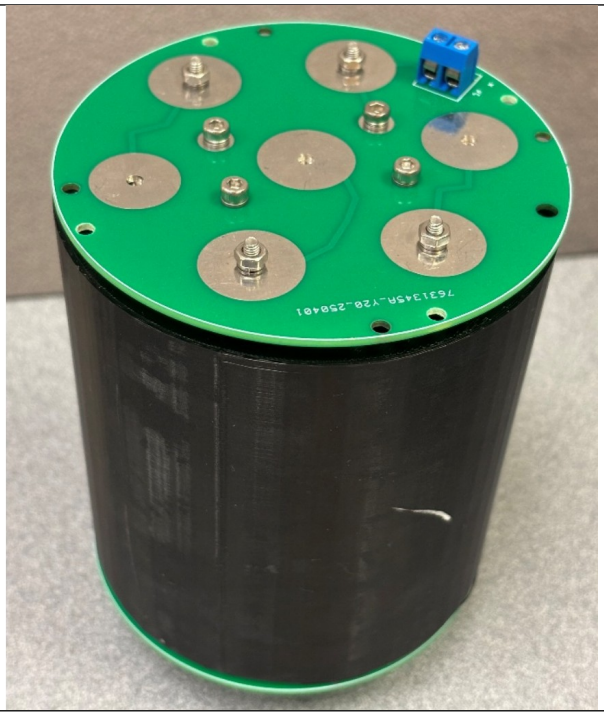
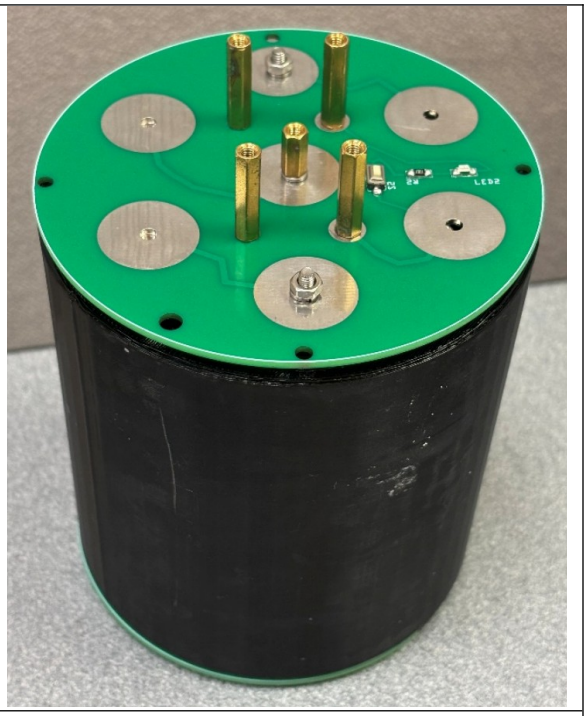
battery_holder_assembly

The Battery Holder Assembly consists of a 3D printed battery holder tube sandwiched between two PCBs. It is held together by four brass hex spacers (110 mm) through the blank holes (2) and open vias (2). The spacers fastened through vias create a conductive pathway between the top and bottom PCBs.

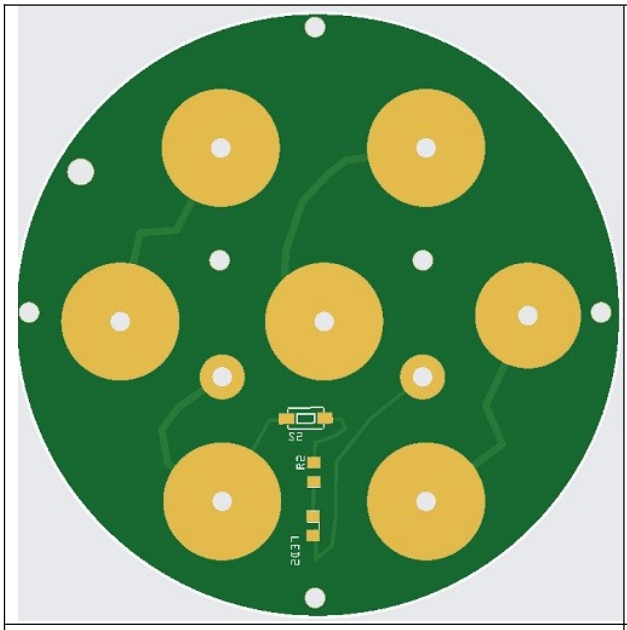
	
Battery Holder Top	Battery Holder Bottom

Assembly *(approximate time: 10 minutes)**:***

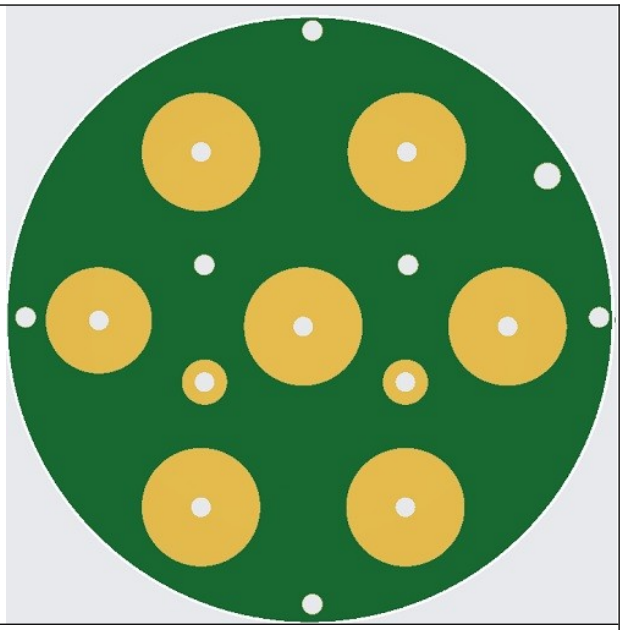
1. Attach two 55 mm brass hex spacers stacked on each other to the four middle holes on the top PCB and fasten them with screws.
2. Pass the hex spacers through battery holder tube and load the tube with 14 C cell batteries.
3. Screw on the bottom PCB lining up the two conductive screw holes with the ones on the top PCB and fasten them with the 20 mm hex spacers.

PCB: Battery Holder Top

The assembled Battery Holder Top PCB includes a push button and a red LED to check for proper assembly and battery strength. The Battery Holder Top PCB can be used in both 4-inch and 5-inch diameter c-cell battery holder assemblies.



PCB: Battery Holder Top (front view)



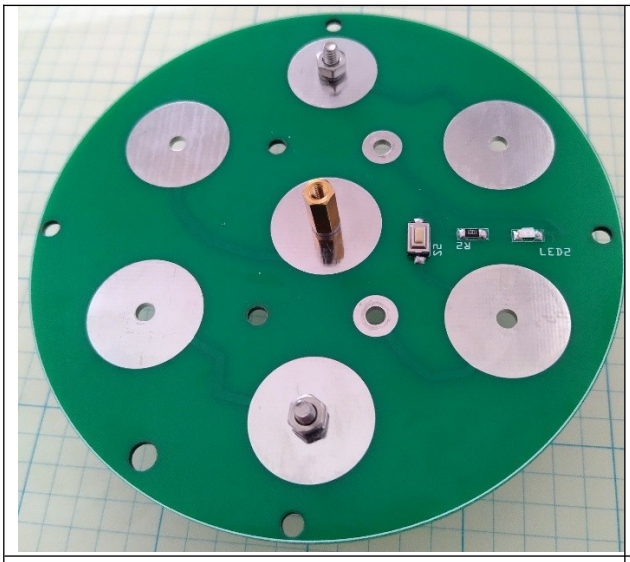
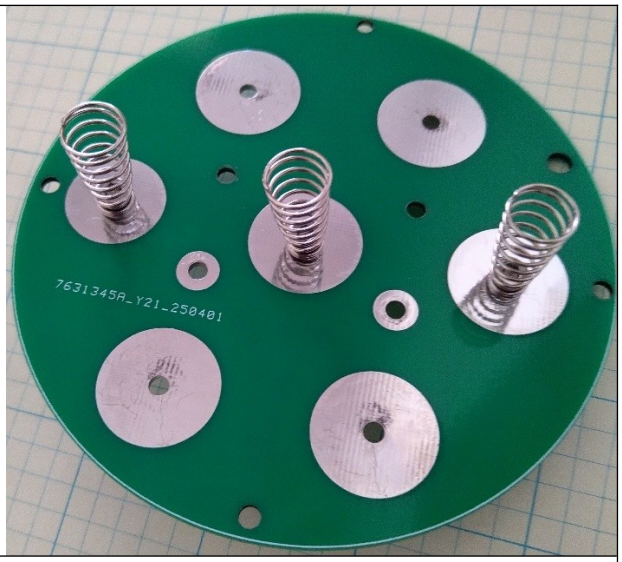
PCB: Battery Holder Top (back view)

Bill of Materials (BOM)					
#	*Description*	*Loc.*	*Cost (USD)*	*Qty*	*Supplier*
1	1206 smd LED, red	LED2	$0.04	1	Amazon.com
2	1206 smd resistor, 1k ohm	R2	$0.06	1	Amazon.com
3	Push-button momentary tactile switch, smd, 3x6x2.5mm	S2	$0.05	1	Amazon.com
4	211-D Contact Battery Spring		$0.88	3	Amazon.com
5	M3 x 8mm stainless steel socket head screw, with locking washer and nut		$0.04	3	Amazon.com
6	Brass hex standoff spacer, M3x10mm, female to female		$0.10	1	Amazon.com
Total Cost: $3.01					

Assembly *(approximate time: 15 minutes)**:***

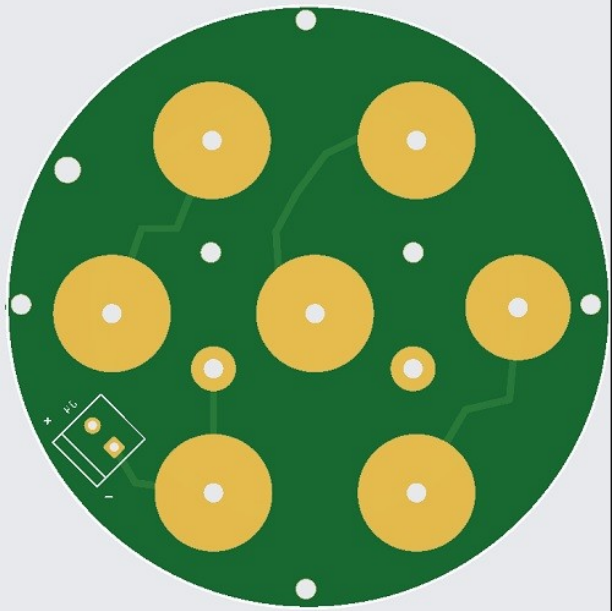
4. Solder the LED, switch, and resistor to board.
5. Attach three springs to middle row of large vias using screws, locking washers, and nuts.

6. The 10 mm hex brass spacer is used in place of a nut, and serves as a handle for removing the PCB during battery replacement.

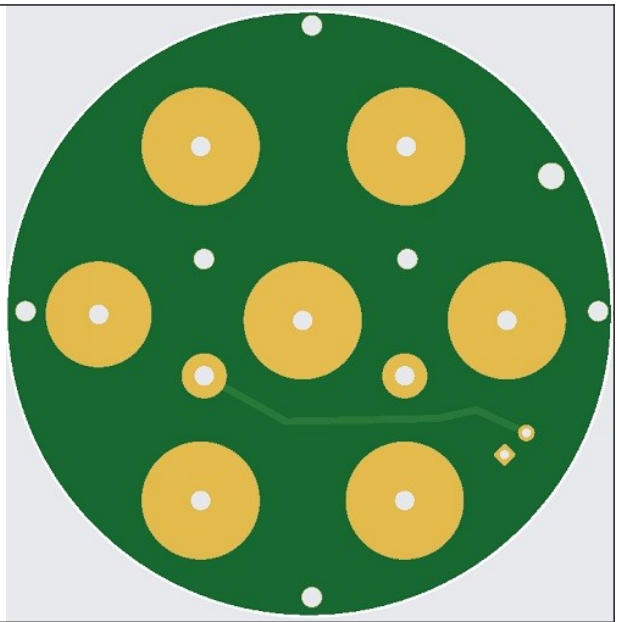
	
Assembled PCB: Battery Holder Top (front)	Assembled PCB: Battery Holder Top (back)

PCB: Battery Holder Bottom

The assembled Battery Holder Bottom PCB includes a screw terminal block connector for power output to the Bus Board. The board is physically attached to the Mainboard with brass hex spacers through the four mounting holes. The Battery Holder Bottom PCB can be used in both 4-inch and 5-inch diameter c-cell battery holder assemblies.



PCB: Battery Holder Bottom (front view)

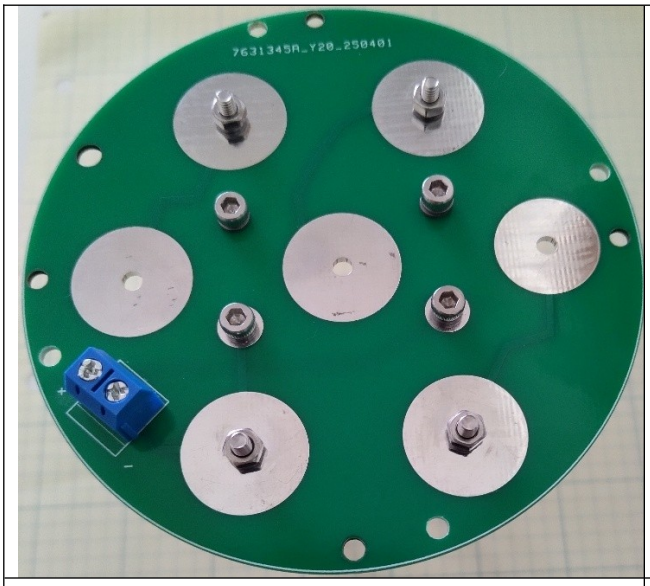
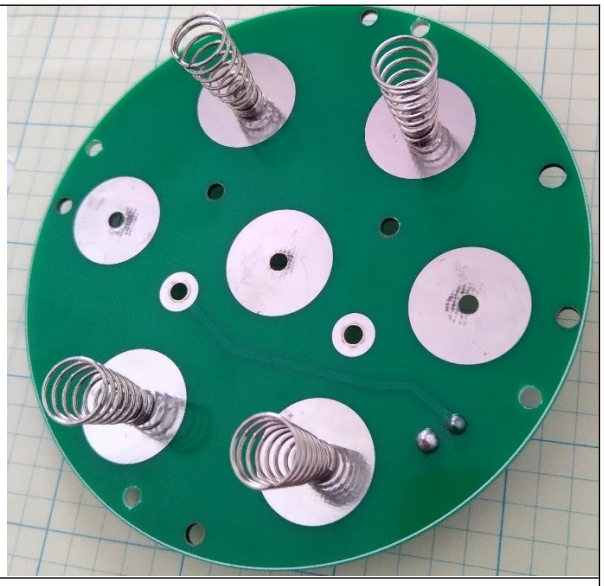


PCB: Battery Holder Bottom (back view)

Bill of Materials (BOM)					
#	*Description*	*Loc.*	*Cost*	*Qty*	*Supplier*
1	Screw terminal block connector, 2-pin, THT, 5 mm pitch	J4	$0.15	1	Amazon.com
3	211-D Contact Battery Spring		$0.88	4	Amazon.com
4	M3 x 8mm stainless steel socket head screw, with locking washer and nut		$0.04	4	Amazon.com
Total Cost: $3.83					

Assembly *(approximate time: 15 minutes)**:***

1. Solder the screw terminal to the board.
2. Attach four springs to large vias (see photos below) using screws, locking washers, and nuts.

	
Assembled PCB: Battery Holder Bottom (front)	Assembled PCB: Battery Holder Top (back)