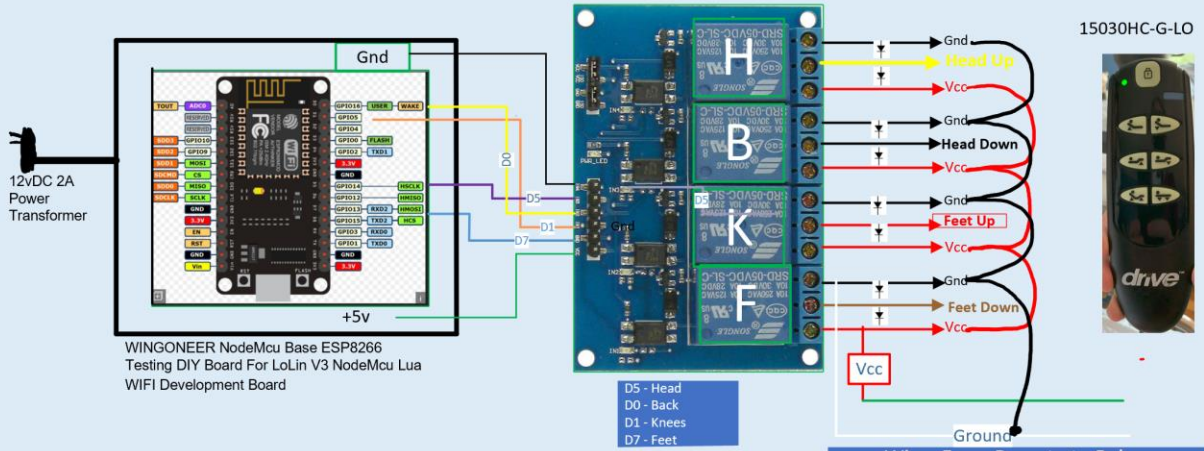
Details of the Solution

1 – Voice control Sylvania TV – We provided an Amazon Fire TV Cube so Joel could control all functions of his TV

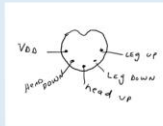
2 – Voice Control his bed – Joel has a semi-electric Drive style bed with a hard wired remote. He wanted the four functions of Head Up, Head Down, Foot Up and Foot Down to be controlled via voice commands. Unfortunately, due to the way the bed controls are wired, it is not possible to provide an alternative way of controlling the bed aside from having the caregiver unplug our bed controller and replacing it with the original handheld Drive 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 for Drive Delta 1000 bed (Joel F.)
 Bill Weis 7-11-2023
 S/N 23124.07



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 an oscilloscope or logic analyzer. This is because the sketch for mechanical relays uses open drain on the GPIO pins.



Wires From Remote to Relays

- Yellow -> S1 -> Head Up
- Black -> S2 -> Head Down
- Red -> S3 -> Feet Up
- Brown -> S4 -> Feet Down
- White -> GND Tied to all black wires on the relay
- Green -> VDD Tied to all Red wires on the relay

Includes Schottky SR2010 flyback diodes to extend the life of the relay contacts due to motor current
 Wire color based on a medline hand pendant
 1.11-095.30WL23J