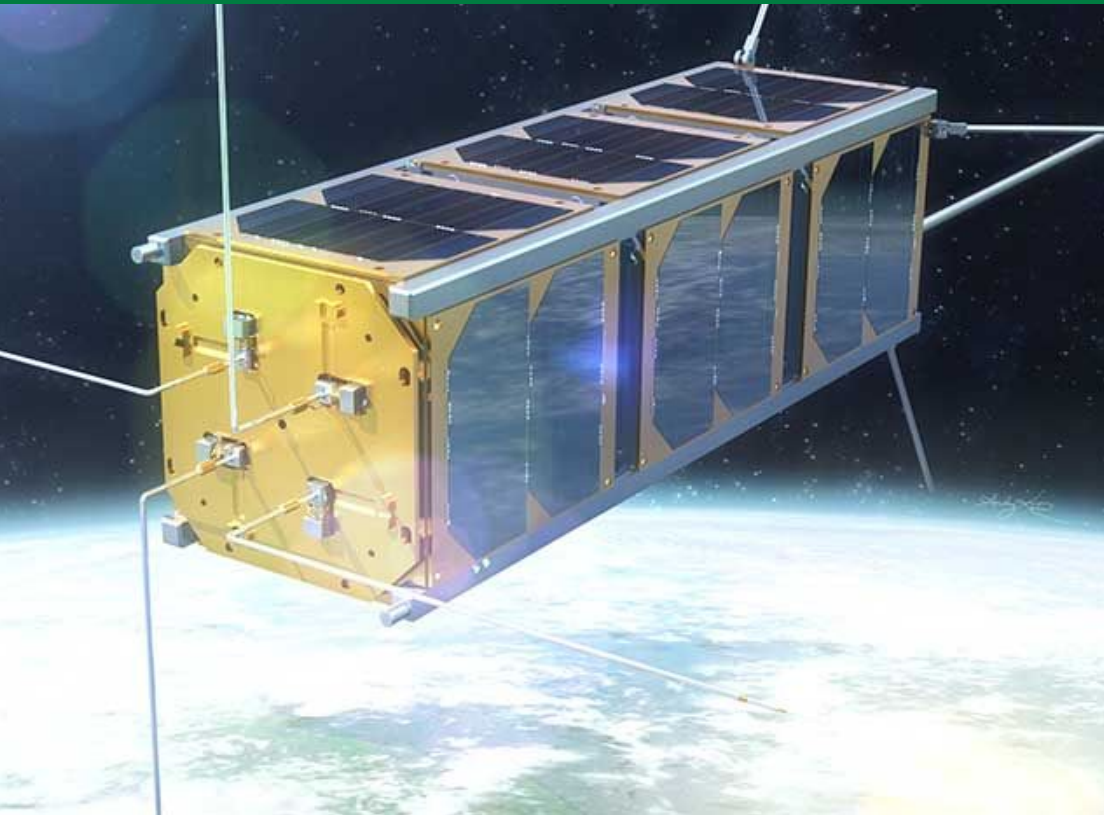


The logo features a stylized 'A' composed of two overlapping loops, one white and one green, with a green arrow pointing upwards and to the right.

AlbertaSat



Solar Power with AlbertaSat

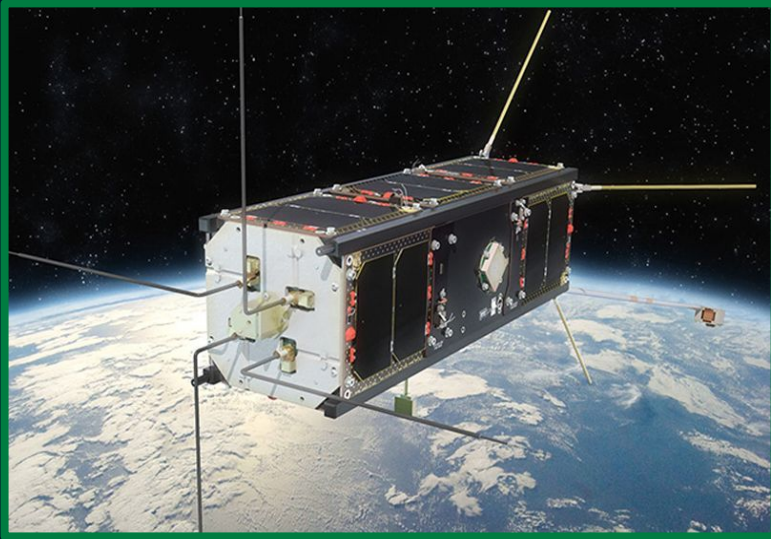


We are a student group who builds satellites

Ex-Alta 1



Ex-Altas 1: the space weather satellite

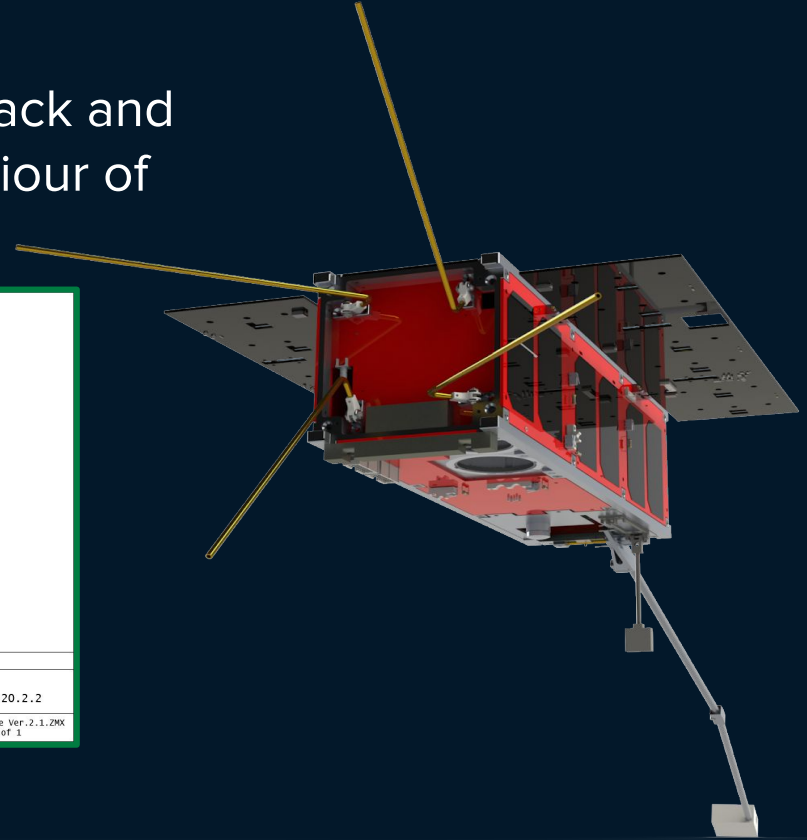
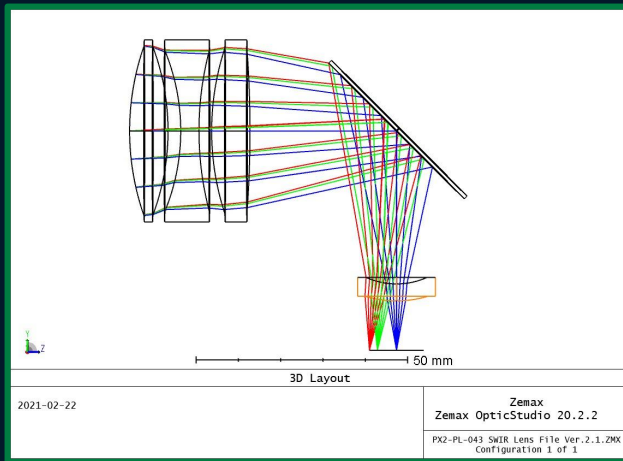
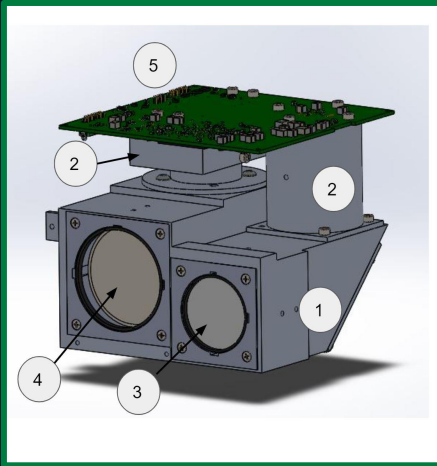


The scientific purpose of Ex-Altas 1 was to monitor space weather.

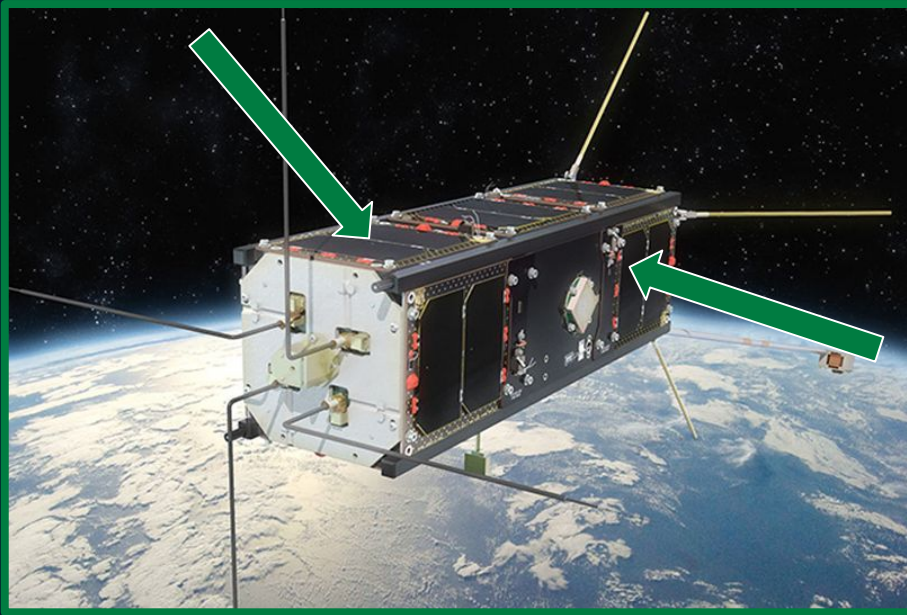


Ex-Alta 2: the wildfire camera

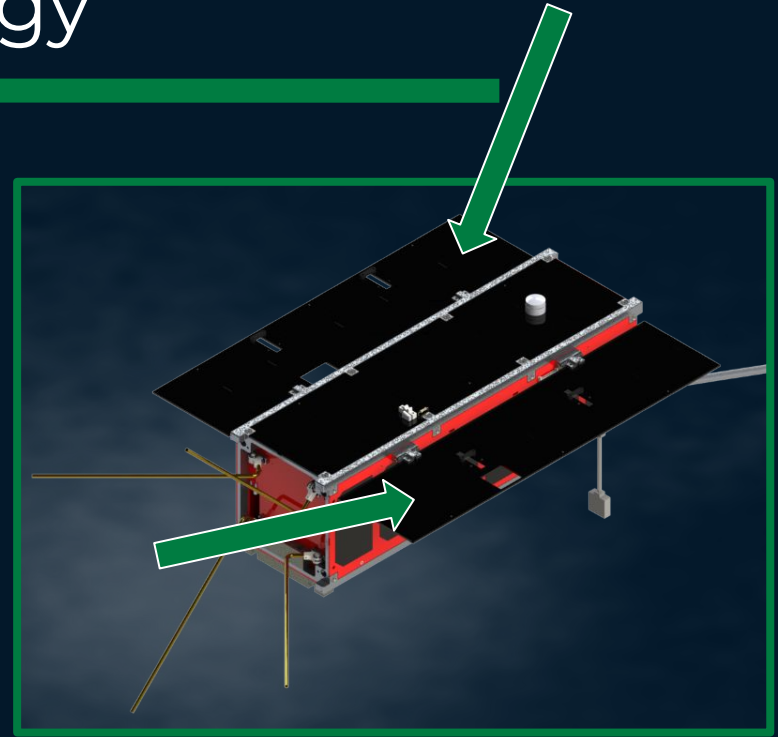
The scientific purpose of Ex-Alta 2 is to track and assess wildfires, and to predict the behaviour of future wildfires.



Powered by solar energy



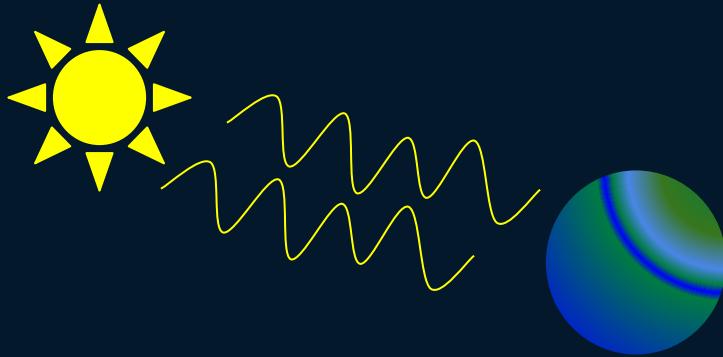
Ex-Alta 1



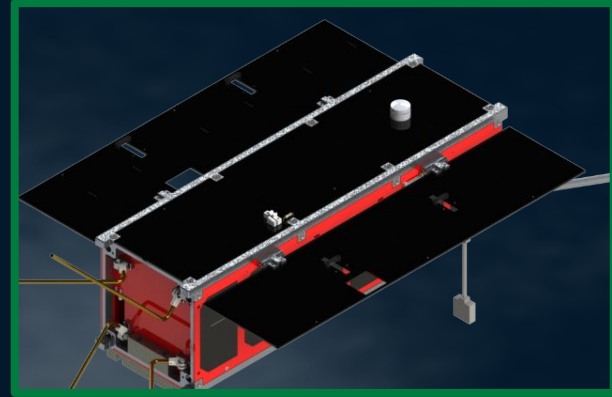
Ex-Alta 2



How solar panels work



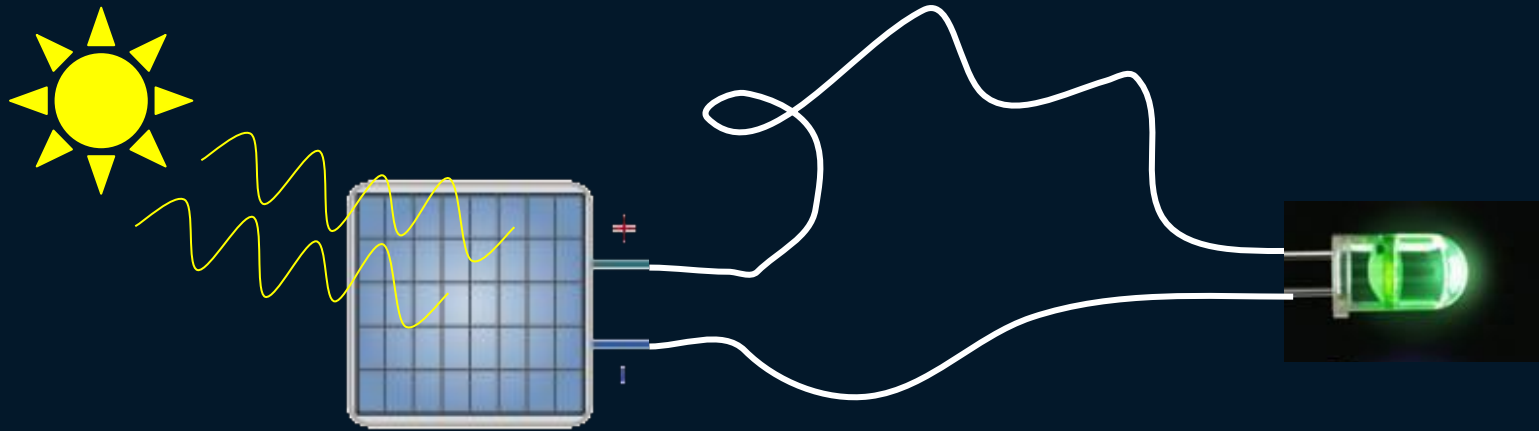
Energy radiates from the sun to the earth in the form of light.



When light (photons) hit the solar panels, the energy excites the electrons in the panels and they start to move.



Electrons can flow in closed loops



The circuit has to be complete (one continuous path) for the electrons to be able to flow and power the light



Open your electronics kit

PLEASE BE GENTLE WITH THESE PARTS

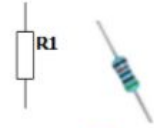
What is a resistor?

What is an LED?

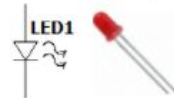
What is a breadboard?

BAG CONTENTS

1 Resistor



1 Light



2 Solar Panels



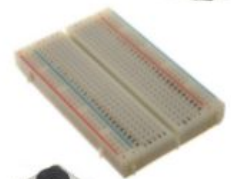
1 Capacitor



2 Wires

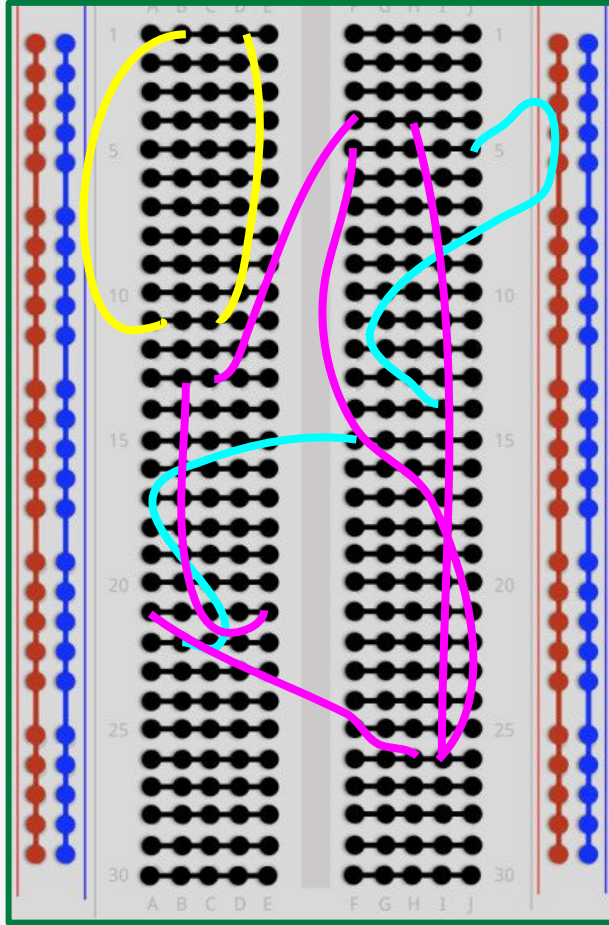


1 Breadboard



1 Switch



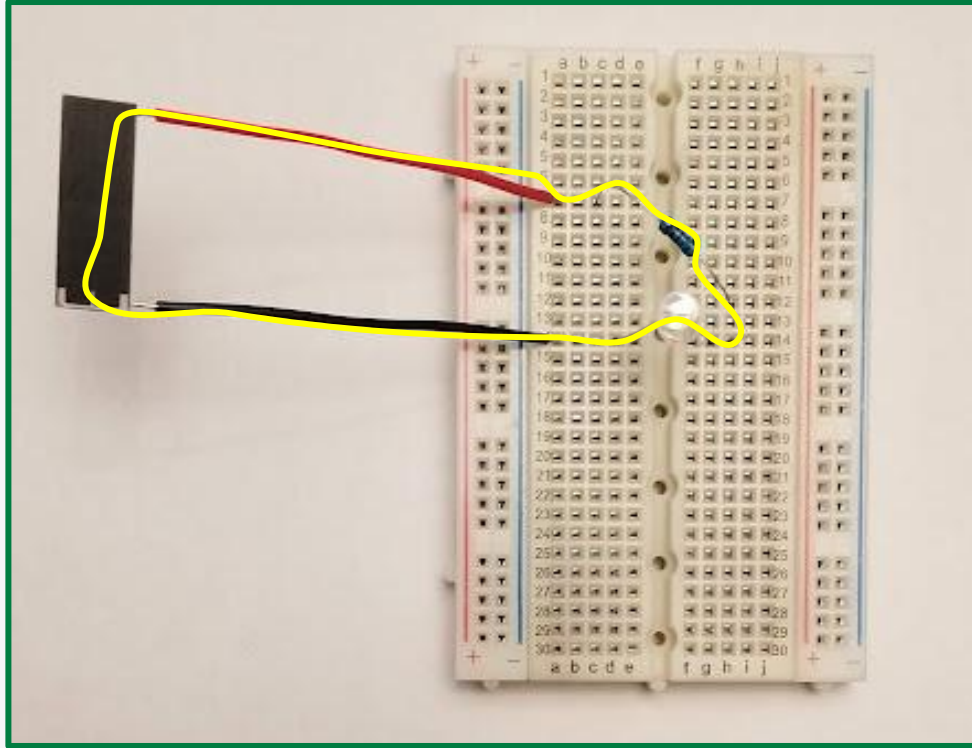


The **rows** of the breadboard are **connected**, just like slices of bread

Remember, we need a **closed loop** for the circuit to work!

Is this a closed loop?



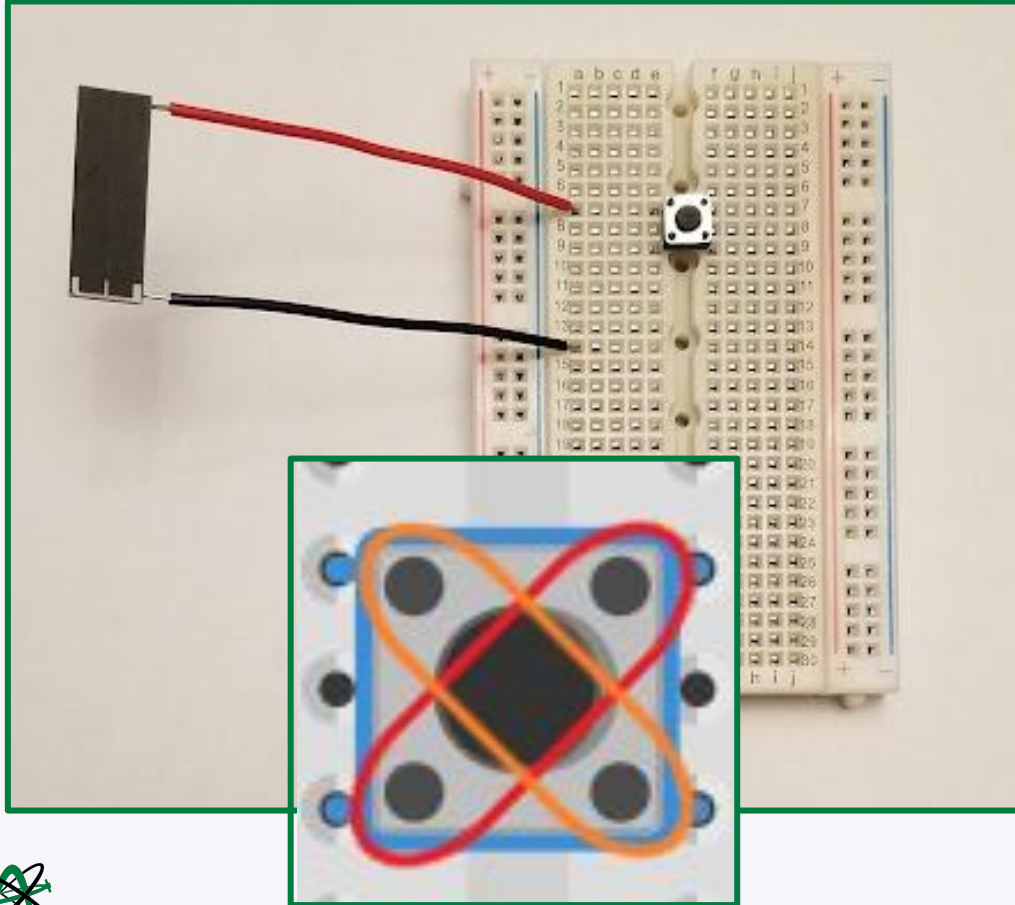


Step 1:
Find your **RESISTOR**,
LED, and **1 SOLAR**
PANEL, and connect
them in a closed loop.

Hint:
SHORTER LED wire
needs to be **closer** to the
BLACK wire



Shine a light on the solar panels to make sure it works!

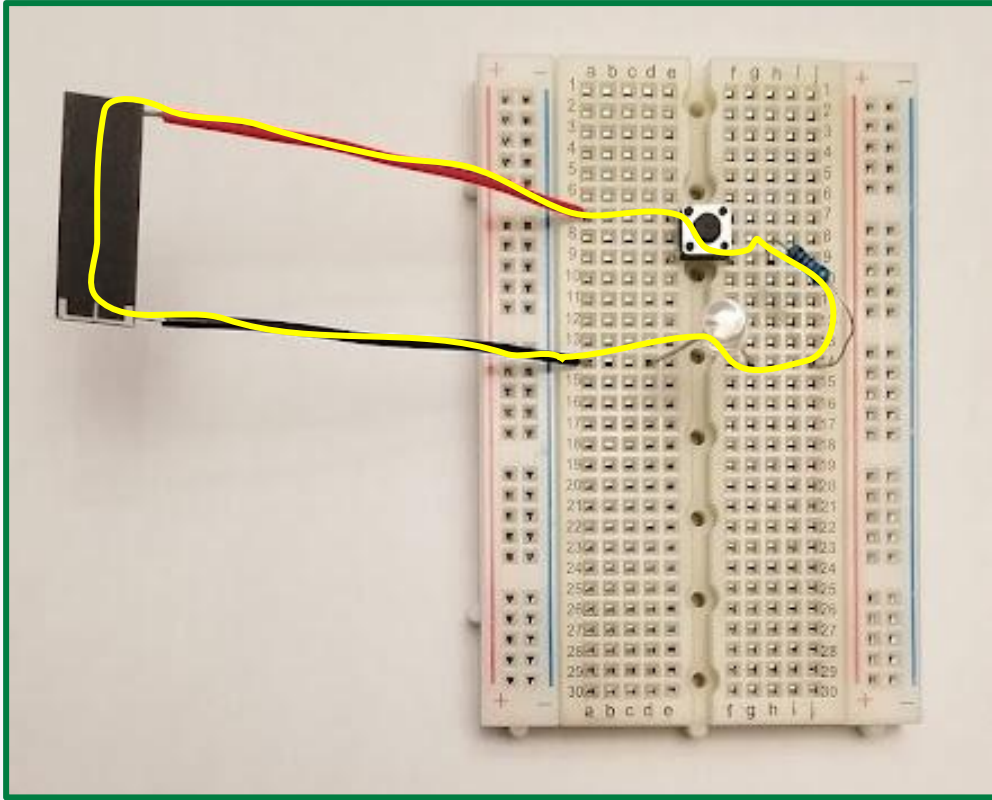


Step 2:

Take off the **LED** and the **resistor** and attach the switch across the middle of your board, the **TOP** needs to be in the **same** row as the **RED** wire.

The **switch** connects **diagonally** when it is pressed down

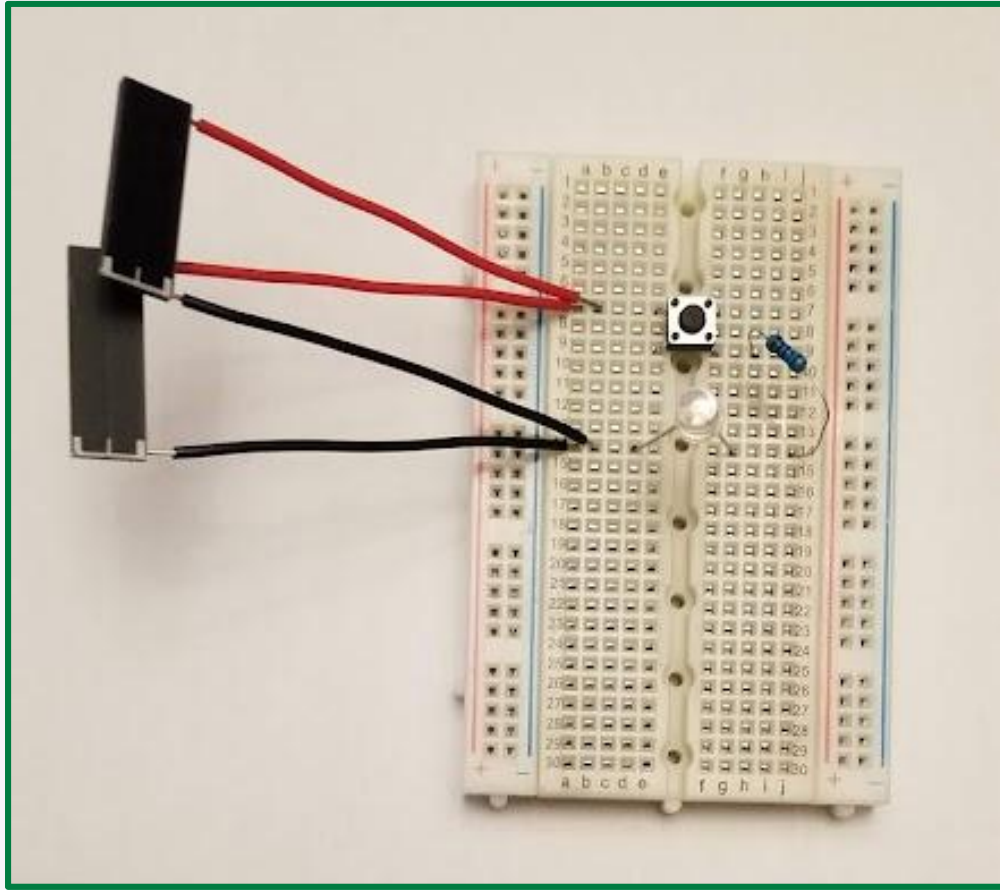




Step 3:
Reconnect your
RESISTOR and **LED** to
form a closed loop.



Shine a light on the solar panels to make sure it works!

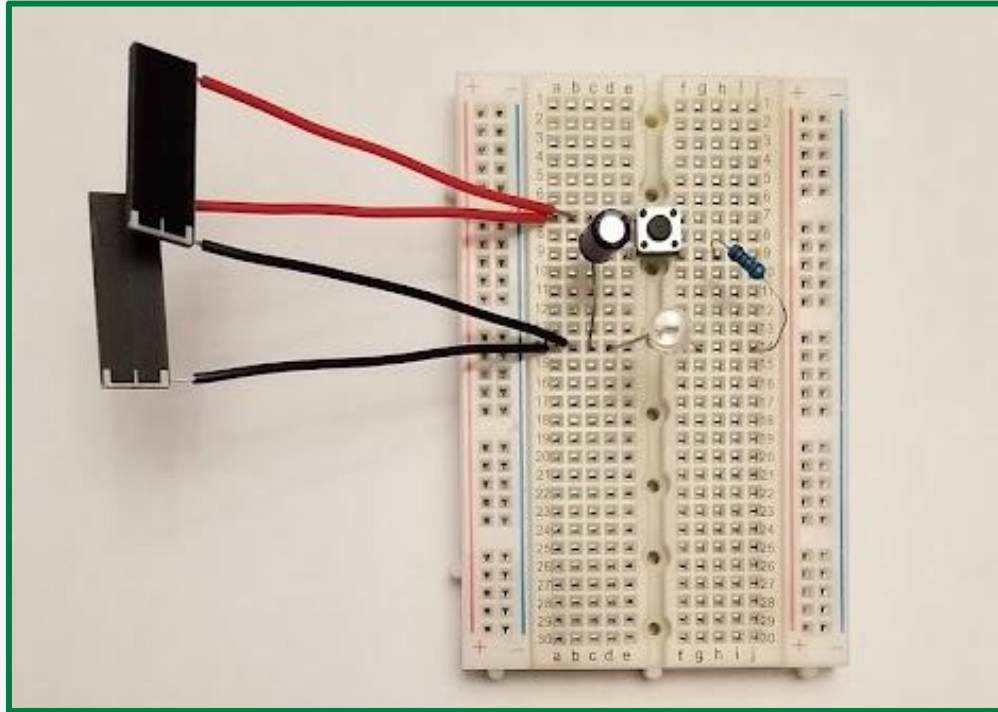


What do you think will happen if we add another solar panel?

Step 4:
Attach another solar panel and find out!



Shine a light on the solar panels to make sure it works!



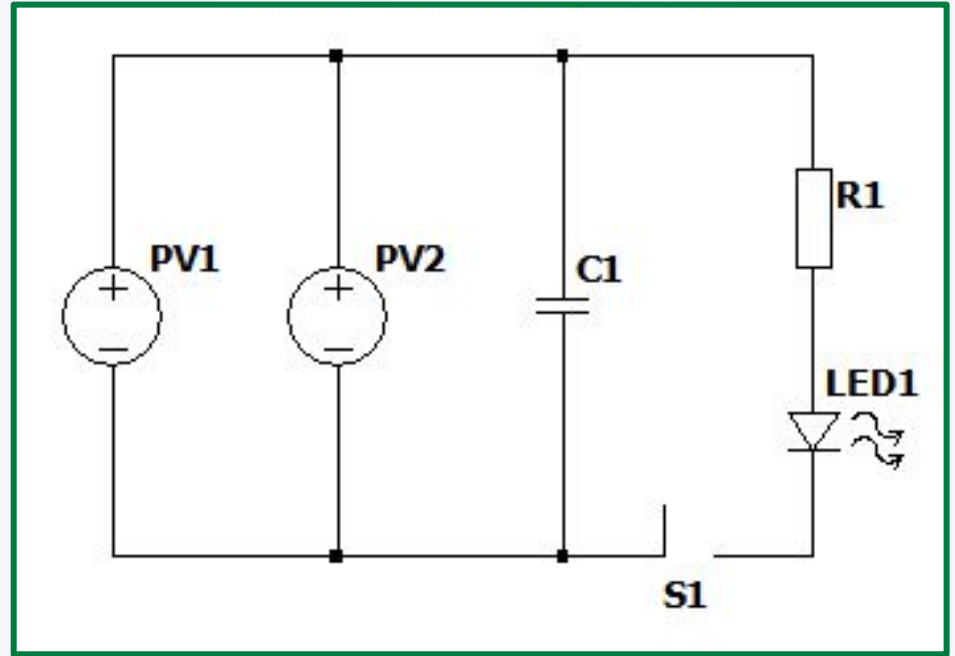
Does anyone know what a **CAPACITOR** is?

Step 5:
Add the **CAPACITOR**
across the rows of the
solar panels



CONGRATULATIONS!

You have made a circuit which can store energy from the sun and then discharge it later to power a light!



The logo for AlbertaSat features a stylized satellite or orbital path. It consists of two white elliptical orbits that intersect at two points, forming a figure-eight shape. A green line, representing a satellite or a specific orbital path, is superimposed over the white orbits, starting from the bottom left and curving upwards and to the right.

AlbertaSat

