

Description of basic components of solar street light system:

A standalone solar photovoltaic street lighting system is an outdoor lighting unit used for illuminating a street or an open area. Recent advances in LED lighting have brought very promising opportunities for application in street lighting. Combining LED's low power, high illumination characteristics with current photovoltaic (PV) technology, PV powered street light utilizing LED has become a norm in many places. In today's application, most of the common High Intensity Discharge (HID) lamps, often High Pressure Sodium (HPS) lamps are being replaced by more low powered Light Emitting Diode (LED) lamps.

A basic solar powered LED street light system component are:

1. Solar Panel or Photovoltaic Module

2. Lighting Fixture – LED lamp set

3. Rechargeable Deep Cycle Battery

4. Solar Charge Controller

5. Light Pole The Solar Panel will provide electricity to charge the battery during day time. The battery's charging is controlled by a charge controller. The operation of the LED bulb is controlled by a control circuit either by using sensors such as Light Dependent Resistor (LDR) or voltage or current sensor. All these components will be fixed on a pole as shown in Figure 1 below. The solar panel is mounted at the top of the pole to minimize the possibility of any shading on the panels.

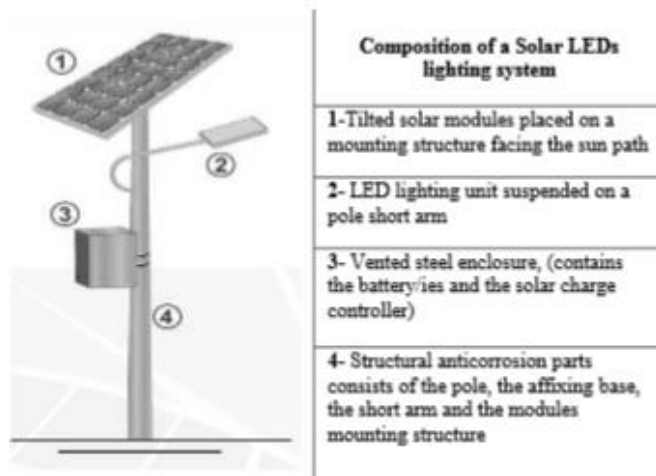


Figure 1: Solar Street Light

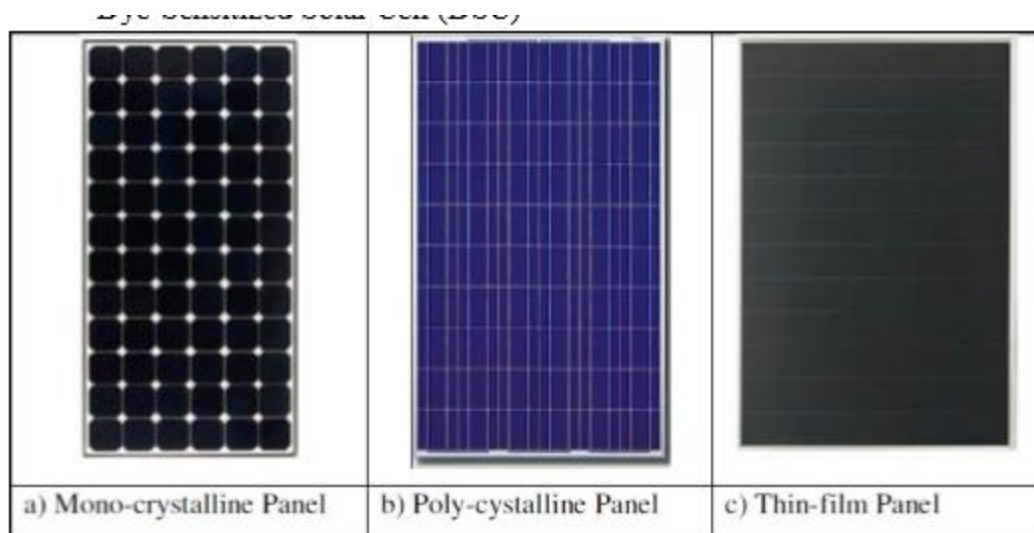


Figure 2: Types of Solar PV Module



Figure 3: Examples of LED solar street lamps



Figure 4: Examples of charge controller

