Solar cell experiment 20160128 20160203

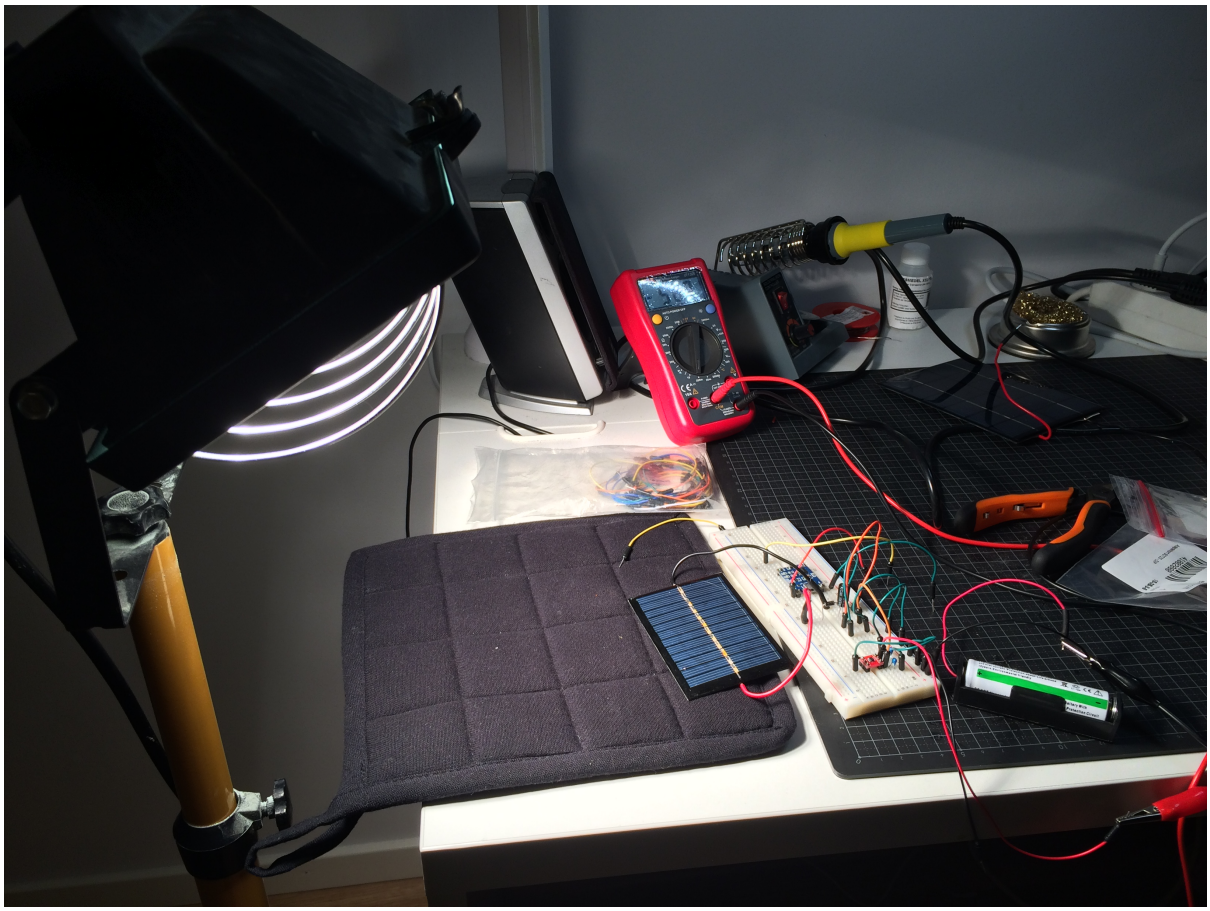
No charge pump, only solar cells:

- No load:
  - 8w desk lamp close: 2W 5.5V 7mA, 0.6W 5.5V 2mA
  - 400W halogen @ 20cm: 2W 7.2V 500mA, 0.6W 160ma 7.3V.
- Tp4056 direct from solar cell:
  - 2W @ 20cm, Vsol 3.85, Icharge 135mA
  - 2W @ 100cm, Vsol 4.11, Icharge 39mA
  - 0.6W @ 20cm, Icharge 80mA, Vsol 4.03V
  - 0.6W @ 100cm, Icharge 12mA, Vsol 3.96V
- Tp4056 with schottky and 470uF capacitor:
  - 0.6W @ 30cm, Icharge 52mA, Vsol 3.8V
  - 0.6W @ 100cm, Icharge 14mA, Vsol 3.8V
- Max1555 with schottky and 470uF capacitor:
  - 0.6W @ 30cm, Icharge 60mA
  - 0.6W @ 100cm, Icharge 12mA
- Max1555 with schottky and 4700uF capacitor:
  - NB: Battery has been charged slightly after experiment above.
  - 0.6W @ 30cm, Icharge unstable around 37mA for 470uF and stable around 48mA for 4700uF
  - 0.6W @ 100cm, Icharge 12mA stable for 4700uF, and similar for 470uF.

Further research:
How will a 4700uF cap improve?
Test with resistive load

Conclusions:

- Cap and schottky improves charge current
- 4700uF improves charging current over 470uF up to 12mA but at low solar power only slightly, possbily more over time but can’t see without a long measurement or oscilloscope
- Max1555 is at least comparable to Tp4056



Schematic below from https://learn.adafruit.com/usb-dc-and-solar-lipoly-charger