Howard F. Project – Detailed view (v2)

By Bill Weis

Howard F. – ALS

Requirements:

1. Be able to voice control his bed (Hill Rom Pendant P3207C-01))
2. Activate the nurse call button via voice commands

Solution – High Level:

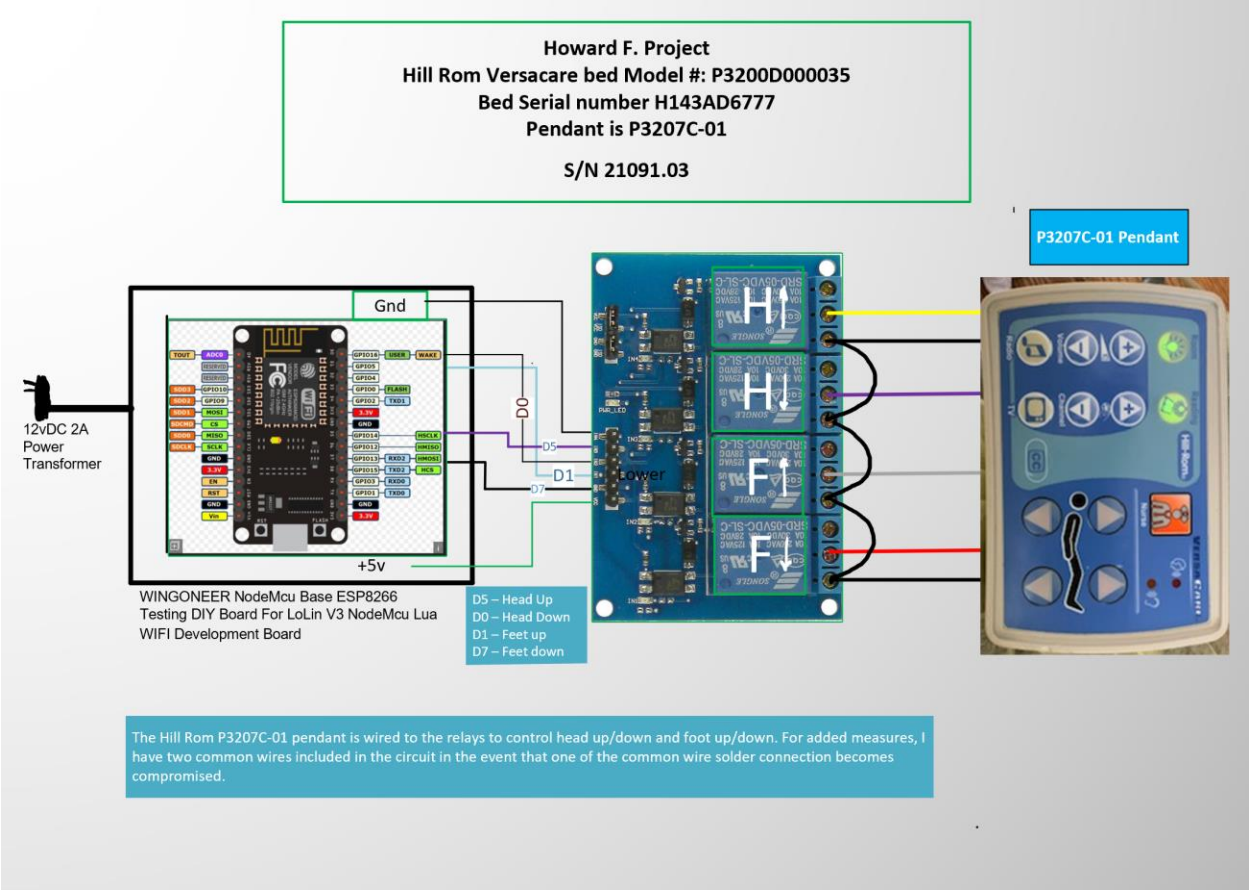
1. We designed a voice activated bed controller that would allow Howard to use voice to control the head and foot of his bed.
2. We designed a solution where Howard could activate the nurse call button feature with a voice command

Details of the Solution

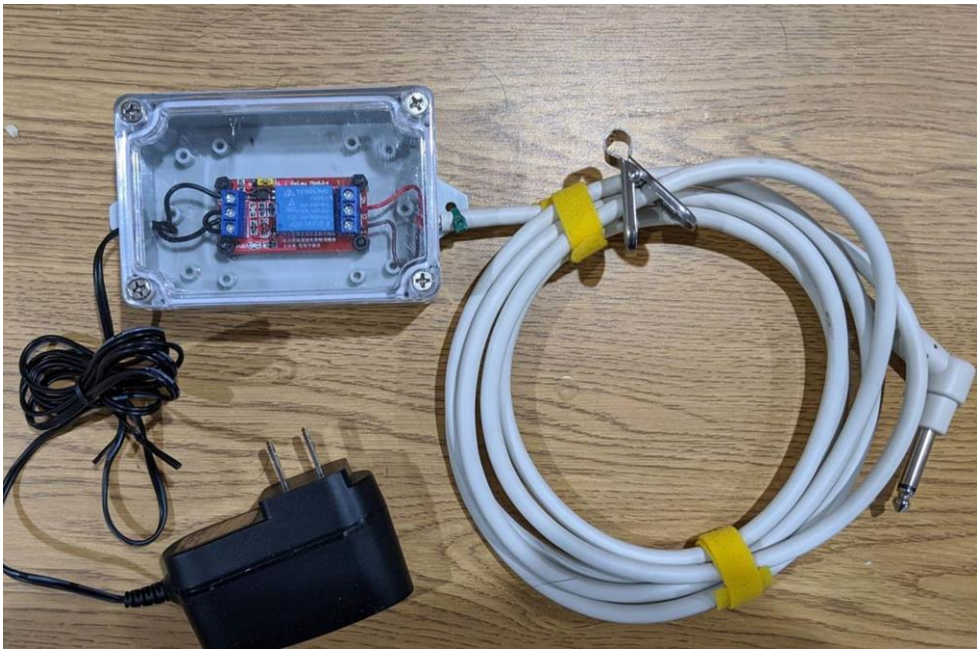
1 – Voice Control his bed – Howard has a Hill Rom Bed Product using pendant P3207C-01. This is a modern bed that allows for multiple controls including those built into the side/foot panel. The controller in this Hill Rom bed determines which switch is activated by sending pulses throughout all the panels and pendants. The easiest design was to use the circuit board from within the P3207C-01 pendant, and wiring that circuit board to our relays.

Howard will be able to raise/lower the head and foot of the bed using a handful of timed commands that run for specific durations for each motion of the bed. He can give voice commands to Alexa to control his bed.

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



2 – Voice Activate the Nurse Call button – Howard was having difficulty using his hands to depress the nurse call button and he asked for a voice solution. We put together a solution that requires a Smart switch and a custom relay box. We chose to use the Amazon smart switch so Howard could use voice commands to turn the smart switch on and off. Our custom relay box plugs into that smart switch and the normally open contacts are connected to the nurse call button wall outlet. When power is applied to the relay box, the relay is set to close the “normally open contacts”. We created an Alexa routine for the voice command which turns on the smart switch for 5 seconds and then it turns the smart switch off. This essentially simulates a person pushing the nurse call button for a few seconds and releasing the button. The picture on the next page shows the relay box and the cord going to the wall outlet for the nurse call function.



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)