John C Project – Detailed view (v1)

By Bill Weis

JohnC – Quadriplegic

Requirements:

1. Be able to voice control his bed (Patriot Graham full electric with pendant 690-2001-414)
2. Be able to voice activate his Open Sesame door
3. Be able to voice activate his two Multi Code doors

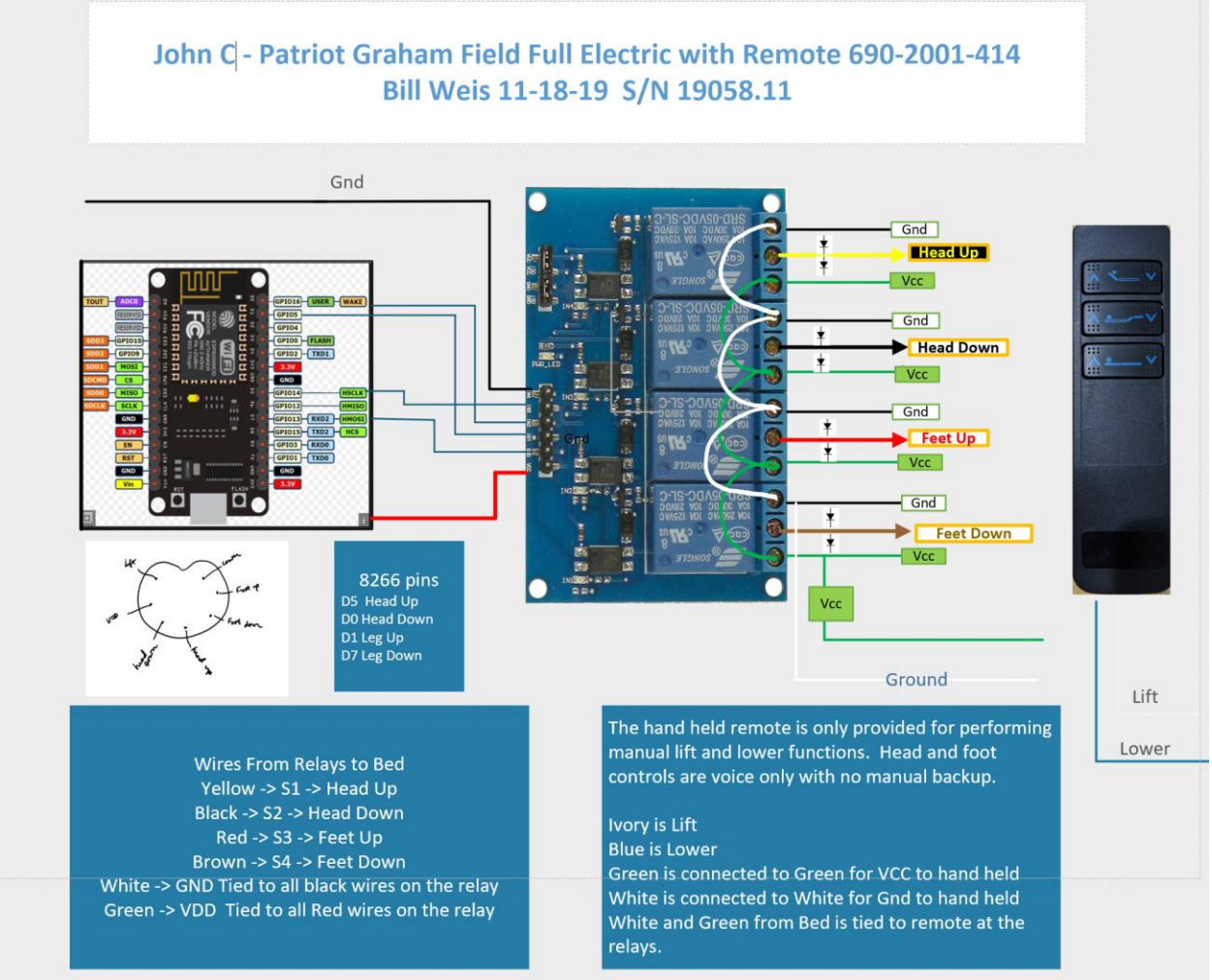
Solution – High Level:

1. We designed a voice activated bed controller that would allow John to use voice to control the head and foot of his bed, while providing a pendant for lift and lower by his caregiver.
2. We designed a voice activated door opener for his Open Sesame door.
3. We designed a voice activated door opener for his two Multi Code doors

Details of the Solution

1 – Voice Control his bed – John has a full electric Patriot Graham bed that uses pendant 690-2001-414. The pendant has a 7 pin DIN connector. Our bed controller plugs in place of the standard pendant, and through voice commands John can raise/lower the head and foot end of the bed. Given this is a full electric bed with lift and lower, we wire into the box a 690-2001-414 pendant that only provides the lift and lower function for the caregiver's use. For safety reasons we do not provide voice commands for lift and lower of the bed since these require >15 seconds of motion. The design of this bed does not allow for the pendant being wired in parallel with the relays in a way that would allow all 6 functions to be performed by voice and by pendant manual control, however a friend of John's is working on a switch box that would make it easier to switch out the bed controller in favor of a pendant should the internet suffer an outage.

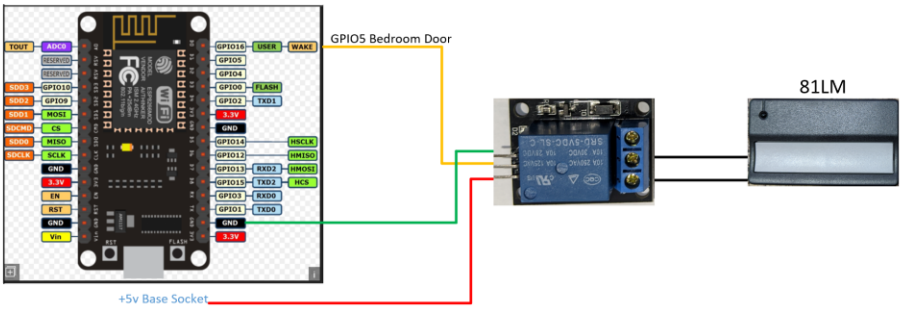
The next page contains the basic schematic of the bed controller design.



2. **Voice activate his Open Sesame Door system –** John has a door opener at his bedroom with an Open Sesame door system. It has an 81LM remote which we controlled with a single relay that is controlled by a ESP8266 microcontroller. The single relay requires “Pinmode” in the sketch Setup routine since this relay is trigger by a high-level signal.

   The basic schematic for this door opener is on the next page

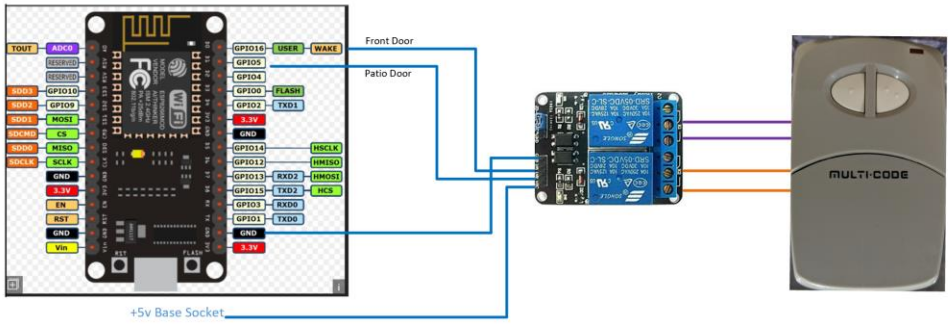
JohnC - Voice Activated *Open Sesame* door opener
11/26/2019
S/N 19056.11



The Open Sesame door activation solution uses GPIO5 Pin D1 to energize the relay which then opens the Door by closing the same contacts within the hand held remote as you would by depressing the button on the remote. This single relay board requires a high trigger, so pinmode required in setup.

3. Door Opener for Multi-Code two button control - John has two other doors which are controlled by a Multi-Code two button remote.

JohnC Voice Activated MultiCode
S/N 19055.11
1-22-2020



This is a two button Multi-Code remote that controls two different doors. GPIO 16 and GPIO 5 are used to energize the relays which then opens the appropriate door by closing the same contacts within the hand held remote as you would by depressing the button on the remote.

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)