**-**

10uF

Mobile Phone

**+**

**-**

**+**

**-**

**Input from Solar Panel**

100uF

Solar panel

100uF

**+**

**-**

USB PORT

Data Cable

Output to USB

1 2 3 3

IC 7805

**+**

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**Step 1 - Drawing**

**Step 2 - Tool Box/ Tool Kit**

Open the kit and get the tools and materials to use

**Step 3 - Tools and materials**

* Identify the tools and materials
* Arrange the materials and the tools

**Materials**

Solar panel of (10v)

Diode

Resistors

Regulator(5MA-20AM)

Capacitors of (10-100)

LED light of (2v or 3v)

Jumper wire

Circuit board

Bread board

**Tools**

Wires (red and black)

Soldering iron

Soldering wire

Soldering grease

Helping hand

Sucker

Scissor

Multimeter

LED tester

**Step 4 - Test the following materials**

The total voltage of the solar panel

The LED light using the LED tester

**Step 5 - Calculations**

Calculate the Resistance

**Step 6 - Bread board**

Get the bread board and place it at the helping hand

**Step 7 - Fix the following materials**

Fix a positive (+wire red in color) and negative (-wire black in color) for input source (power)

Fix the diode

Fix a positive wire from the input source (+wire) to the diode

Fix the resistors in positive side of the diode and have to be in series for easy calculation

**Step 8 - Resistor**

Fix the resistors in positive side of the diode and have to be in series for easy calculation

**Step 9 - LED light**

Fix the LED light to positive side of the resistors

**Step 10 - Regulator**

Fix the regulator where the black side need to face your side

**Step 11 - Small Capacitor**

Fix the small capacitor

**Step 12 - Big capacitor**

Fix the big capacitor

**Step 13 - Regulator and diode**

Connect the left pin of the regulator to the diode and resistors

**Step 14 - capacitor, diode, resistor and regulator**

Connect the positive pin of the first capacitor to the join the diode, resistors and the left pin of the regulator

**Step 15 - Regulator and big capacitor**

Connect the right pin of the regulator to the positive pin of the big capacitor

**Step 16 - Regulator and LED**

Connect the middle pin of the regulator to the negative pin of the LED light

**Step 17 - Small capacitor to the LED**

Connect the negative pin of the small capacitor to negative pin of the LED light

**Step 18 - Big capacitor and LED**

Connect the negative pin of the big capacitor to negative pin of the LED light

**Step 19 - All negative sides**

In all connect the negative sides together

**Step 20 - Positive wire**

Fix +wire to the positive pin of the big capacitor

Step 21 - Negative

Fix –wire to the negative pin of the big capacitor

Step 22 - Female USB

Connect the female USB to the +wire and –wire on the capacitor

Step 23 – Test

Test the solar charger in the sun and test the output and charge the phone