

Anthony Castle Project #2 – Detailed view (v1)

By Bill Weis

Requirements:

1. Be able to voice control his Drive bed

Solution – High Level:

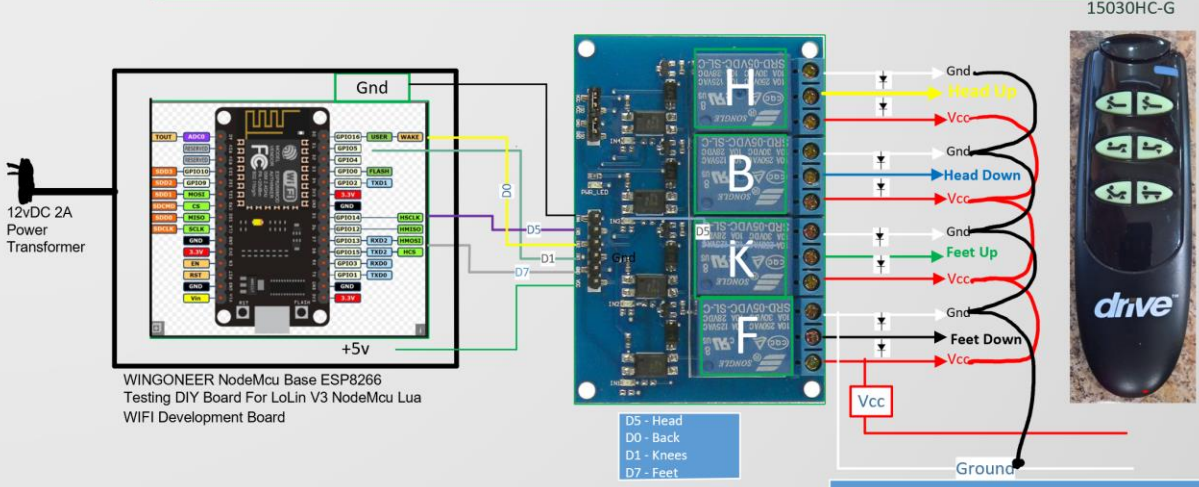
1. Designed a voice activated bed controller which gave Anthony the ability to control all desired functions of his adjustable bed.

Details of the Solution

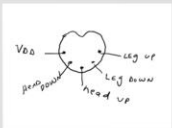
1 – Voice Control his bed – Anthony has a Drive Delta 1000 bed with a hard wired remote. He wanted the four functions of Head Up, Head Down, Foot Up and Foot Down to be voice activated. Unfortunately, due to the way the bed controls are wired, it is not possible to provide an alternative way of controlling 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 (Anthony Castle)
Bill Weis 5/26/2023
S/N 20076.10



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.



Wires From Remote to Relays
 Yellow -> S1 -> Head Up
 Blue -> S2 -> Head Down
 Green -> S3 -> Feet Up
 Black -> S4 -> Feet Down
 White -> GND Tied to all black wires on the relay
 Red -> 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