

Francis Q. Project – Detailed view

By Bill Weis

Francis Q. – Spinal Complications

Requirements:

1. Be able to voice control his Span American Advantage bed
2. Be able to voice control his TV
3. Be able to use accessibility features on a phone

Solution – High Level:

1. We designed a voice activated bed controller for his bed
2. We provided an Amazon Fire TV Cube
3. We provided a Google Pixel 3 phone

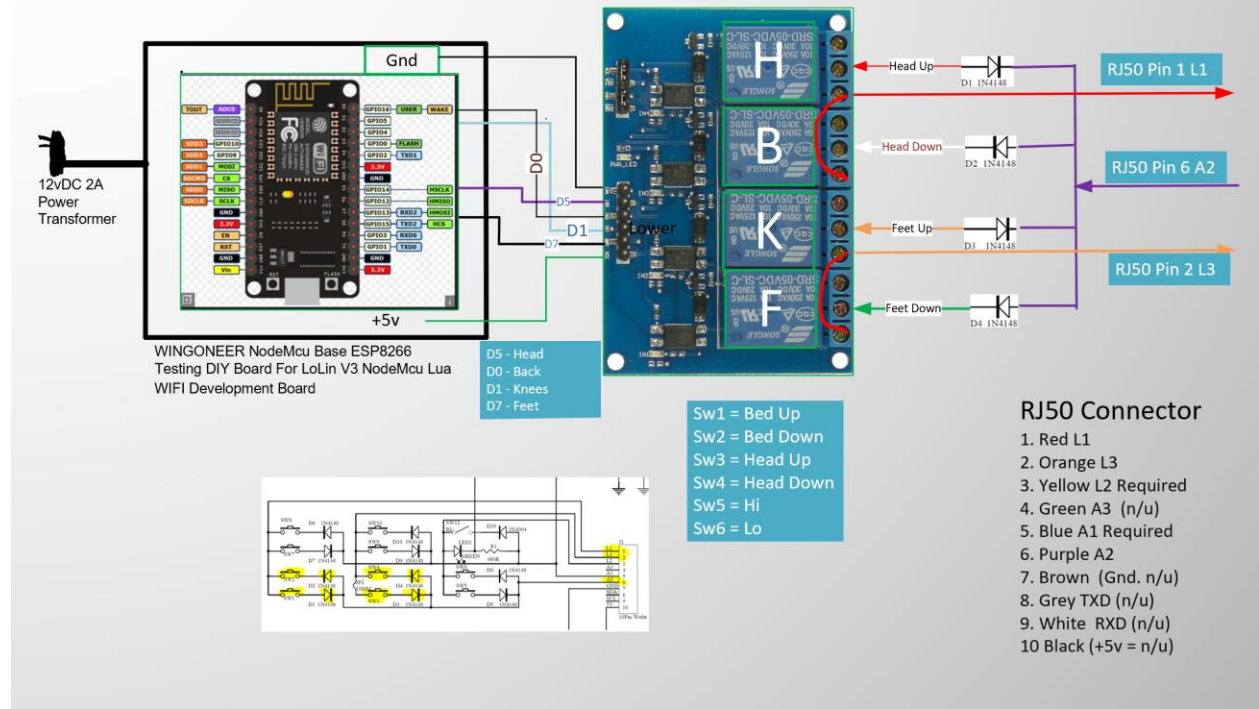
1. Be able to issue voice commands to his Span American Advantage bed with a TiMOTION controller.

Francis frequently has to wake his mom during the night to come into his room to make adjustments to his bed so he can maintain some level of comfort. This impacts both of their ability to get a good night's sleep. Providing Francis with the ability to control the bed himself gives him independence in addition to a better night sleep for both him and his mom.

Francis' Span American Advantage bed has a TiMOTION TV1-T5MA-4 control box that supports a wired controller that is mounted to the side panel as well as a set of controls at the footboard. The two controls are connected to a Y-cable which then connects to the TiMOTION TV1-T5MA-4 control box. The approach TiMOTION uses to determine when a switch is depressed is to continuously send a series of pulses throughout the network of bed control switches, so it is a bit more complex than simple contact closure.

Here is a schematic of the bed controller design

Voice Controlled Bed Controller for Francis Q, mechanical relays
 Span American "Advantage" bed. TV1-T5MA-4 TiMOTION Controller
 Item MC-QD1000MLFB
 Bill Weis 5-1-2023
 S/N 21066.02



2. **Be able to voice control his TV** – Francis was having difficulty working the TV remote so we provided him with an Amazon Fire TV Cube.
3. **Be able to use accessibility features on a phone** – Francis was having difficulty with texting on his flip phone. We thought we would see if a Google Pixel 3 phone with the accessibility features would help so we sent a Google Pixel 3 phone.