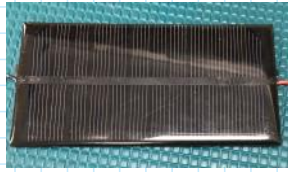


# Energy harvesting board testing 1030

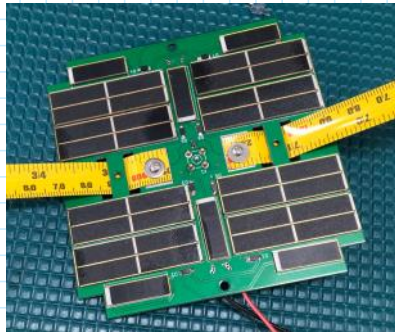
2019年10月30日 星期三 12:04

1. Apparatus :

Solar cell 1 :



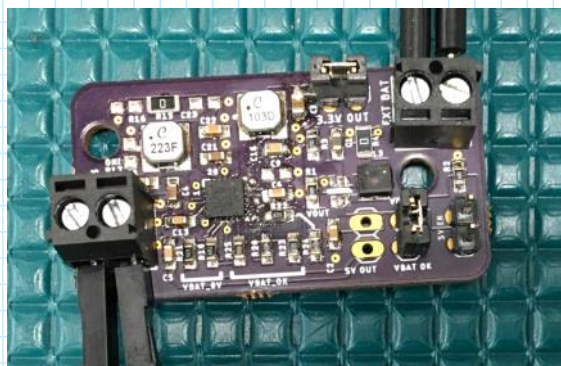
Solar cell 2 :



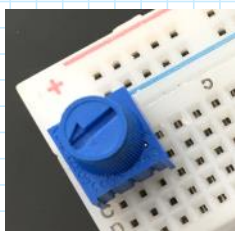
Battery :



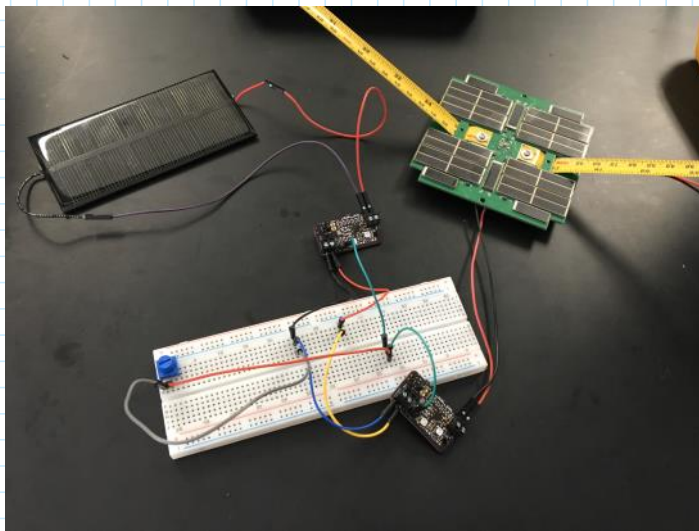
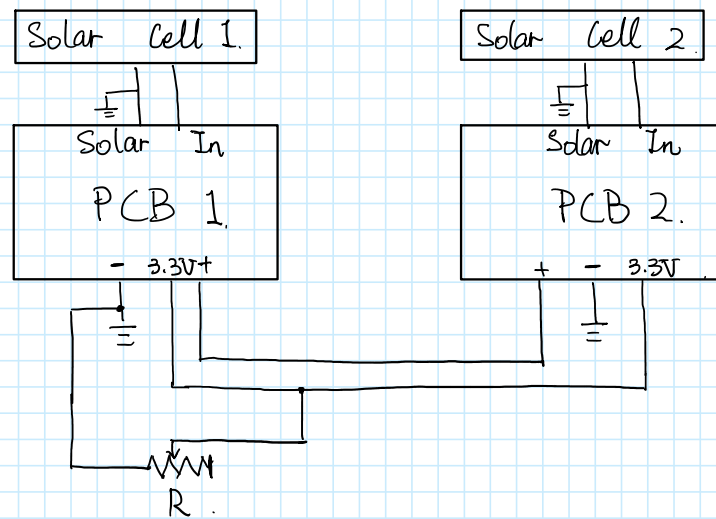
Energy Harvesting Board :



Potentiometer



## 2. Test 2 PCB parallel with potentiometer. (sunlight).



Before connect potentiometer:

3.3 V OUT, 3.48 [V].

Case 1:  $R = 133.8 [\Omega]$ .

Solar cell 1: Before connect: 7.1 [V] After connect: 3.94 [V]

Solar cell 2: Before connect: 16.1 [V]. After connect: 3.77 [V].

PCB 1: EXT BAT: 4.07 [V]

3.3V OUT: 3.4 [V].

PCB 2: EXT BAT: 4.07 [V]

3.3V OUT: 3.37 [V].

$$I = \frac{U}{R} = \frac{3.4}{133.8} = 0.0254 [A] = 25.4 [mA].$$

Case 2:  $R = 72.5 [\Omega]$ .

Solar cell 1: 4.1 - 4.4 [V].

Solar cell 2: 2.6 - 3.2 [V].

PCB 1: EXT BAT: 3.8 - 4.1 [V]

3.3V OUT: 1.7 - 3.1 [V].

PCB 2: EXT BAT: 3.8 - 4.1 [V]

3.3V OUT: 1.7 - 3.3 [V].

$$I_L = \frac{U_L}{R} = \frac{1.1}{12.5} = 0.0234 [A] = 23.4 [mA]$$

$$I_U = \frac{U_U}{R} = \frac{3.1}{72.5} = 0.0428 [A] = 42.8 [mA]$$

Case 3 :  $R = 245.2 [\Omega]$ .

Solar cell 1 : 3.94 [V]

Solar cell 2 : 3.96 [V]

PCB 1 : EXT BAT : 4.1 [V]

3.3V OUT : 3.41 [V]

PCB 2 : EXT BAT : 4.1 [V]

3.3V OUT : 3.39 [V]

$$I = \frac{U}{R} = \frac{3.4}{245.2} = 0.0139 [A] = 13.9 [mA]$$

### 3. Confirm circuit recover.

using the exact same setup, measure and confirm 3V3 to GND is still  $\sim 0$  to 0.2V, THEN remove the potentiometer from the breadboard and confirm that the 3V3 wire returns to 3.3V. This will demonstrate that the circuit is able to recover on its own and that it isn't stuck in a drop-out state.

Yes. after remove potentiometer, 3.3V OUT changed from 0-0.2[V] back to 3.3 [V].