Motorcycle Low Profile LifePo4 Battery With BMS and Voltmeter

by epsilontom

A low-profile motorcycle battery to fit under the seat. Uses LifePo4 batteries as these are inherently safer than the normal LiPo batteries. A 10-way rotary switch enables you to monitor the voltage of each cell, plus the total voltage and an off position.

Supplies:

8 x PALO 3.2V 32700 7200mAh LiFePO4 Battery 35A Continuous.

2 x DALY Lifepo4 4S 12 (separate port)

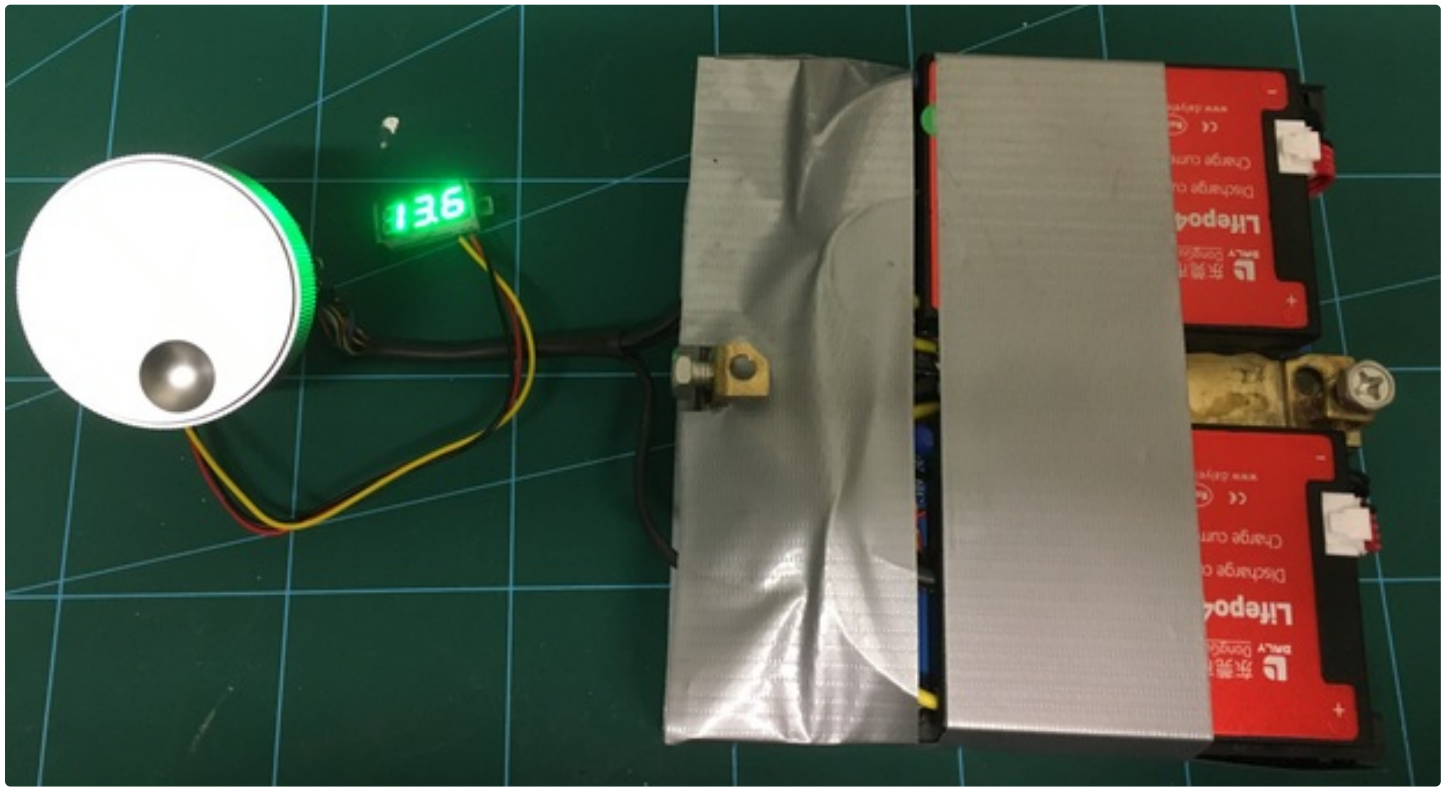
1 x LED voltmeter

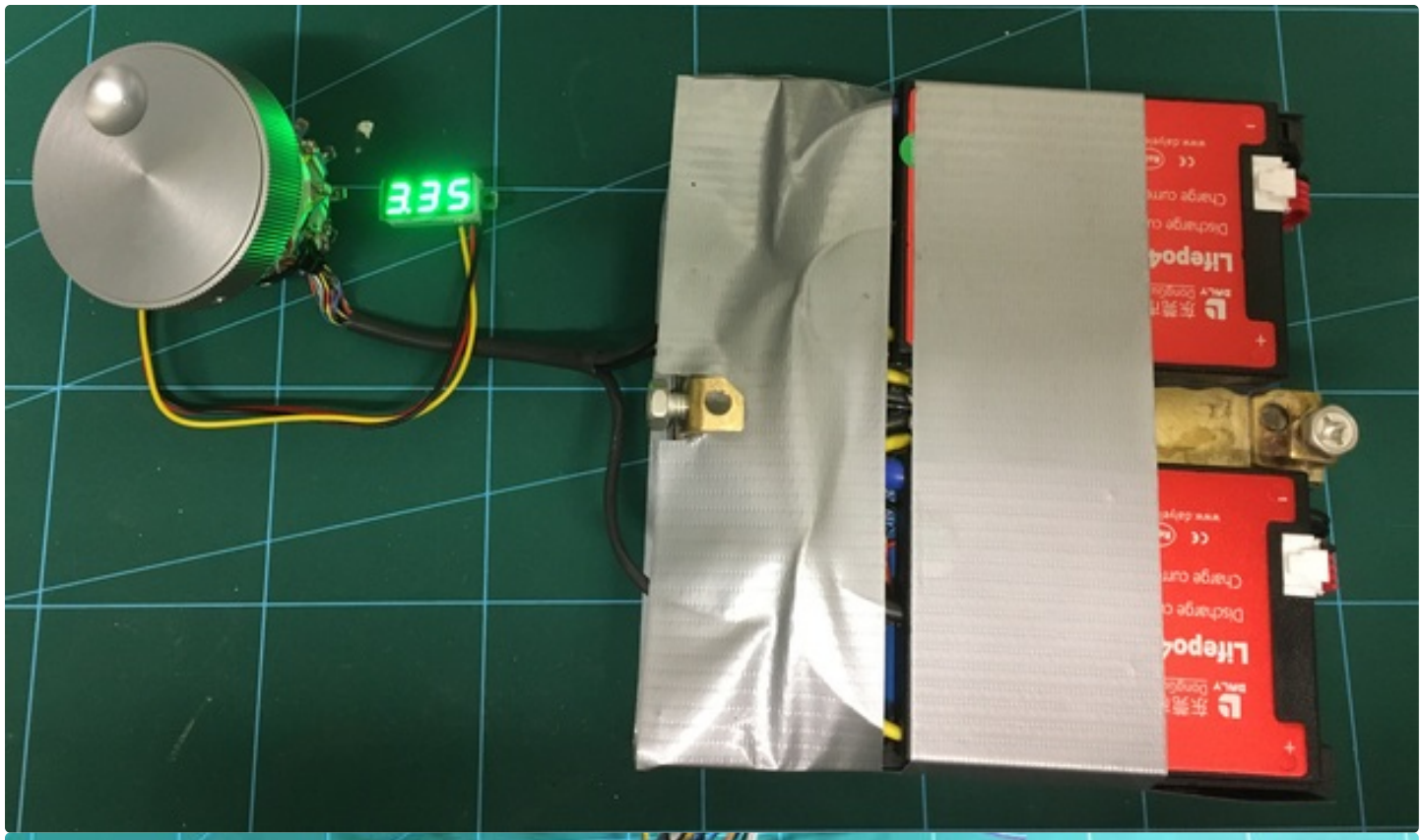
1 x 10 way 2 pole rotary switch

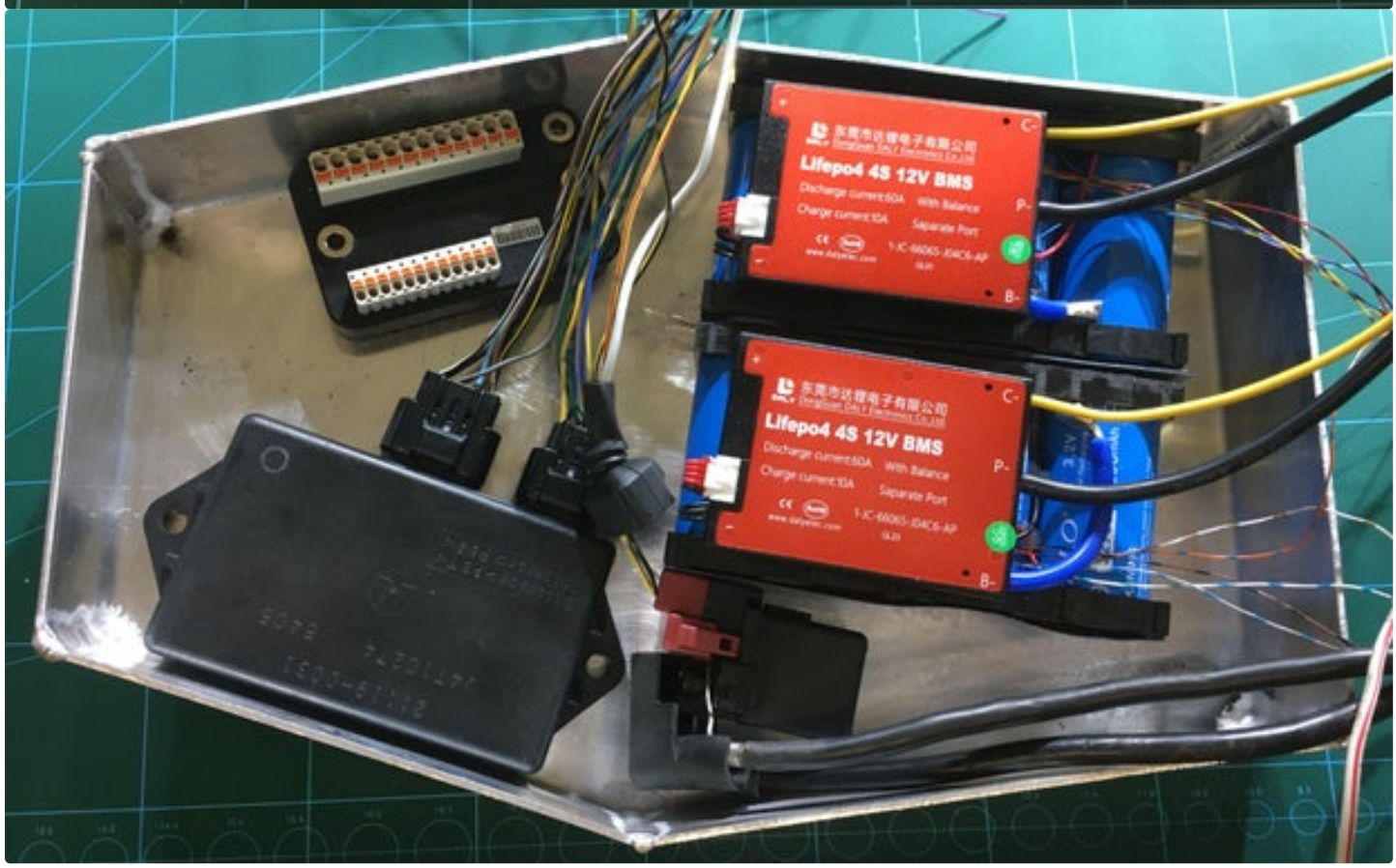
Battery holders.

Brass strip and terminal connectors.

Insulation card

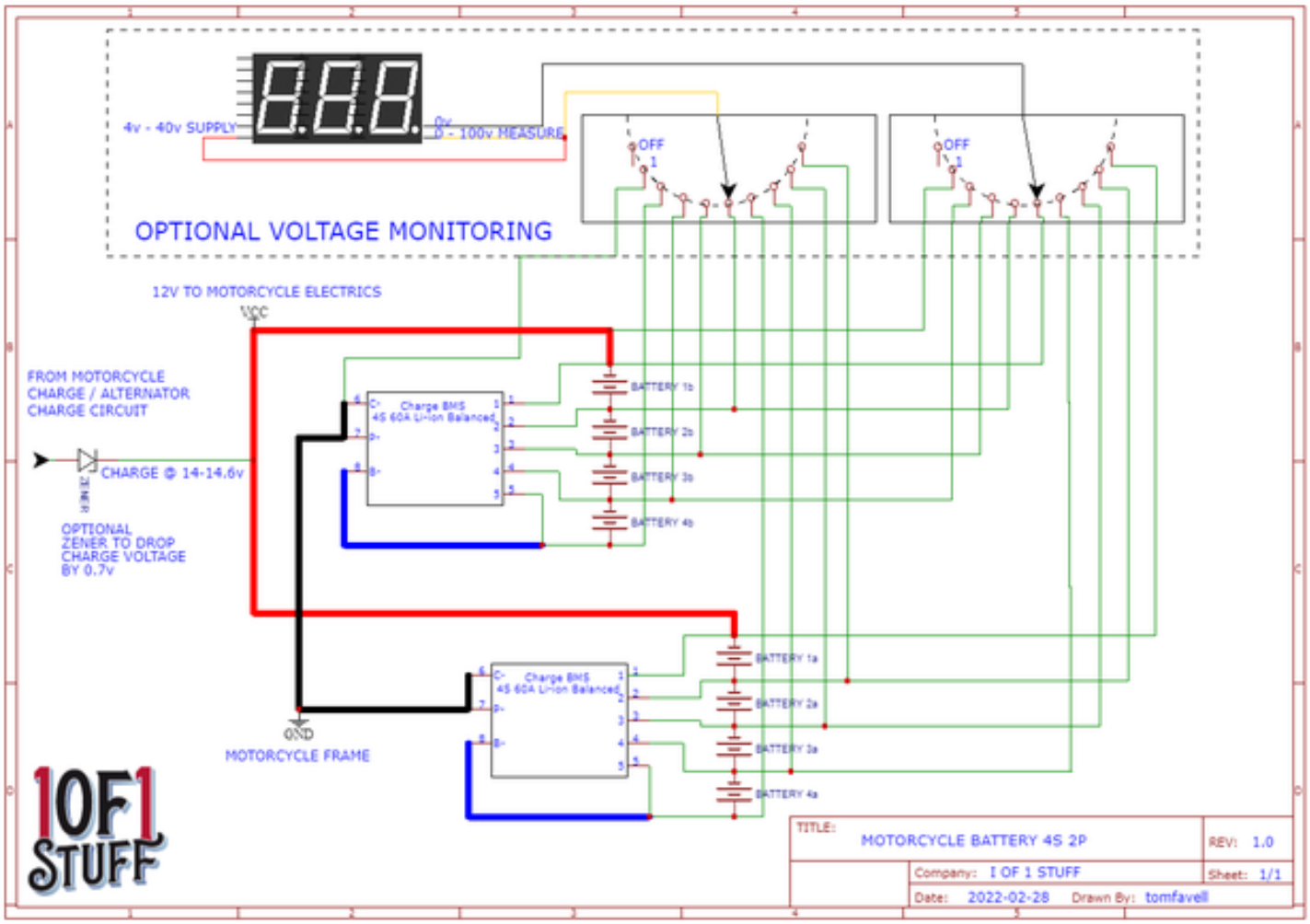


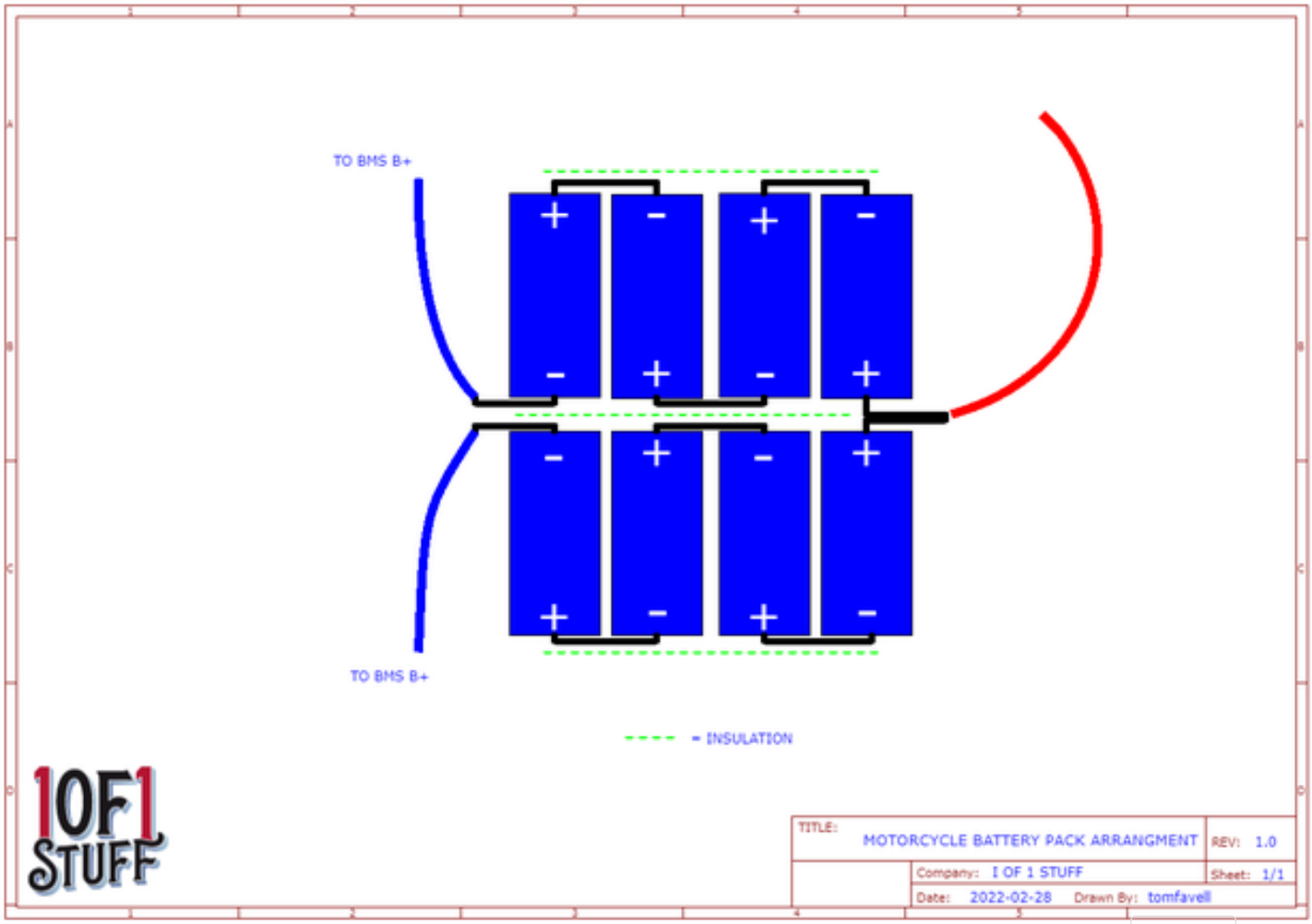




Step 1: General Schematic

In order to get a higher Ah two sets of batteries are arranged in parallel. Each battery is rated at 7.2Ah so conservatively this arrangement will give 14Ah. I also decided to go for a more robust battery monitoring system by using two DALY BMS arranged as a 4s 2p. In this arrangement, each BMS is monitoring a single cell.





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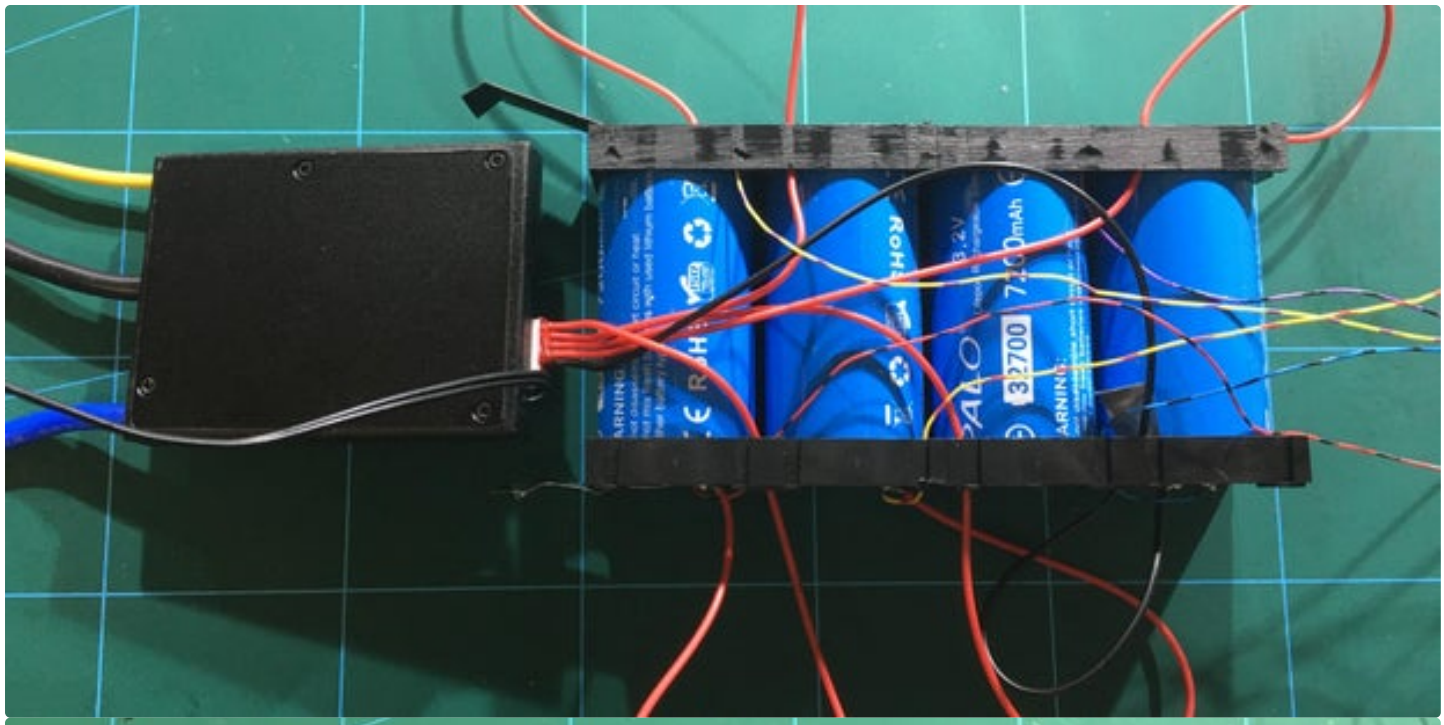
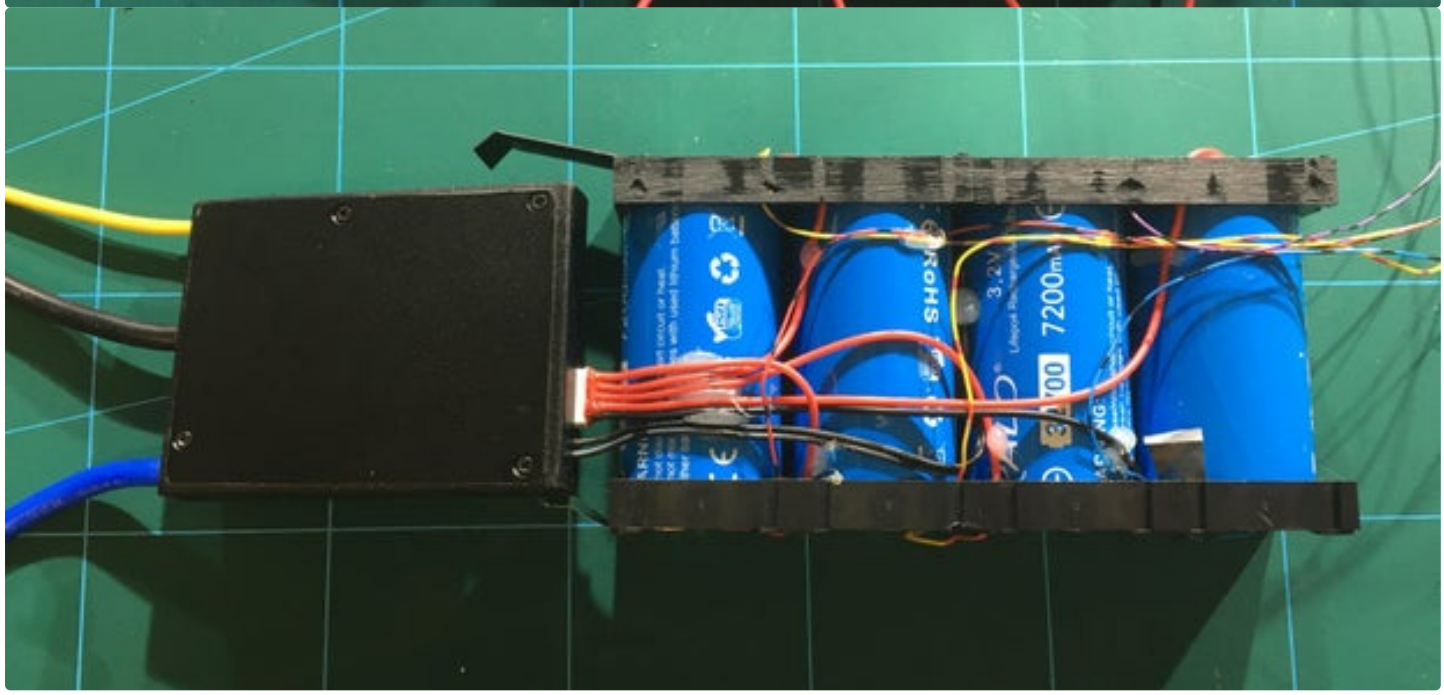
Step 2: General Assembly

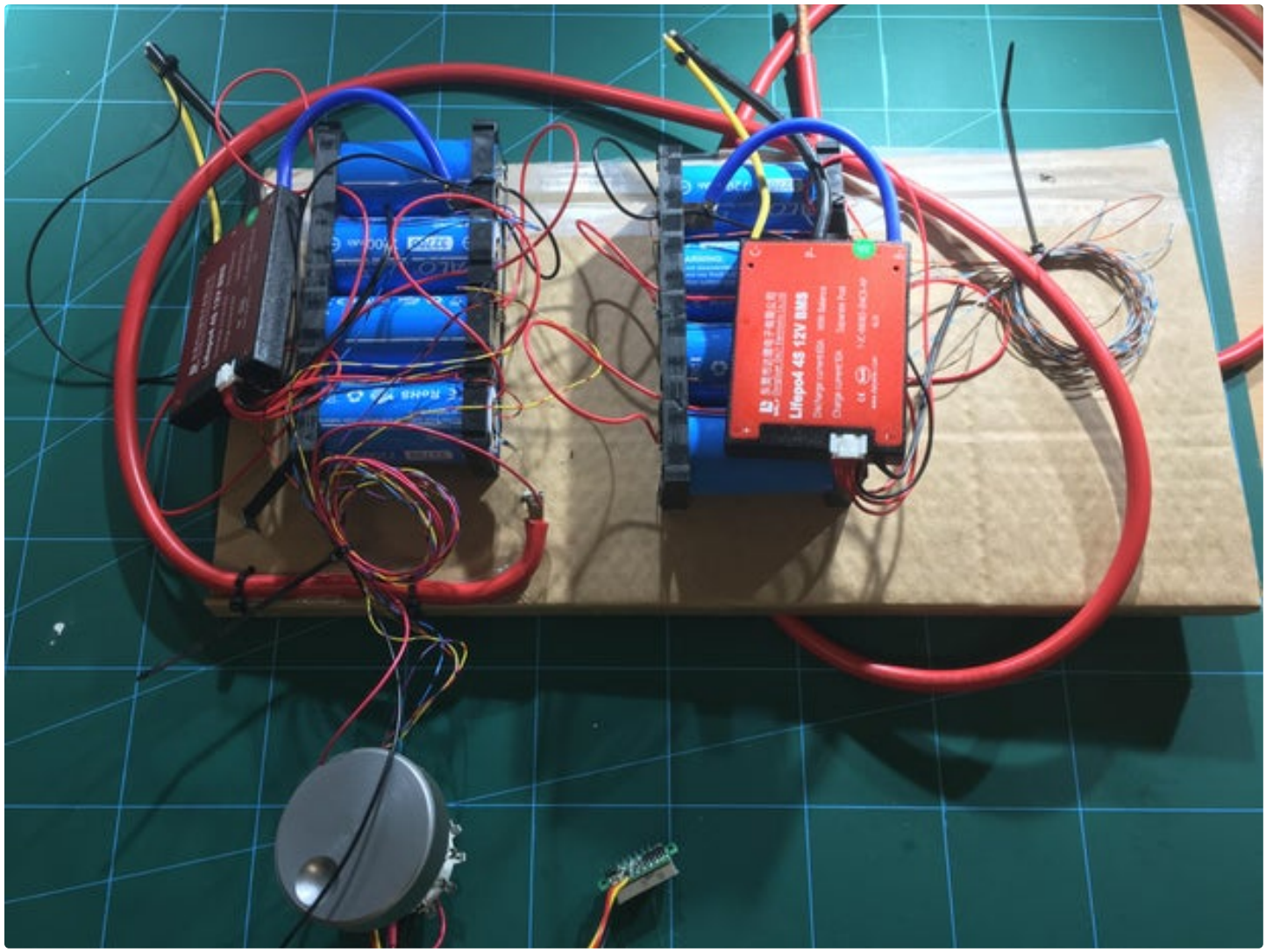
You build each set of batteries the same, following the schematic diagram. What isn't shown in the pictures is how the battery tabs are joined together. I used solder, being careful to not leave the heat on the tab for too long. I also used hot melt glue to "tack" the cables in place before "folding" the BMS over the batteries. There is a thermal probe on the BMS I pushed this between two of the batteries, you can just see this in the photo it's the black wire.





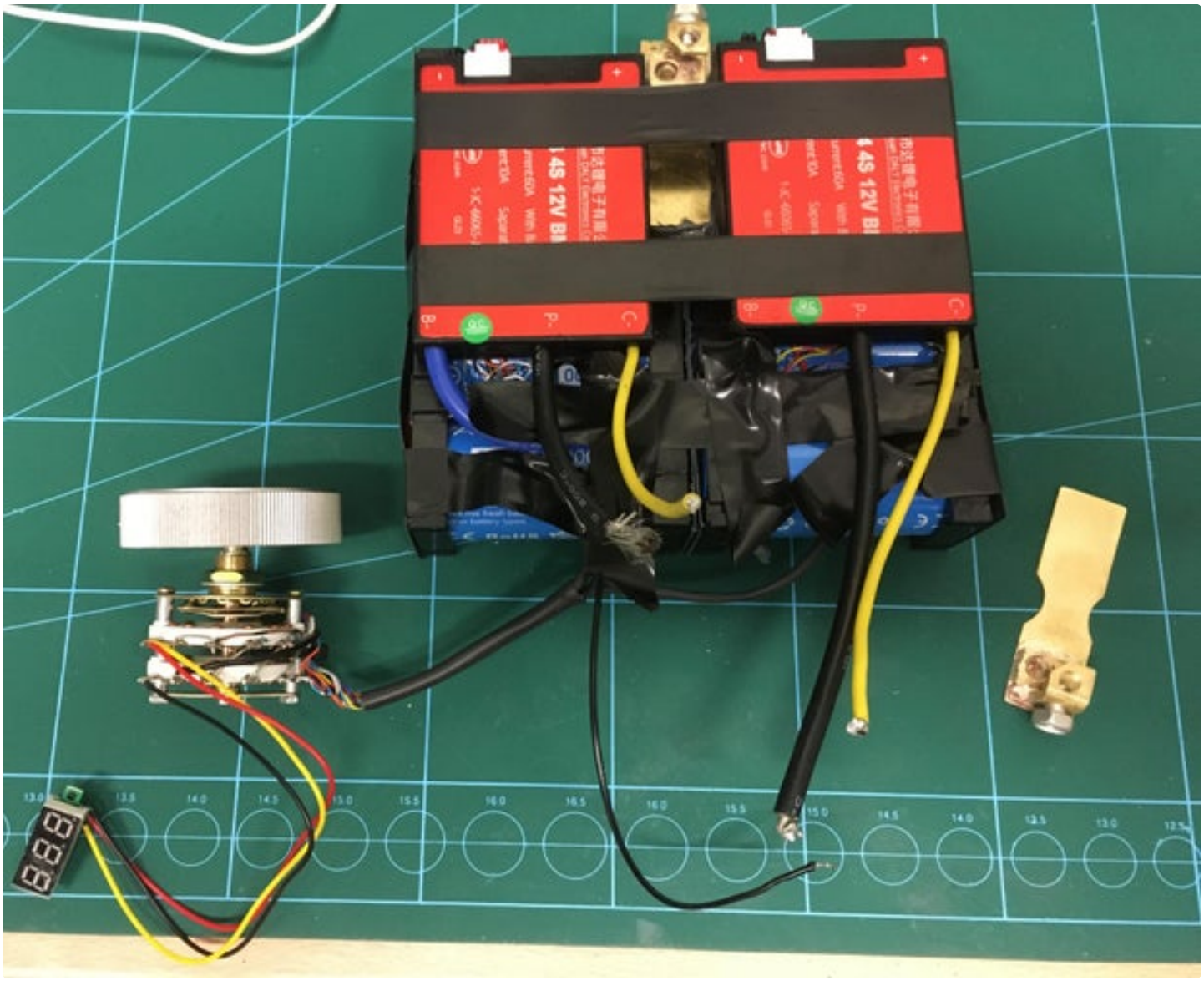
Step 3: Testing the Setup Before Finishing the Wiring

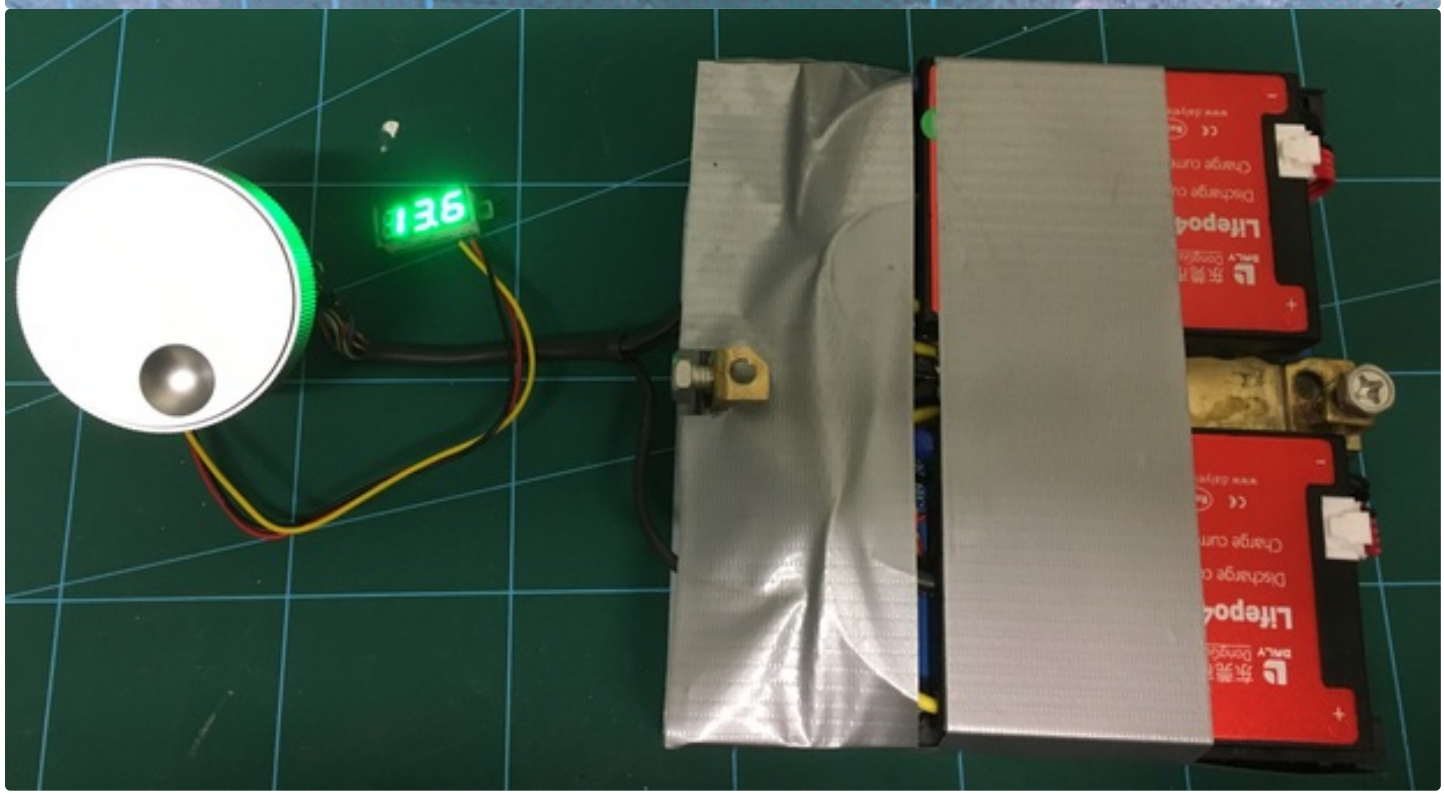
I rigged up the system as shown above and tested it on the bench.



Step 4: Finish Up

I covered the exposed terminals of each battery set with insulating card, holding them in place with hot melt glue. Then I joined the two sets of batteries with tape. I fabricated two brass terminals, and first soldered the wires to them, then using epoxy glued them between the two BMS as shown. Finished by wrapping with "gaffa" tape.




136