

PiPACT System Build



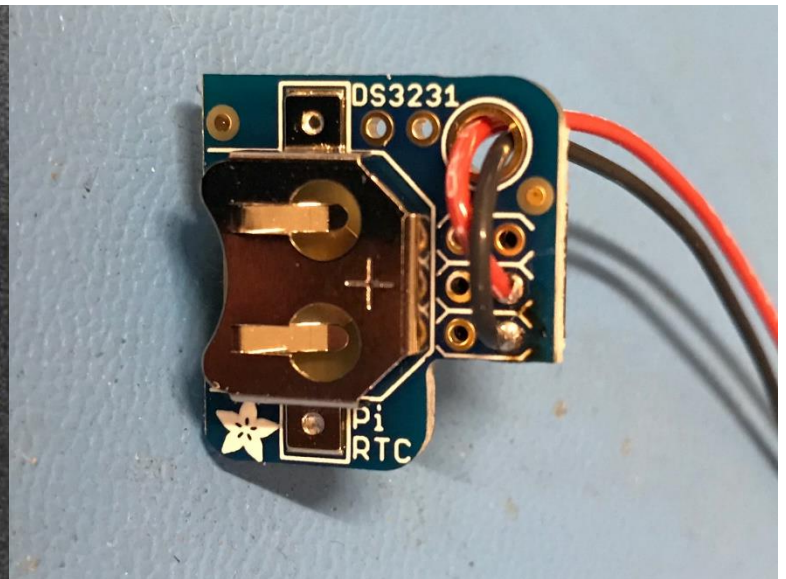
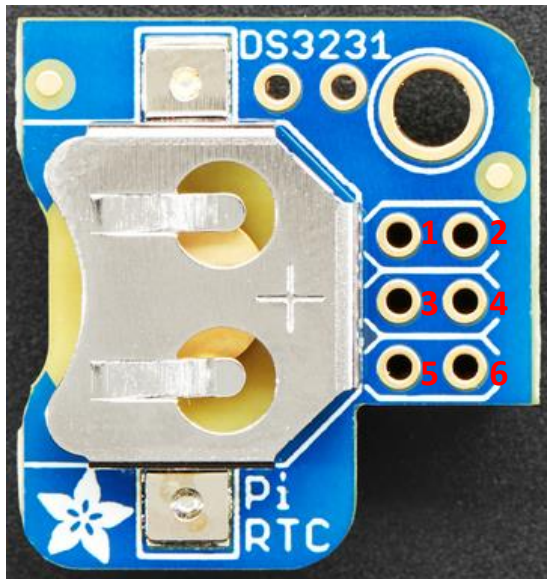
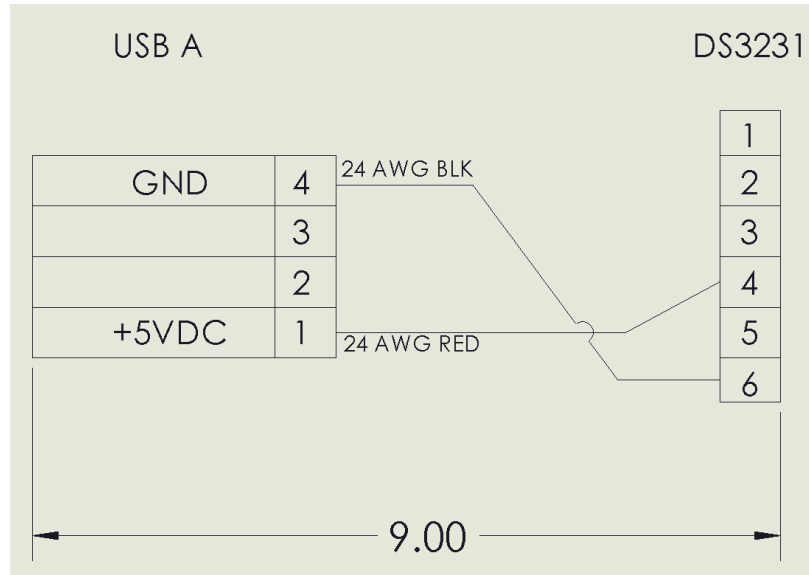
Table of Contents:

- Cable assembly
- Enclosure modification
- Assembly
- Build of materials

Cable Assembly

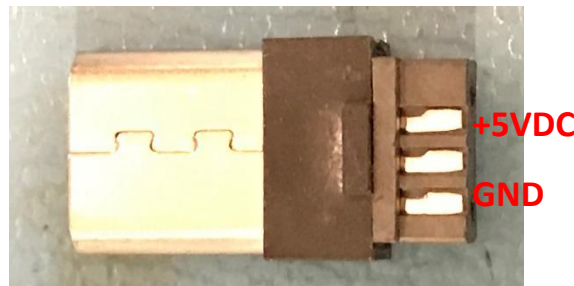
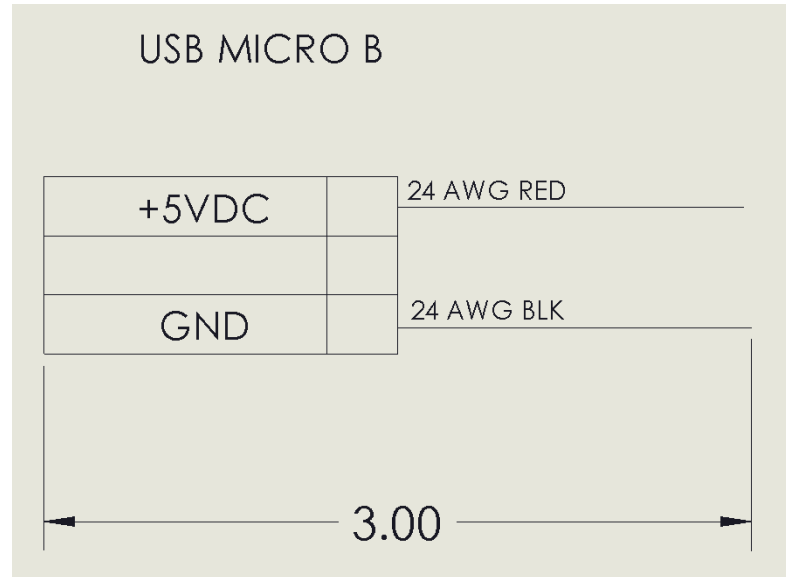
RTC Cabling

1. Build cable as shown looping wire through mount hole:

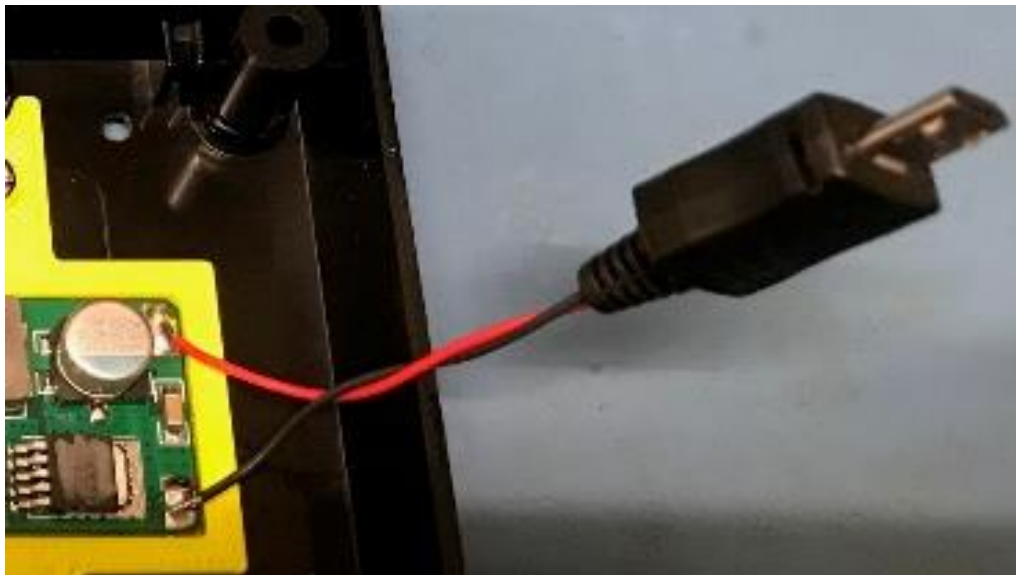


Induction charge cable assembly

1. Build cable as shown



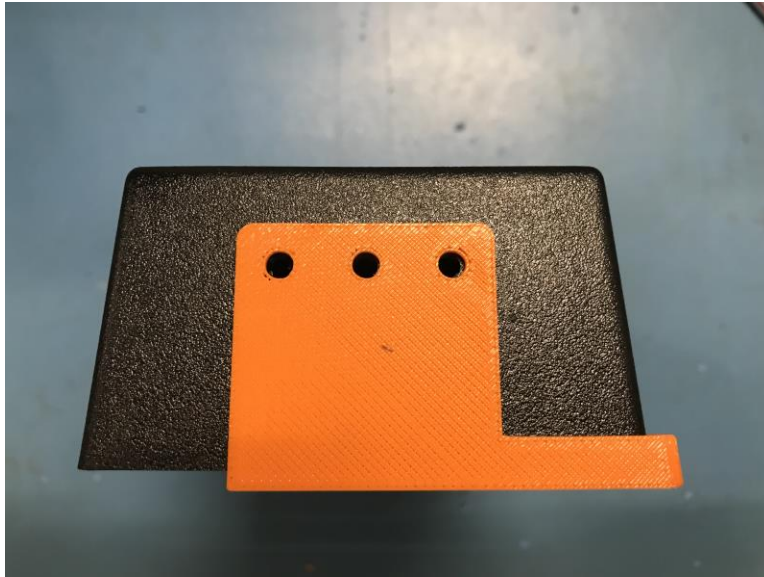
2. Solder cable to receiver as shown



Enclosure Modification

Top lid assembly

1. Use template to drill three .16" holes



Bottom Lid

1. Use template to drill eight .112" holes



2. Use 82° counter sink bit on all 8 holes

Assembly

Top Lid

1. Insert LEDS in order

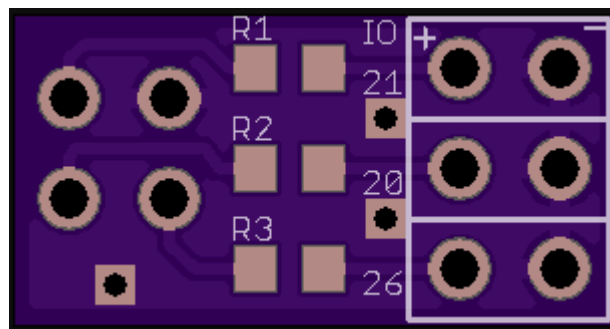


2. Solder LED's to PCB hat:

Green – 21

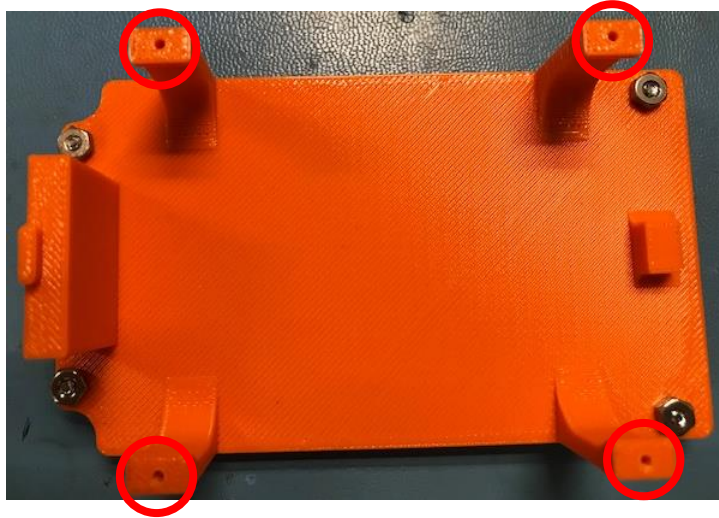
Yellow – 20

Red – 26



Battery Frame

1. Tap four 2-56 holes



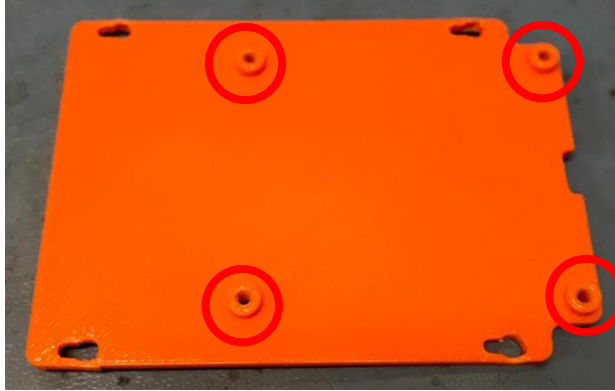
2. Install vibration dampers (96905k35) with #4 nuts (90480A005)



3. Add RTV to all nuts

Raspberry Pi Frame

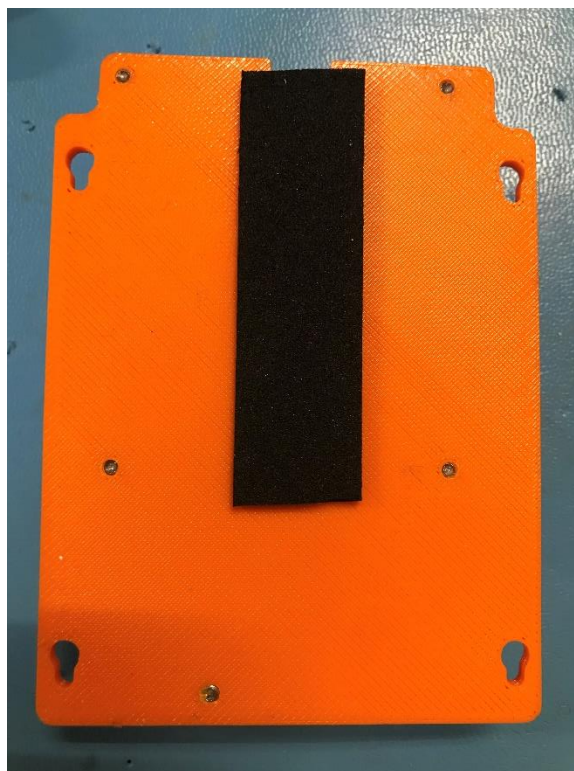
1. Tap four 4-40 holes



2. Install Raspberry Pi with four #4 screws (92196a106)

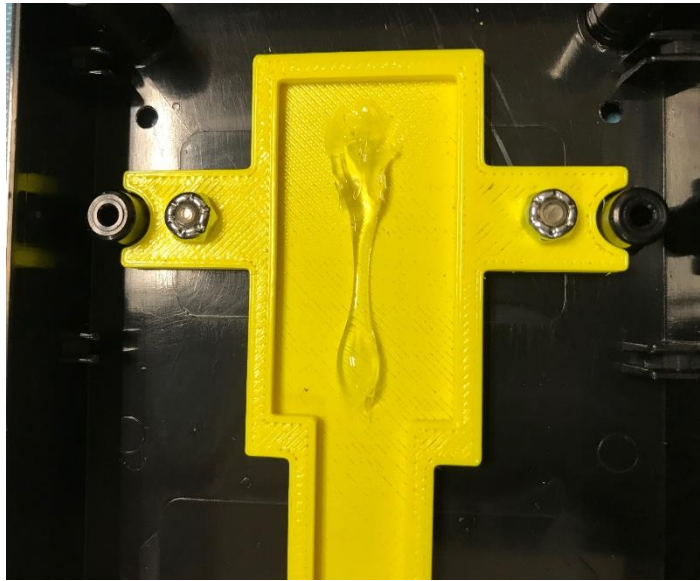


3. Add RTV to all screws
4. Add 2" foam (93275K113) to bottom of frame

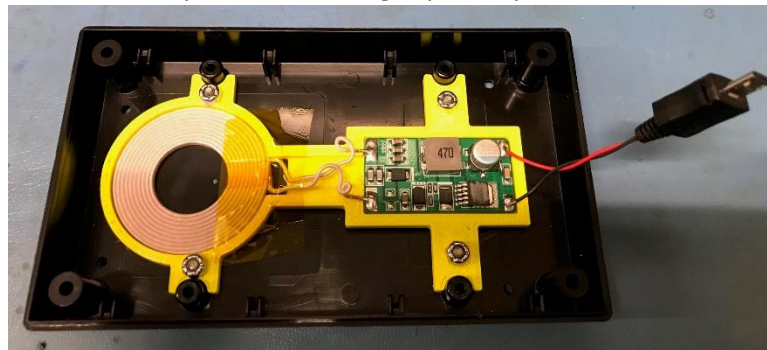


Induction charge assembly

1. Place induction charge receiver frame into bottom lid using four 4-40 flathead screws (91771A108) and locknuts (90633a005). Place RTV in frame.

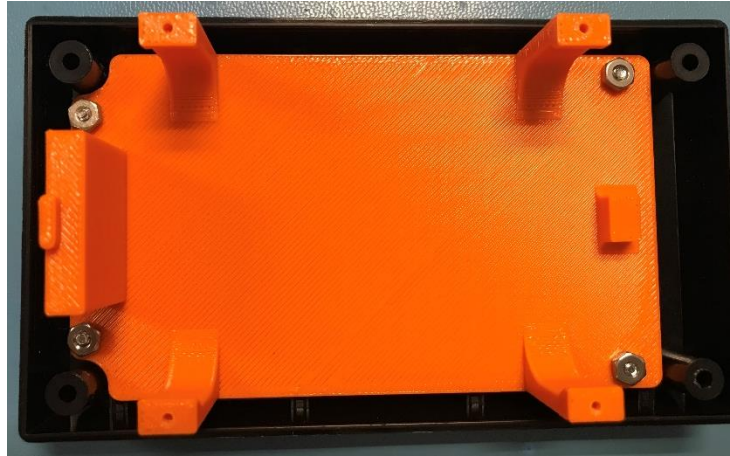


2. Add induction charge receiver assembly to frame adding kapton tape over coil

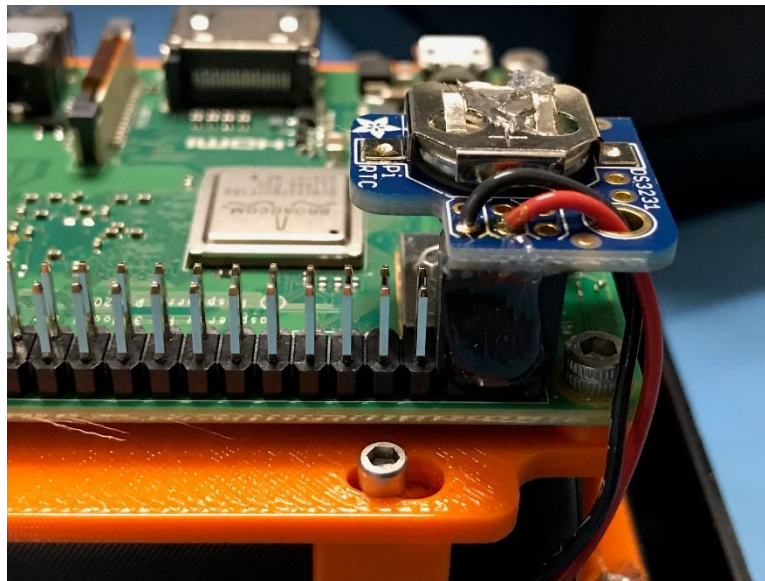


Frame assembly

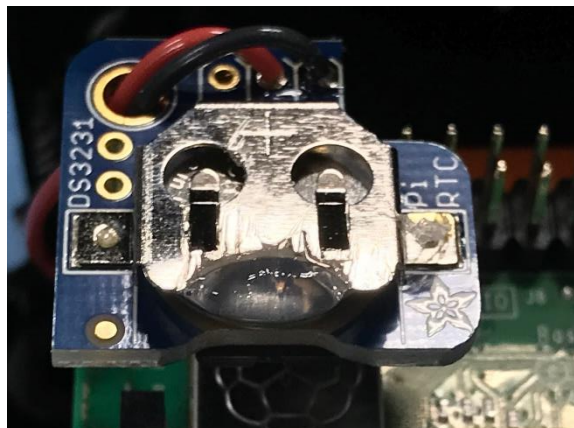
1. Add battery frame assembly to bottom lid using four 4-40 screws (91771a106) with 242 Loctite.



2. Add battery and Raspberry Pi frame assembly. Hand tight the screws to securing both frames.
3. Connect RTC cable assembly to pins 1-6 on the Raspberry Pi. Add RTV.



4. Insert CR1220 battery to RTC. Add RTV.

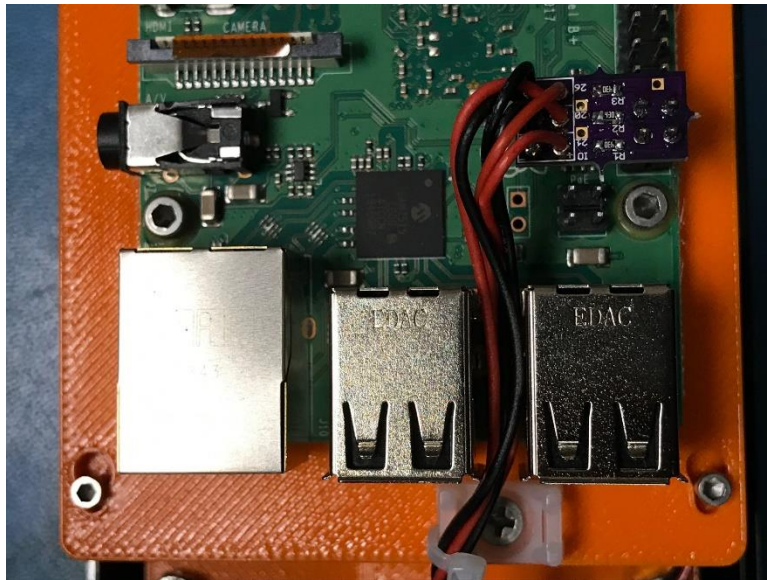


LED Hat assembly

1. Connect GPIO hat to pins 37-40 on Raspberry Pi. Add RTV.



2. Zip tie cables to mount



Build of Materials

Electronics	Quantity	
Raspberry Pi 3 B+	1	https://www.digikey.com/product-detail/en/raspberry-pi/RASPBERRY-PI-3-MODEL-B/1690-1025-ND/8571724
Battery	1	https://www.amazon.com/dp/B072MH1434/ref=emc_b_5_t
RTC	1	https://www.digikey.com/product-detail/en/adafruit-industries-llc/4282/1528-4282-ND/10287040
USB A	1	https://www.digikey.com/product-detail/en/adafruit-industries-llc/1827/1528-1396-ND/5629444
USB Micro B	1	https://www.digikey.com/product-detail/en/adafruit-industries-llc/1390/1528-1182-ND/5353642
LED (Green)	1	https://www.digikey.com/product-detail/en/bivar-inc/PM3GDW12-0/492-1612-ND/3488910
LED (Red)	1	https://www.digikey.com/product-detail/en/bivar-inc/PM3RDW12-0/492-1616-ND/3488901
LED (Yellow)	1	https://www.digikey.com/product-detail/en/bivar-inc/PM3YDW12-0/492-1617-ND/3488906
MicroSD 32Gb	1	https://www.govconnection.com/product/sandisk-32gb-microsdhc-flash-memory-card-class-4/sdsdq-032g-a46/15912248
Induction charging	1	https://www.digikey.com/product-detail/en/adafruit-industries-llc/4430/1528-4430-ND/11569133
Hardware		
Nuts	4	https://www.mcmaster.com/90480A005-90480A005
Locknuts	4	https://www.mcmaster.com/90633a005
4-40 Screws (Socket)	4	https://www.mcmaster.com/92196a106
4-40 Screws (FH, 3/16)	4	https://www.mcmaster.com/91771a106
4-40 Screws (FH, 3/8)	4	https://www.mcmaster.com/91771A108-91771A108
2-56 screws	4	https://www.mcmaster.com/92196a077
Foam	1	https://www.mcmaster.com/93275K113
Loctite	1	https://www.mcmaster.com/91458A112
Enclosure	1	https://www.mcmaster.com/7593k29
Damper	4	https://www.mcmaster.com/96905k35