

Charles – Spinal Injury
Detailed view by Bill Weis

Requirements:

1. Be able to voice control his bed (Invacare bed with 1115290 pendant).

Solution – High Level:

1. Designed a microcontroller-based Voice Activated solution that provided the desired functions of Head Up, Head Down, Feet Up, Feet Down.

Details of the Solution

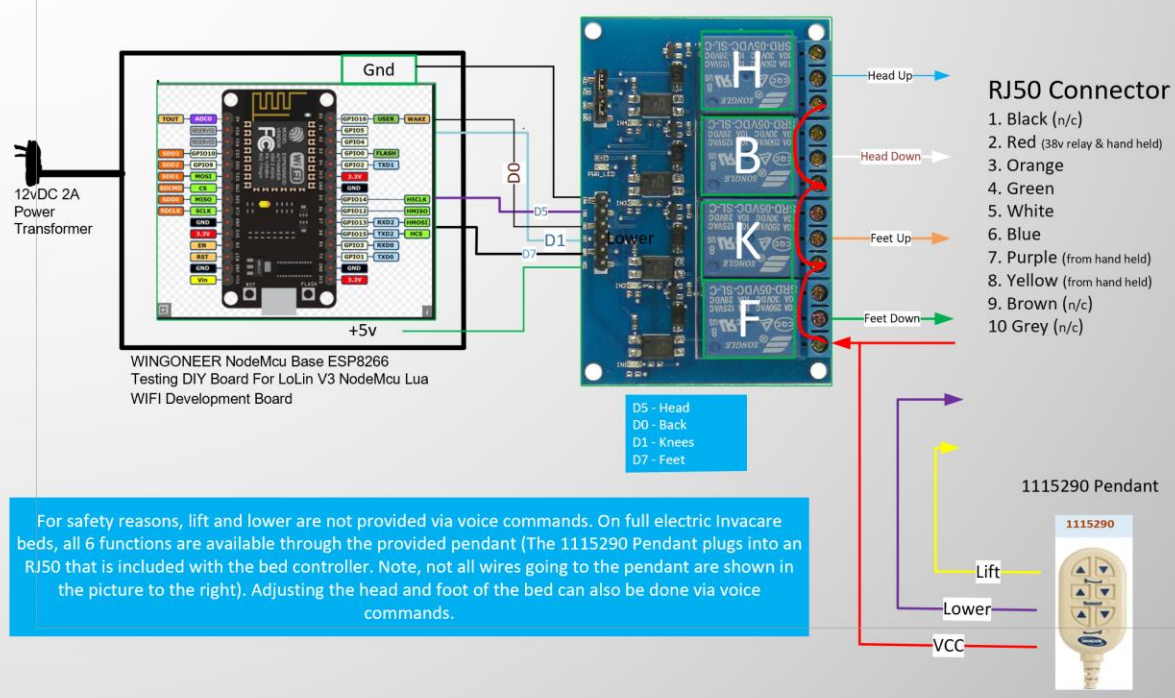
1 – Voice Control his bed – Charles has a full electric Invacare bed which is controlled by a 1115290 pendant. This bed is a 6-function bed which includes Head Up, Head Down, Foot Up, Foot Down, Bed Up and Bed Down. For safety reasons, Bed Up and Bed Down require use of the 1115290 pendant which is functional through the use of the RJ50 connector that we added to our controller. Bed Up and Bed Down is a feature that is only used by a caregiver anyhow, and the caregiver can continue to perform Bed Up and Bed Down as they always have. All 6 functions are still controllable via the 1115290 pendant.

The voice commands can be issued through the Alexa device.

We provided Charles with the ability to move the head of the bed up/down for durations of 1-5 seconds and feet up/down for 2-5 seconds. Routines were created to simplify the commands to the bed controller.

Here is a Visio diagram of the solution.

**Voice Controlled Bed Controller for Charles, mechanical relays to drive the
Invacare Full Electric bed, manual control for Lift and Lower
Bill Weis 2/23/2022
S/N 18019.07**



For safety reasons, lift and lower are not provided via voice commands. On full electric Invacare beds, all 6 functions are available through the provided pendant (The 1115290 Pendant plugs into an RJ50 that is included with the bed controller. Note, not all wires going to the pendant are shown in the picture to the right). Adjusting the head and foot of the bed can also be done via voice commands.

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)