

Kathy R. Project – Detailed view

By Bill Weis

Kathy R. - ALS

Requirements:

1. Provide an attendant call solution.
2. Be able to control her full-electric Drive model 15005LP bed using the Tobii Communicator 5 app.

Solution – High Level:

1. We designed an attendant call solution which can be activated via the Tobii custom page
2. We designed a microcontroller-based solution that provided the desired functions of Head Up, Head Down, Feet Up, Feet down and a custom page set for the Tobii.

Details of the Solution

1 – Provide an Attendant Call solution – Kathy needed the ability to contact her caregiver for assistance periodically and since her voice has been compromised as a result of ALS, we needed to implement a solution that she could trigger through her Tobii. The solution is pretty simple. It uses a small relay box that plugs into an Amazon Smart Plug. When the relay box has power applied to it, the NO and Common contacts are closed. This simulates the button on the Call Attendant device being depressed. When power is removed from the relay box, the contacts are open simulating the button on the Call Attendant device NOT being depressed. By creating an Alexa Routine with 3 actions, we are able to simulate a 5 second button press.

Here is a schematic of the solution

Call Attendant Smart Plug Version

S/N CA-SP1



Wires From Power Supply

Red -> +12v to "+DC" terminal
 Black -> Ground wire to "-DC" terminal
 Jumper wire connects "-DC" terminal to "in" terminal

Power supply plugs into Smart Switch

Amazon Smart Switch controlled by custom routine
 Routine turn on Smart switch for 5 sec, then turns off

1/8" mono jack

This cord runs from the relay contacts and plugs into the Call Attendant Device.

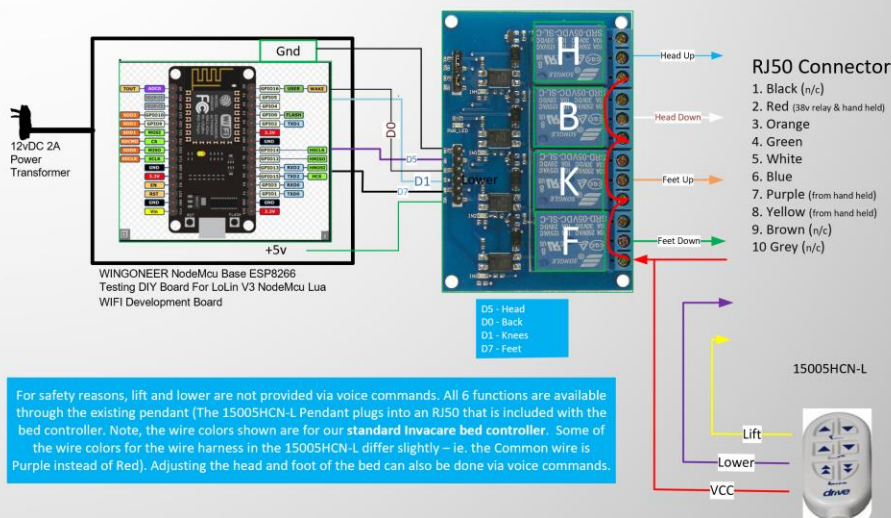
Parts Needed

12v Power Supply - Sansun (Amazon) \$5.18
 12v Relay board - (Amazon) \$1.50
 Bolvek 2 Pack 6ft 3.5mm 1/8" Male TS Mono Plug to 90 Degree Right Angle 3.5mm Male Mono Jack Audio Cable
 Uxcell Waterproof Dustproof ABS Plastic Junction Box (158mmx90mmx60mm) \$6.79

2 - Be able to control her full electric Drive model 15005LP bed using a Tobii - Kathy wanted to be able to control movement of her adjustable bed using the Tobii eye gaze device. We created an ESP8266 NodeMcu based controller that connects to her bed via the standard RJ50 connector. We provided a port on our controller to allow for a hand controller to be connected at the same time our voice activated control box is connected. We also created a custom pageset that contains buttons for the various bed movement commands as well as the Call Attendant solution.

Here is a schematic of the solution

Voice Controlled Bed Controller for Kathy R, mechanical relays to control the Drive - Full Electric bed with Linak CB6198-00 control box and 15005HCN-L hand pendant. Manual control for Lift and Lower
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Here is a screen shot of the Custom Page for Kathy to control the bed and call attendant

