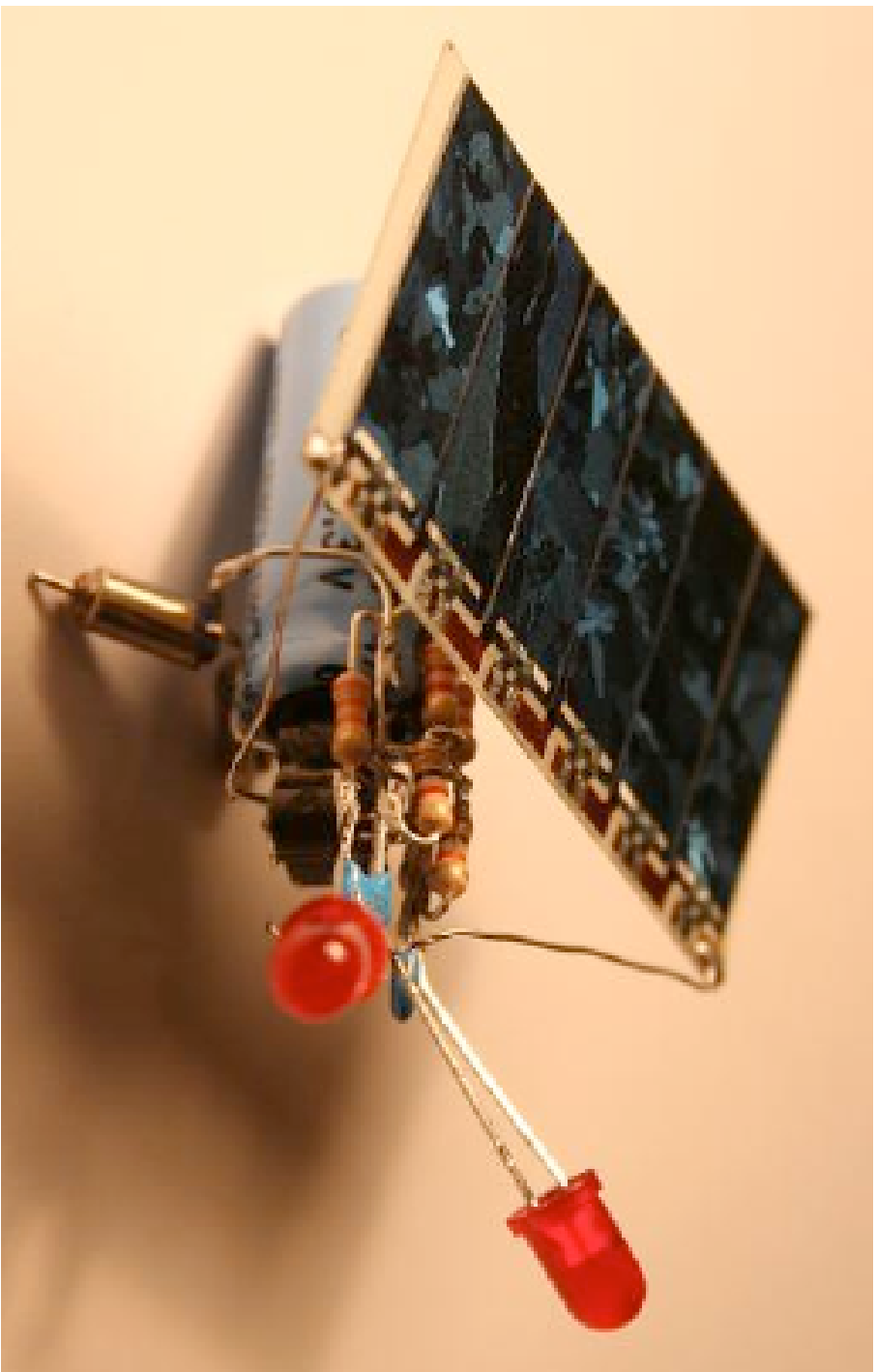


make your own  
**SOLARBOTS**  
solar powered robots

Welcome to SOLARBOTS,  
**ТЕХМЕТЕМ**  
workshop  
by  
Varvara Guljaeva

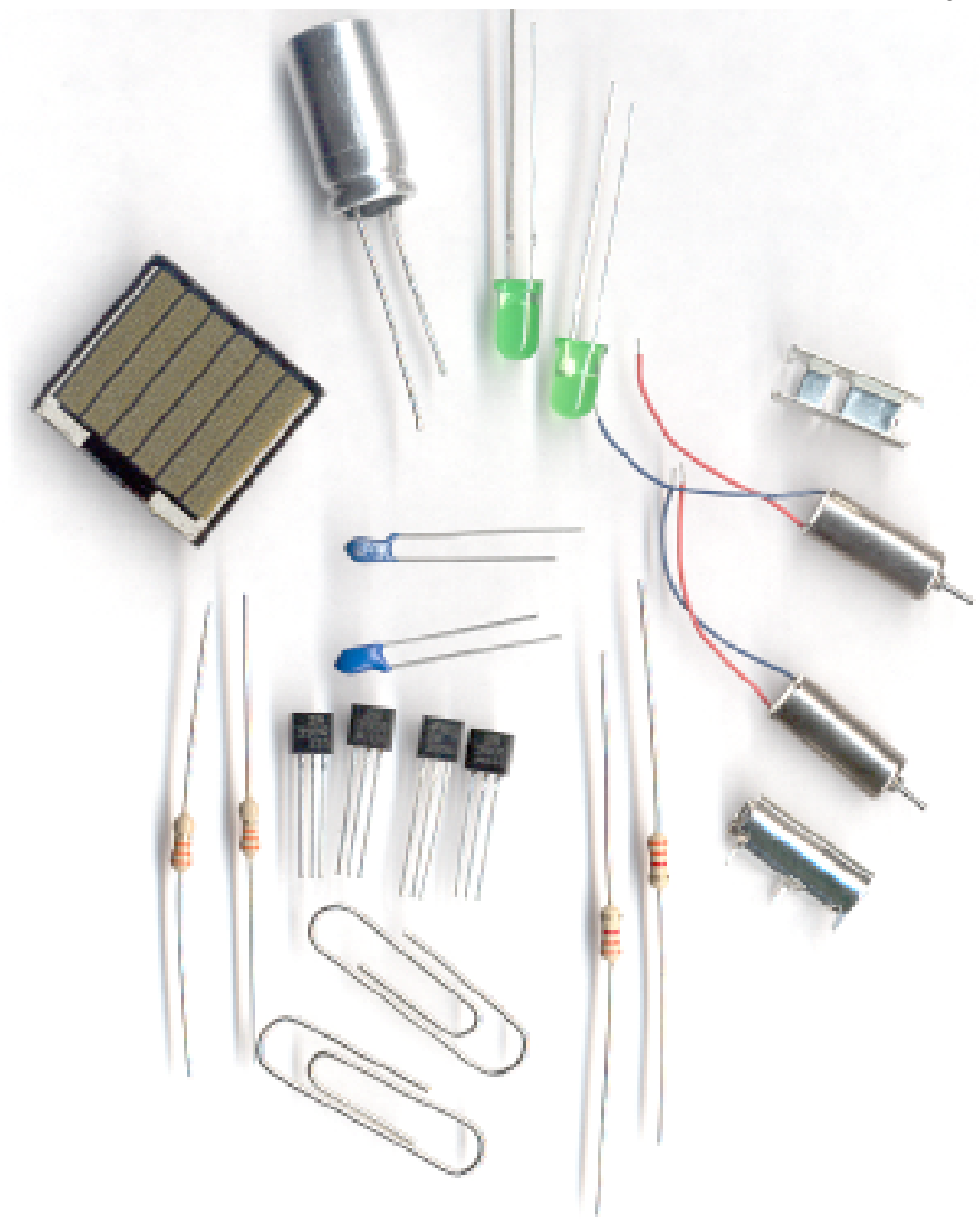
supported by [ **SPACE** ]  
and generous support from Fritz at [pagermotors.com](http://pagermotors.com)



**SOLARBOTS** at MzTEK  
Workshop by Varvara Guljaieva

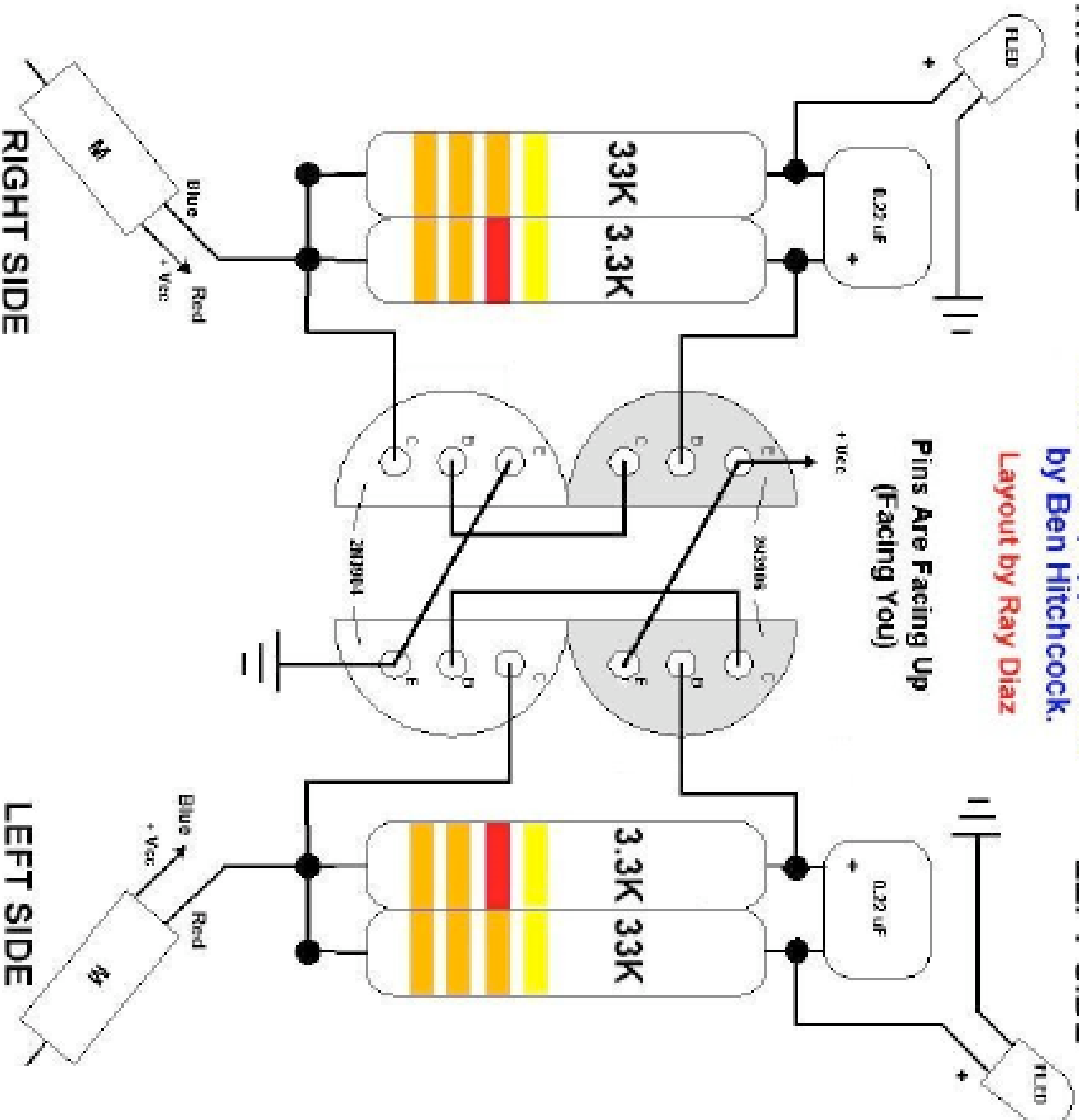
## Required parts for the workshop

- 3300 uF capacitor
- fuse clips
- 2x 0.22 uF capacitors
- 2 x 2N3906 transistors
- 2 x 2N3904 transistors
- 2 x pager or similar motors
- 2 x 33k resistor
- 2 x 3.3k resistor
- 2 x FLED (Flashing LED)



## Fred Photopopper Circuit

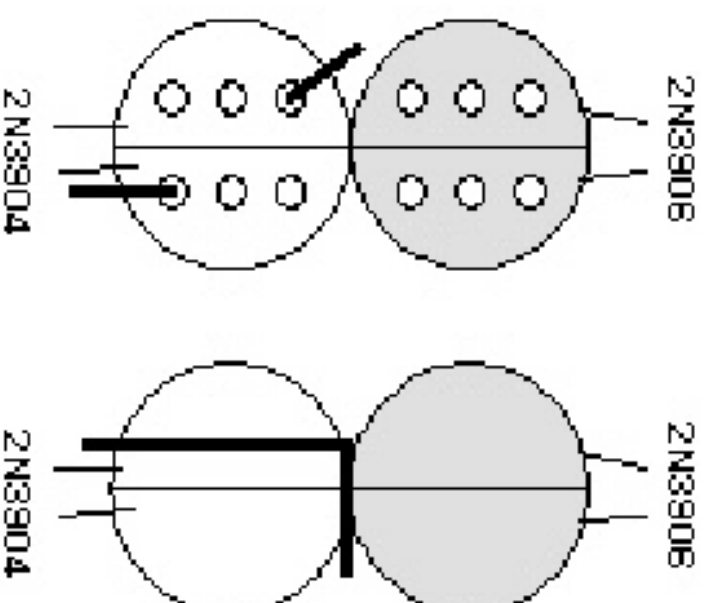
LEFT SIDE



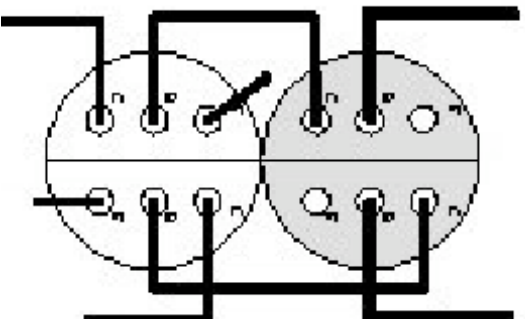
Start with gluing transistors 2N3904 and 2N3906 together.  
Don't forget to mark different transistors with different color!



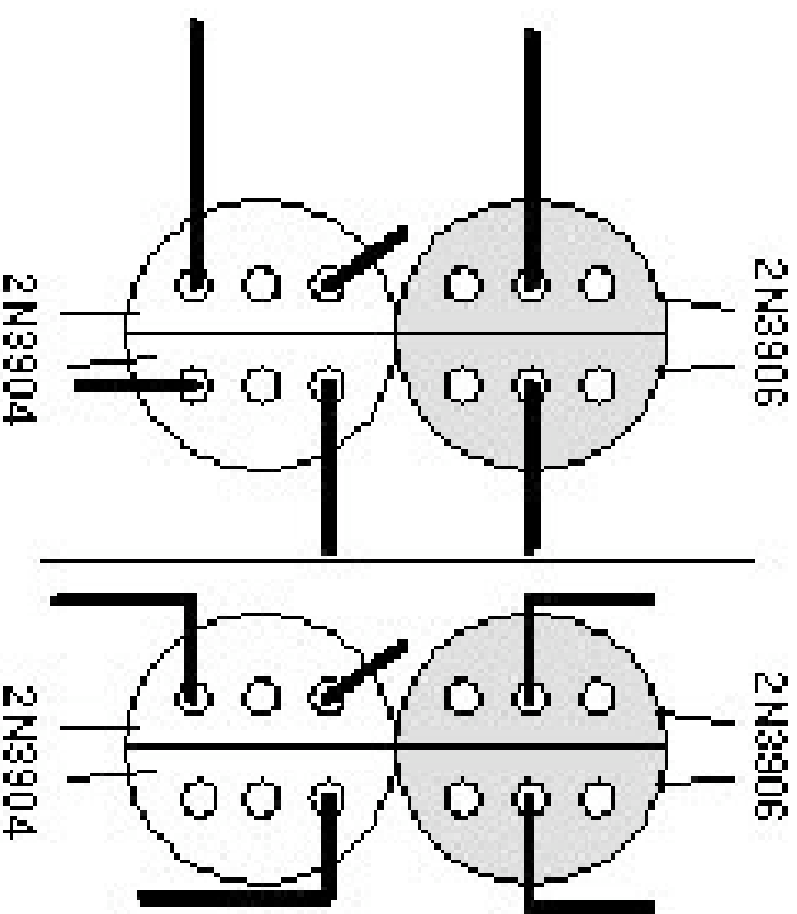
Connect E (2N3904) and E (2N3906).  
That will be GROUND.



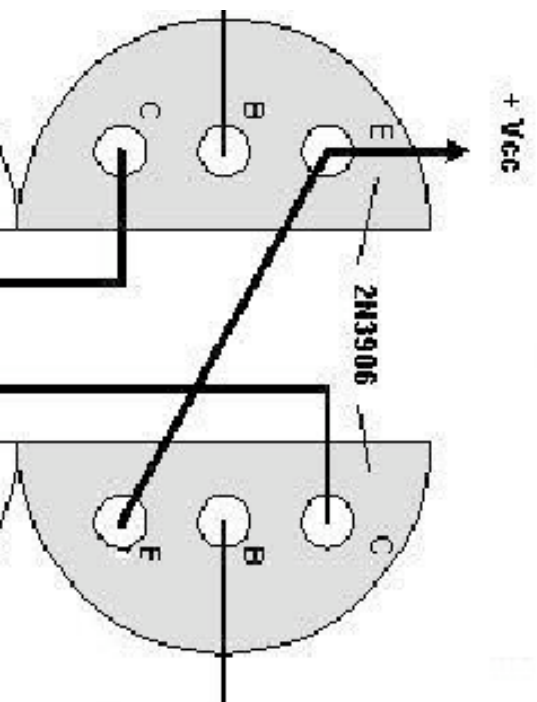
Band B (2N3906) and B (2N3906).  
Band C (2N3904) and C (2N3904).



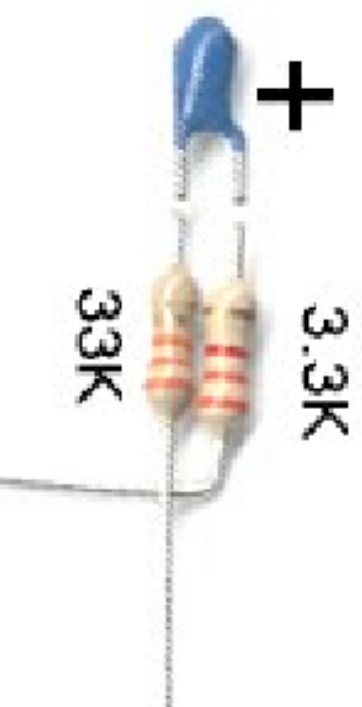
Connect C (2N3906) and B (2N3904).  
Connect C (2N3906) and B (2N3904).



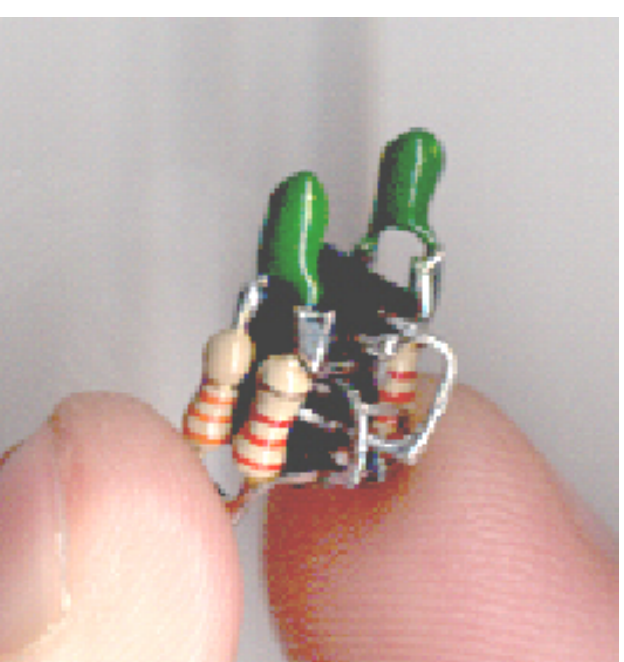
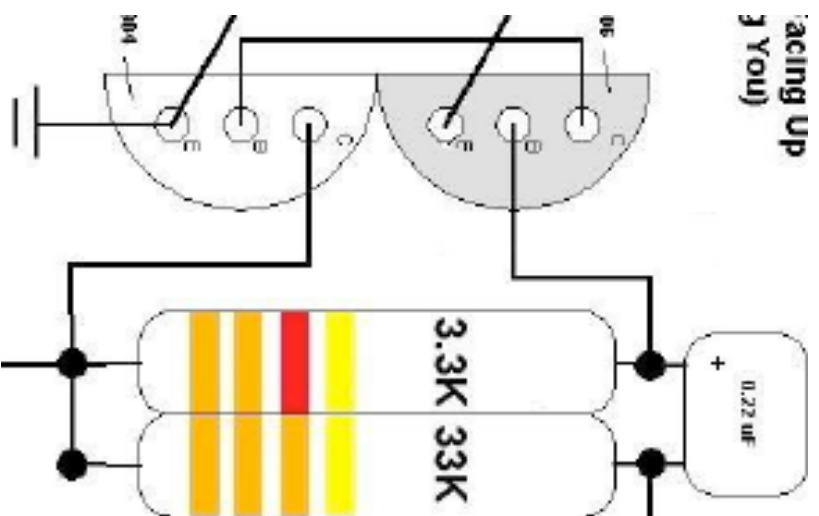
Connect E (2N3906) and E (2N3906).  
That will go to POWER.



Connect capacitor + part with 3.3K resistor and – part with 33K resistor.  
Do the same with second capacitor.



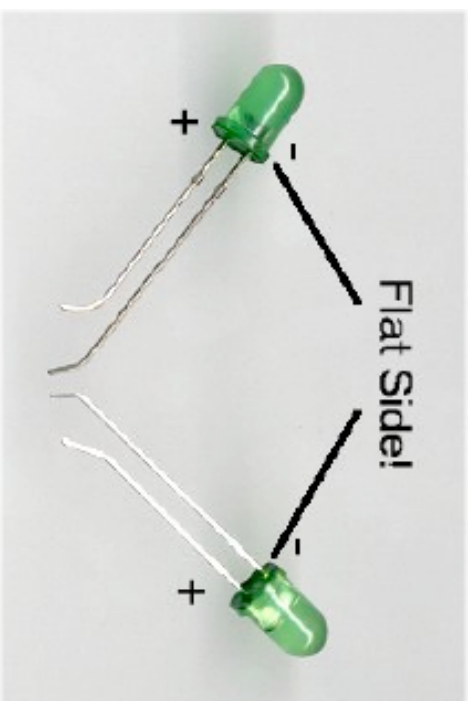
Connect capacitor +part with B(2N3906).  
Connect resistors with C (2N3904).  
Do the same with second capacitor set.



You should have now something like that.



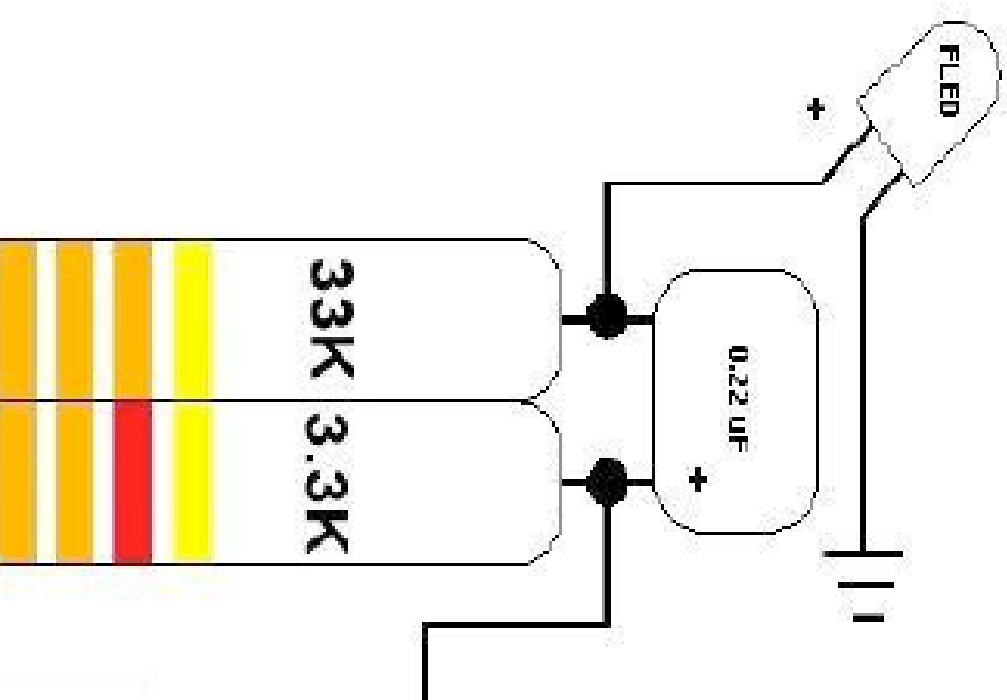
## FLEDs



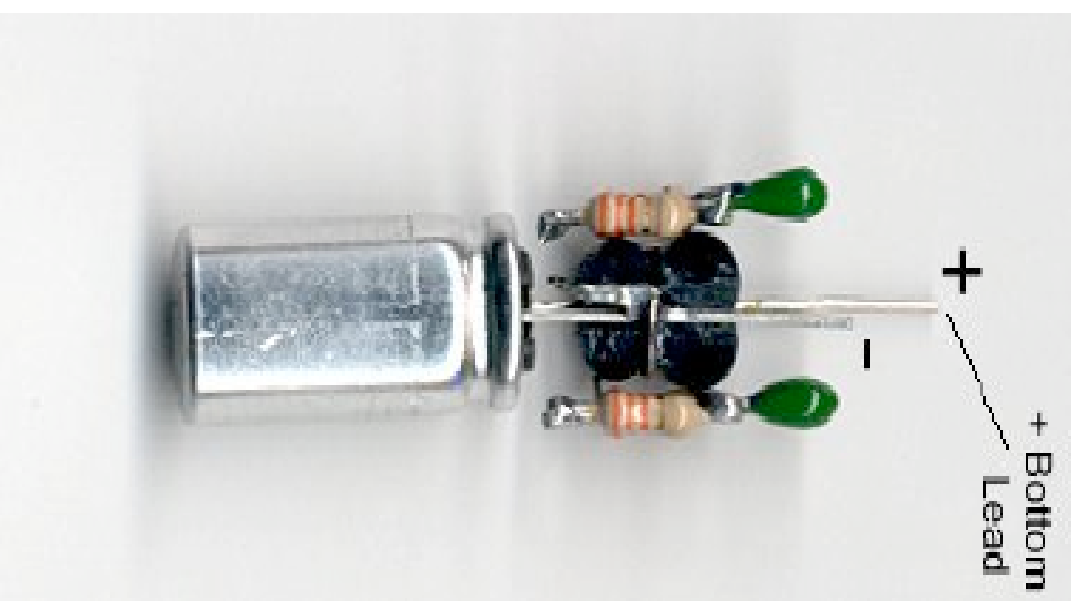
Connect FLED+ to capacitor- side.  
FLED- goes to ground  
Do the same with left side.

## RIGHT SIDE

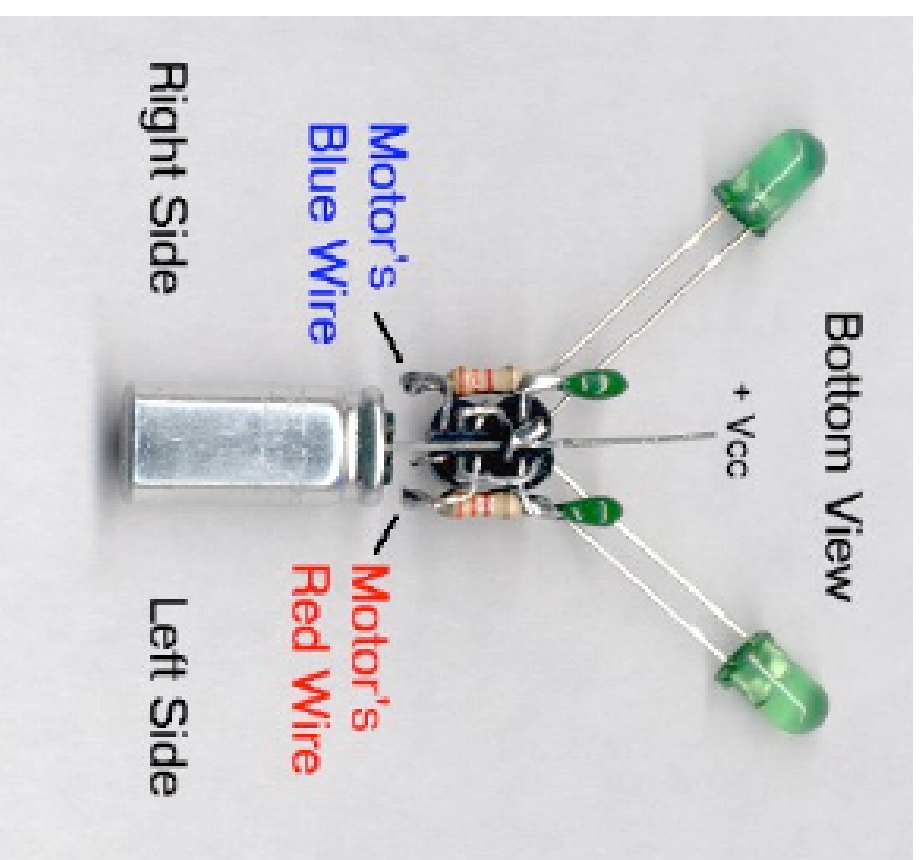
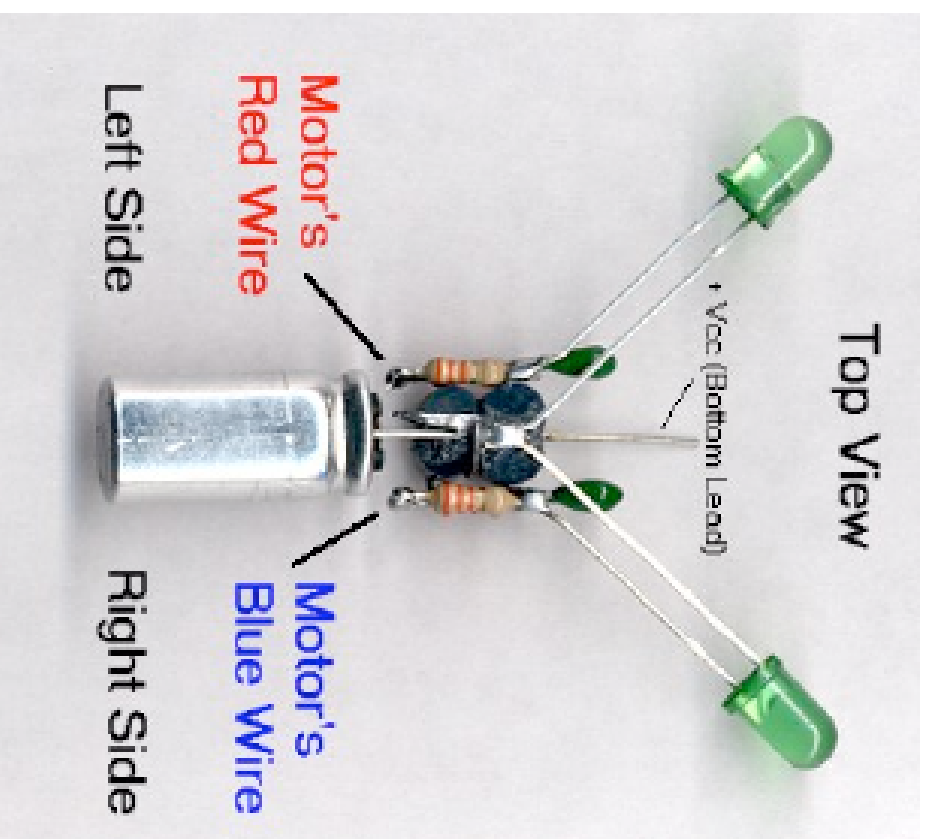
F



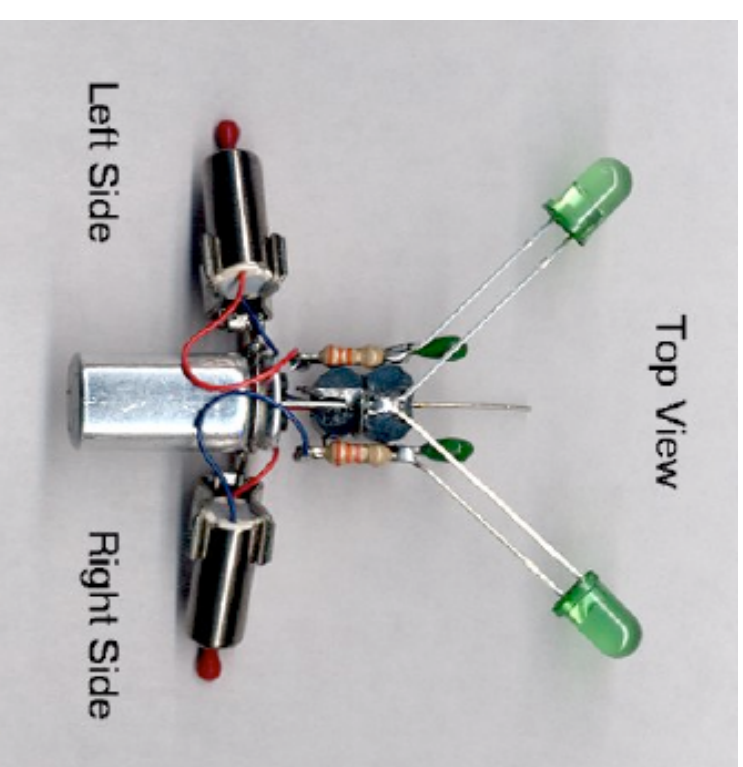
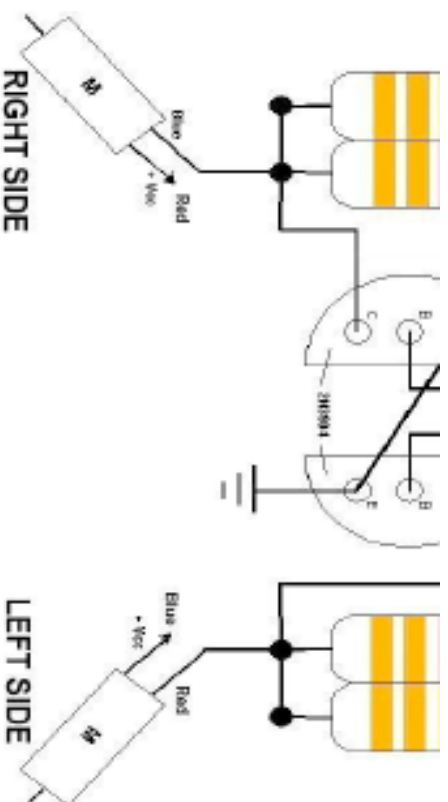
Add big capacitor  
-side goes to GROUND and +side goes to POWER



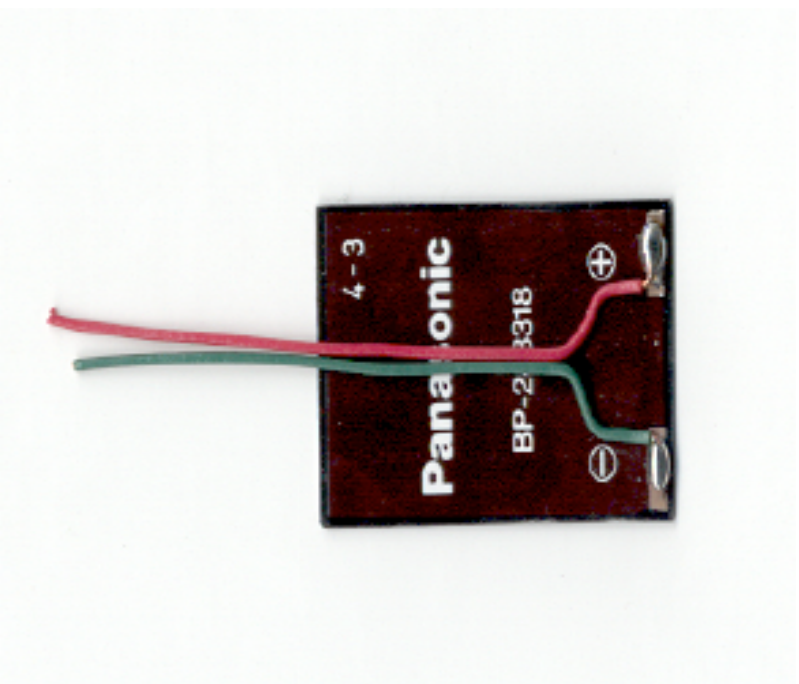
Connect two motors



Free wires of motors connect to POWER!



Solder 2 wires to the solar cell



Attach it to the circuit responsible: ground to ground and power to power

(Facing You)

