Vance Schiller Project – Detailed view (v1)

By Bill Weis

Vance Schiller – Quadriplegic

Requirements:

1. Be able to voice control his bed (Hill Rom Progressa Product #7500 – Pendant P7507A01)
2. Be able to voice activate his Stanley Door Opener

Solution – High Level:

1. We designed a voice activated bed controller that would allow Vance to use voice to control the head and foot of his bed as well as a custom designed remote that hangs on the side rail of the bed using a Invacare 1115288 pendant.
2. We designed a voice activated door opener for his Stanley door system.

Details of the Solution

1 – Voice Control his bed – Vance has a Hill Rom Progressa Bed Product #7500 using pendant P7507A01. 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 P7507A01 pendant, and wiring that circuit board to our relays.

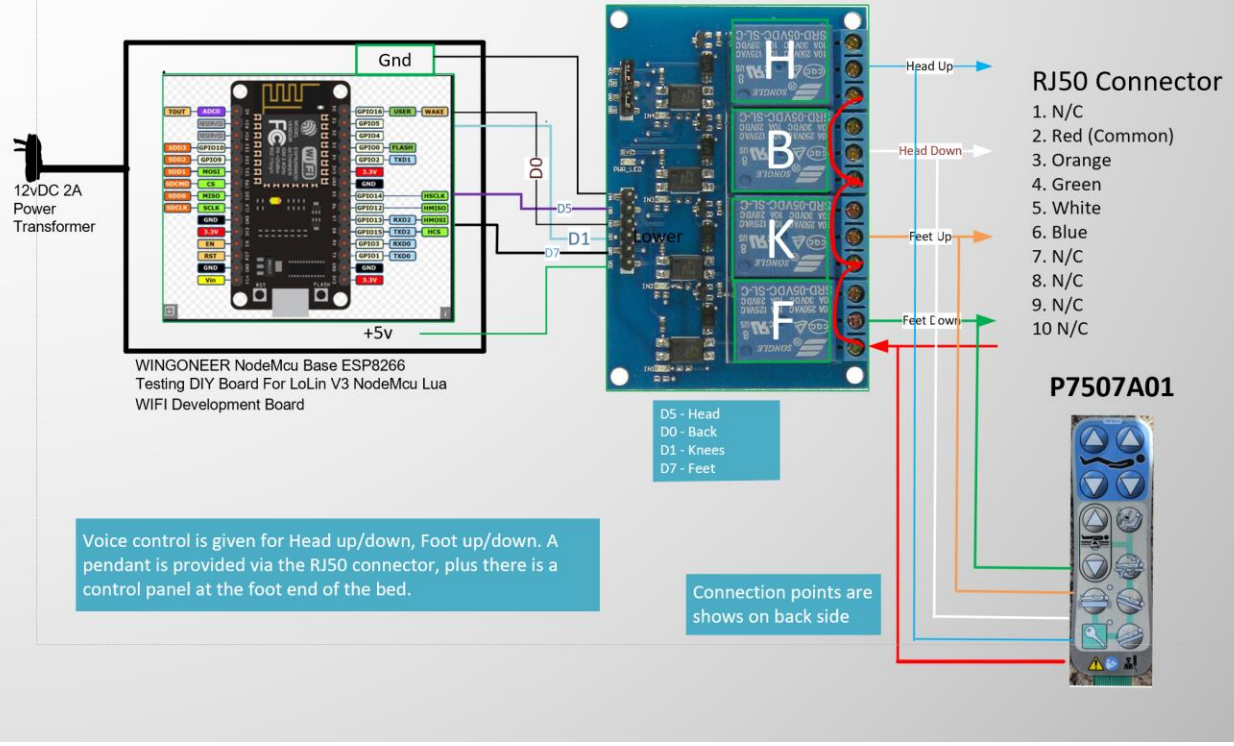
Although the diagram on the next page shows the P7507A01 pendant front panel included in the design, technically the circuit board inside that pendant is all we used. The page following the basic schematic diagram shows a few images. The top image (Figure 1) is the circuit board that the front panel of the P7507A01 (Hill Rom Pendant) plugs into via the ribbon cable. In the final design, the front panel is not part of the solution. The images below the circuit board (Figure 2 and 3) show the pinout of the ribbon connector. We simply soldered wires to the common, head up, head down, foot up and foot down connection points and ran those wires to contacts in a quad relay board. Furthermore, we added wires to the relay board so we could also provide a manual pendant with a custom hanger (Figure 5) which allows Vance to control the head up/down and foot up/down functions manually. To accomplish this, we provided a port on top of our bed controller to accept an Invacare 1115288 pendant.

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

Voice Controlled Bed Controller for Vance Schiller, mech relays to drive the Hill Rom bed remote P7507A01

Bill Weis 4-21-2020

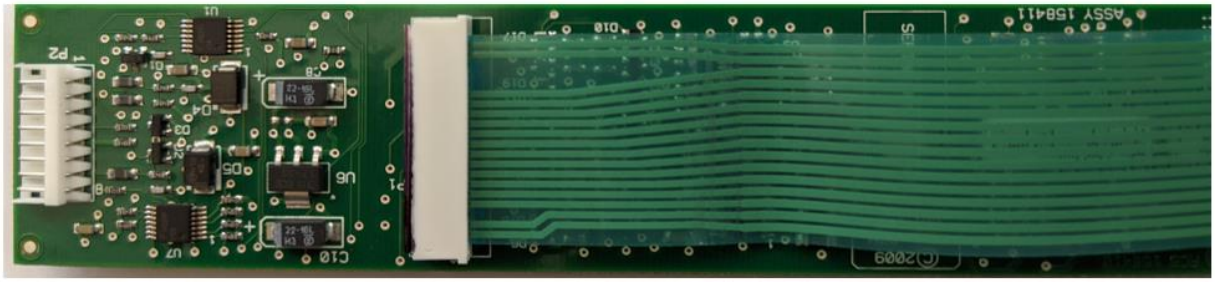
S/N 20067.02

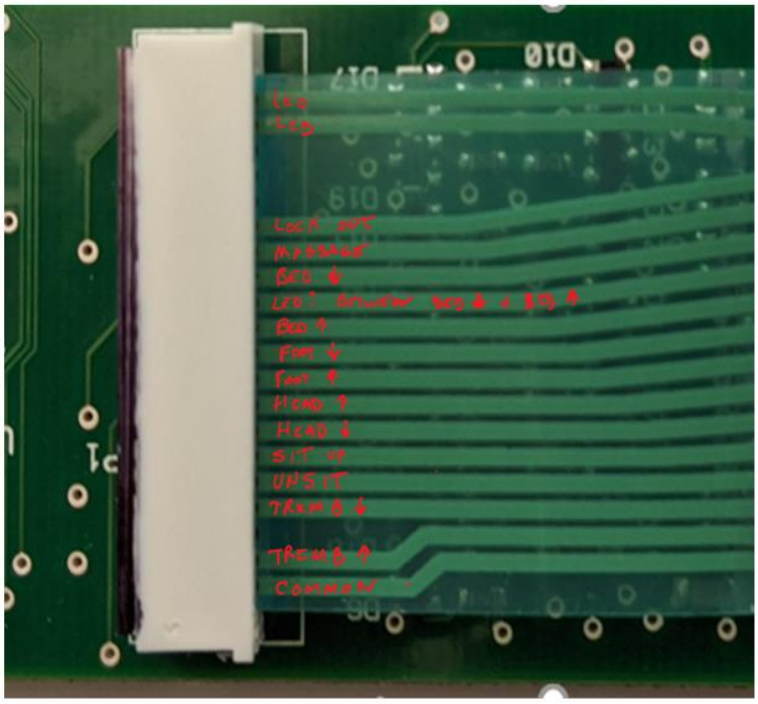


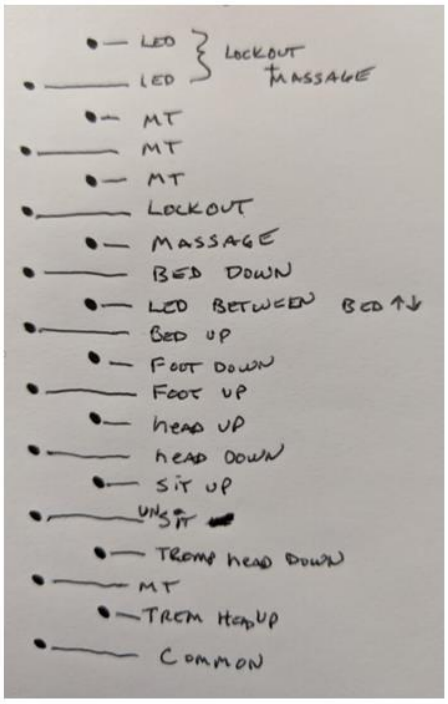
Voice control is given for Head up/down, Foot up/down. A pendant is provided via the RJ50 connector, plus there is a control panel at the foot end of the bed.

Connection points are shows on back side

Figure 1, 2, 3, 4 – The top image is the circuit card from the Hill Rom Pendant P7507A01. The image below that and to the left is a close up of the connector with the ribbon cable from the front panel showing the functions. The notes to the right of that shows the pins on the back side of the ribbon connector. This is where we soldered our wires that we ran to the quad relay board.







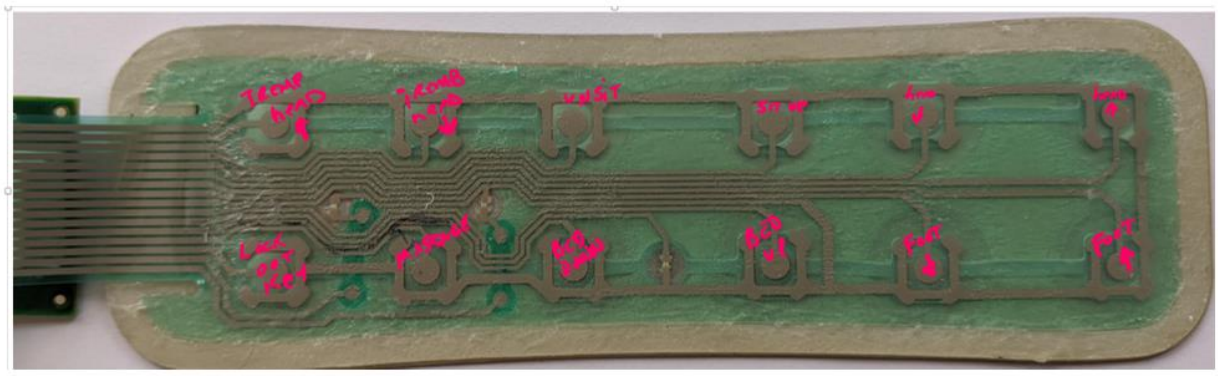
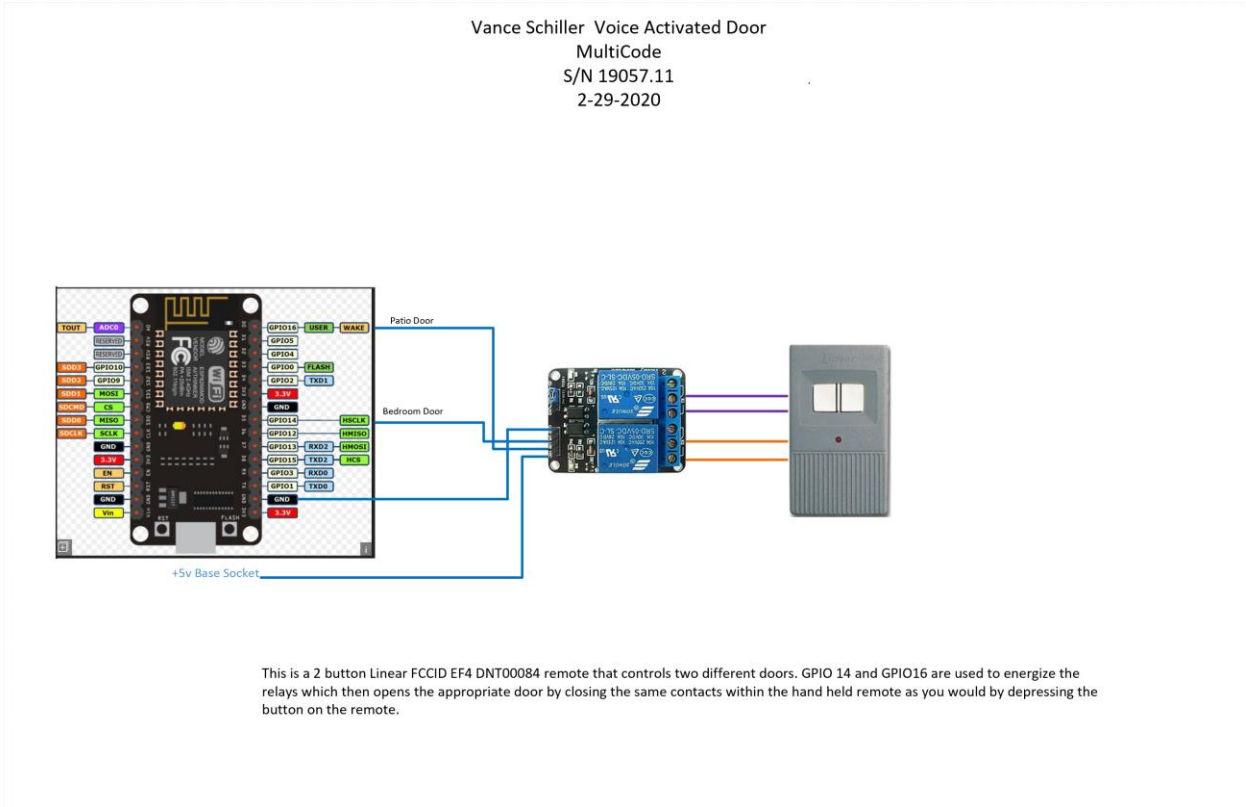


Figure 5 - Custom manual pendant using the Hill Rom hook to hang the assembly on the side rail.

2 - Voice activate his Stanley Door system – Vance has a door opener for an internal bedroom door with a Stanley Door system. It uses a two button Linear FCCID EF4 DNT00084.

Here is the basic diagram for the door opener controller solution



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)