

Controller assembly instructions

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8/17/15

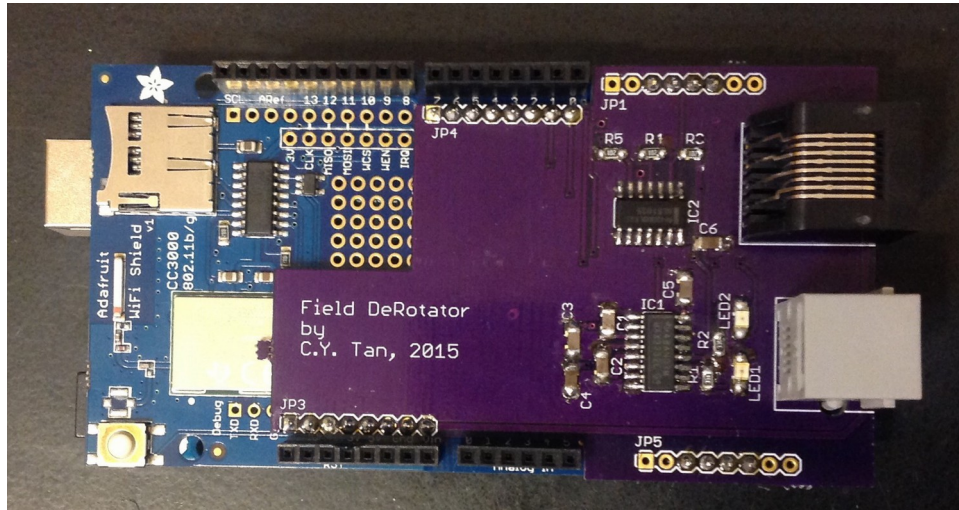
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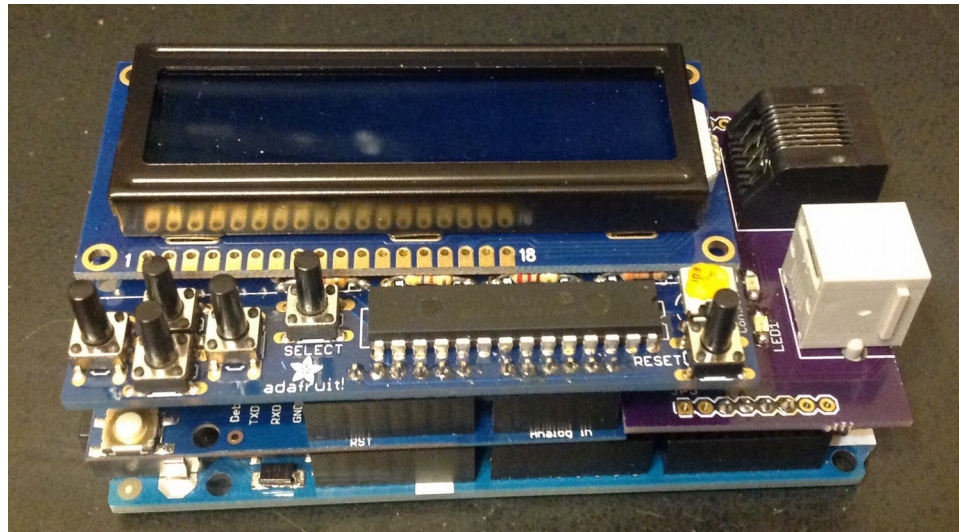
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Controller board

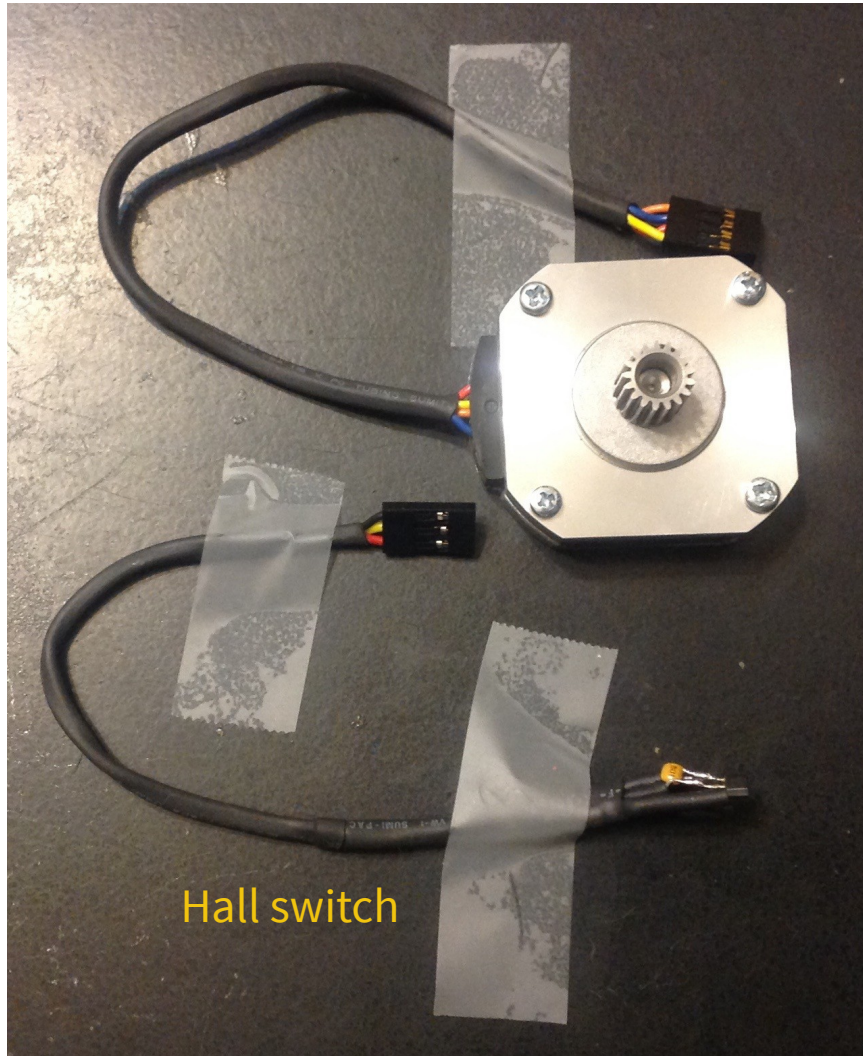


The controller board is soldered onto the WiFi shield and inserted into the MEGA2560 board.



Then the LCD shield is inserted above the WiFi shield

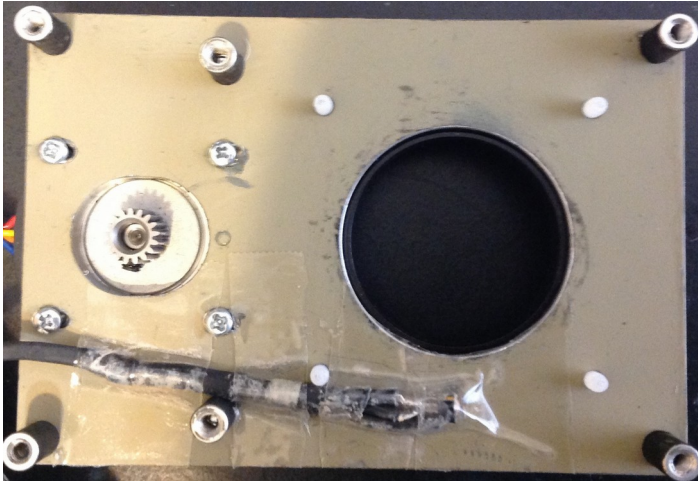
Hall switch



The Hall switch is soldered to wires and socketed.

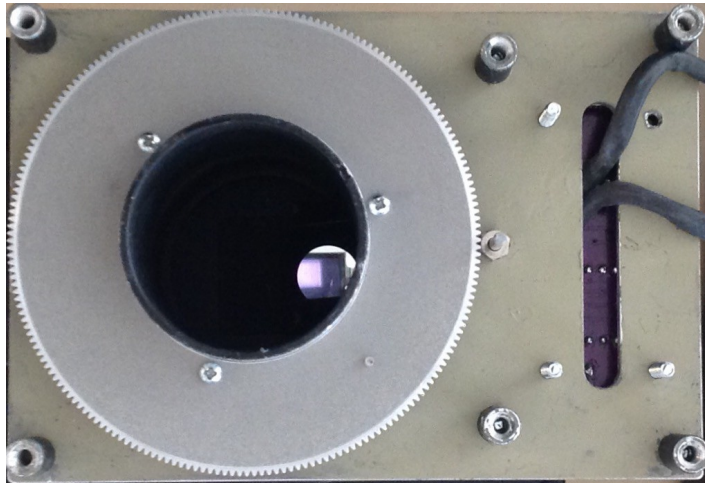
A decoupling capacitor 0.1 μ F is soldered directly to pins 1 and 2 of the Hall switch.

Hall switch taped to the cover

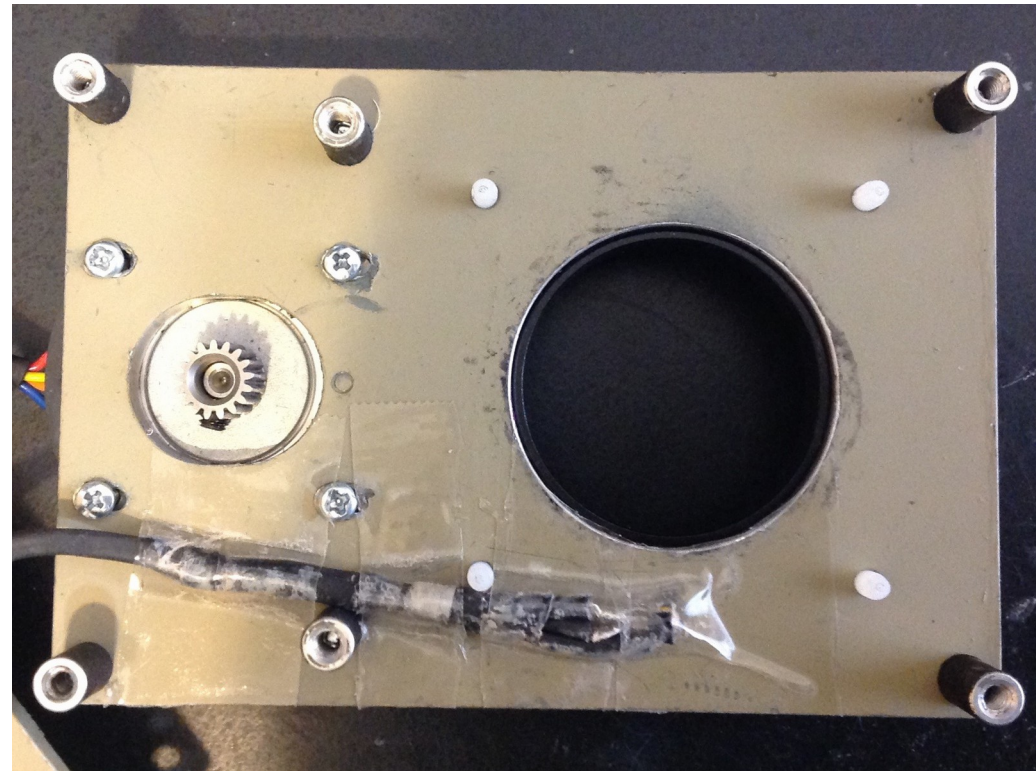


Gorilla tape is used to tape the Hall switch on the cover. Since it is transparent, you can see the orientation of the Hall switch and its location.

The cable from the Hall switch is slipped through the other cover's slot.

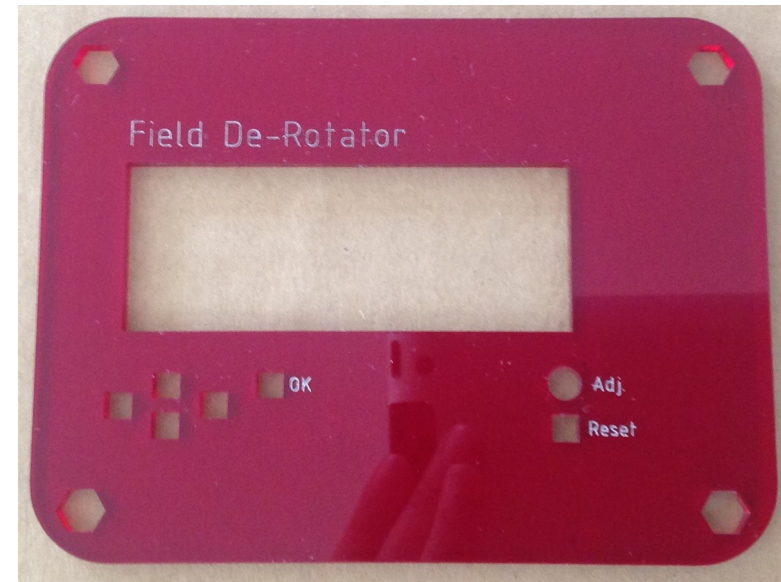


Taping the Hall switch to the shell



Only gorilla clear tape is strong enough to hold the Hall switch and cables in the correct orientation. The picture shows the residue of the other tapes like duct tape. The clear tape helps to place the Hall switch at the correct location that I have marked on the shell.

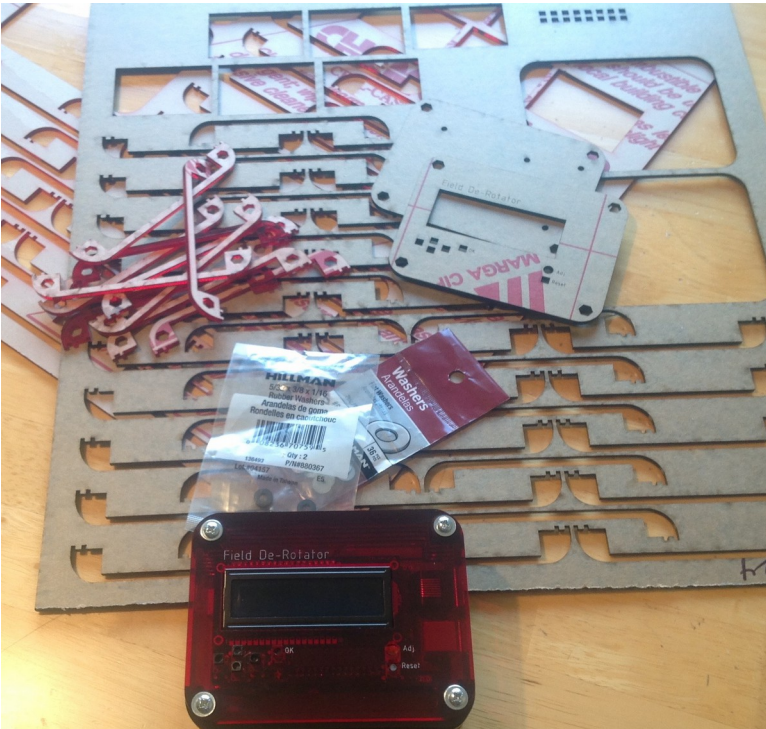
Assembling the slice case



The front cover of the sliced case has letterings that has to brought out by filling in the grooves with silver leaf rubbing compound. Some of silver leaf is smeared onto the letterings and then wiped off. A little bit of acetone helps with the wipe off.

Making the push button switches

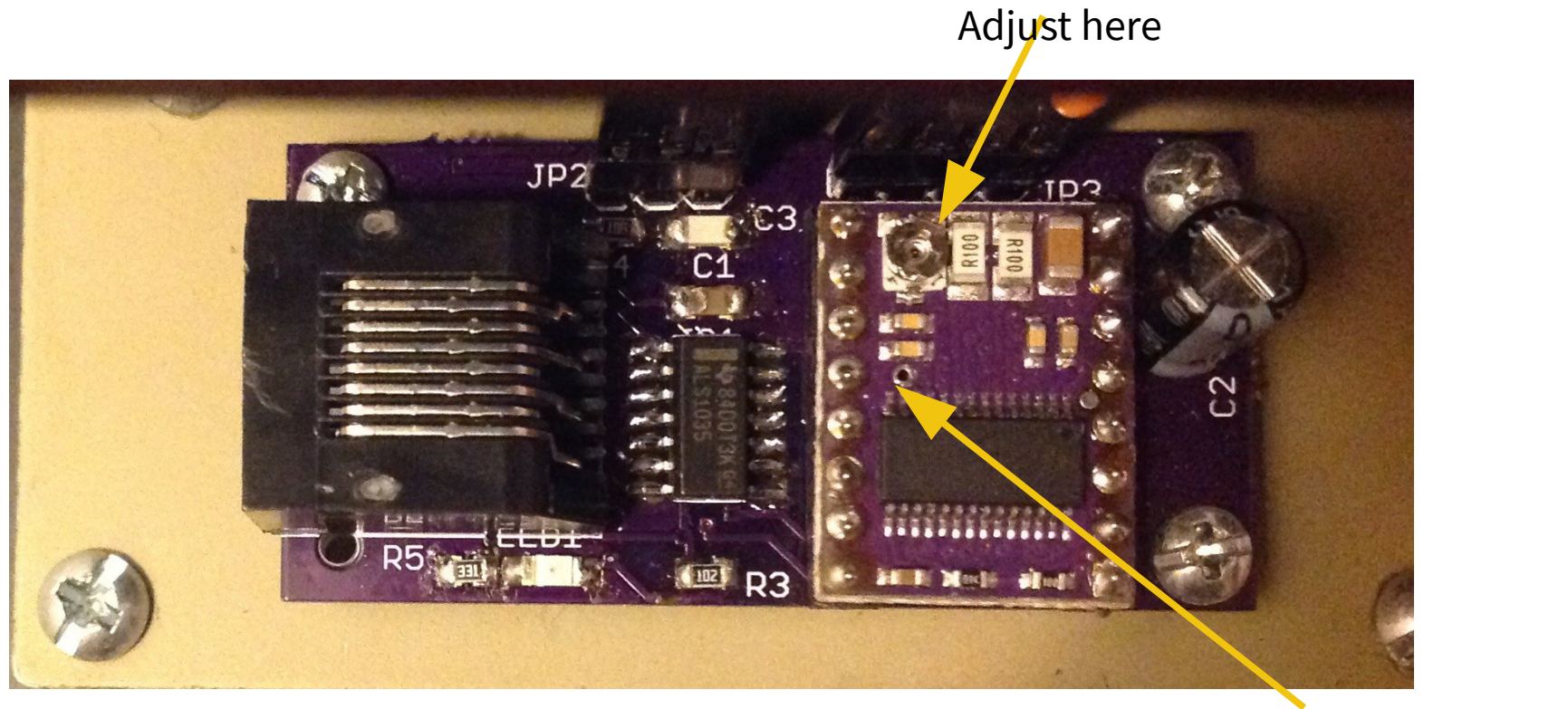
Building the case



The slice case is assembled with alternating flat and thin slices. The side panels of the case are chosen from 1 of 3 options, each having a different height. The slices are held together with 4 hex standoffs. The small excess height of the top cover is made flush to the LCD using 4 rubber washers inserted between the last slice and the top cover.



Making the driver



The voltage on the stepper motor driver must be adjusted with the pot. The Pancake Sanyo motor doesn't like 1A max setting. It gets hot and whines a lot. So it has been set to 600 mA max. This corresponds to 0.3 V at the test point. See also

<https://www.pololu.com/product/2133>

Measure voltage here.

Done!

The controller is assembled and it is programmed using a USB cable connect to a computer, and the Arduino JAVA GUI. The controller can now be connected to the derotator. See

- **Installing the Field DeRotator**
- **Field DeRotator Controller User's Guide**