River H. – Spinal Injury
Detailed View by Bill Weis

Requirements:
1. Be able to voice control his semi-electric bed that has a 5 Pin DIN Medline remote

Solution – High Level:
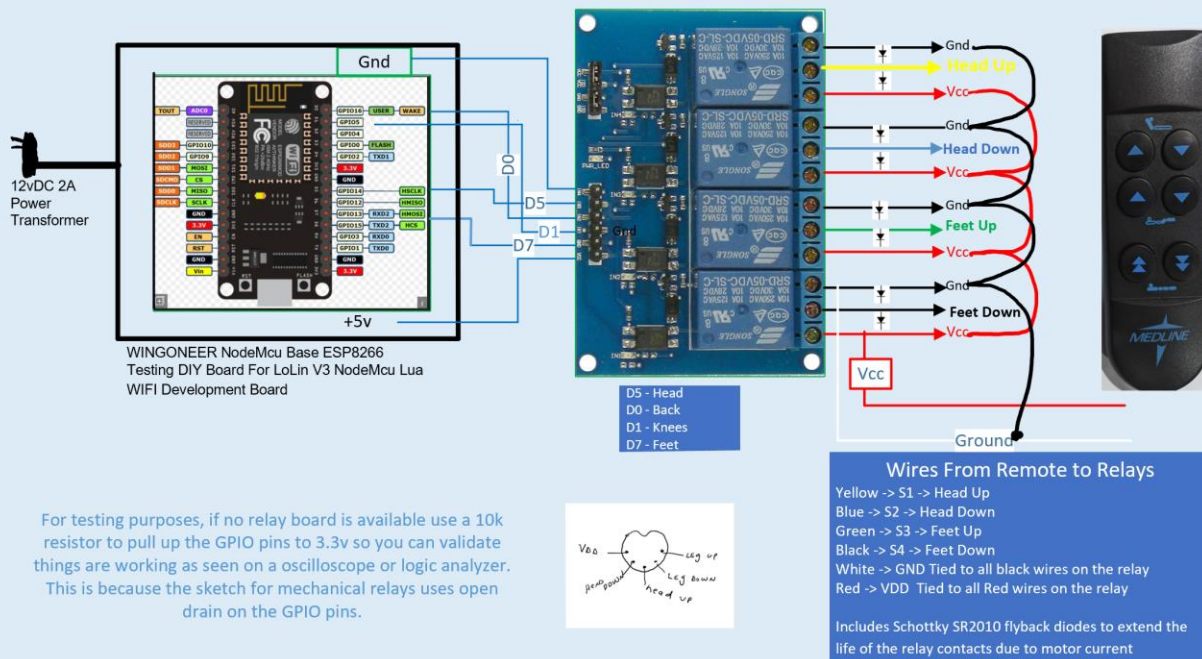1. We designed a voice activated bed controller for his bed

Details of the Solution

1 – Voice Control his bed – River has a semi-electric bed with a Medline hand remote. We provided River 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. River can control his bed using the Amazon Fire TV Cube.

Here is a Visio diagram of the solution.

Voice Controlled Bed Controller based on ESP8266 E-12 NodeMCU
for Drive Delta 1000 bed (River H.)
Bill Weis 2-25-2022
S/N 20083.12

12vDC 2A Power Transformer

Gnd

+5v

WINGONEER NodeMcu Base ESP8266
Testing DIY Board For LoLin V3 NodeMcu Lua
WIFI Development Board

D5
D0
D1
D7

D5 - Head
D0 - Back
D1 - Knees
D7 - Feet

Gnd — Head Up — Vcc
Gnd — Head Down — Vcc
Gnd — Feet Up — Vcc
Gnd — Feet Down — Vcc

Vcc

Ground

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
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

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)