**Power Consumption of Dustbin Sensor:**

Nodemcu power consumption = 0.1142 whr

For 8 hr a day = 0.1142\*24=2.74whr

Ultrasonic Sensor consumption = 0.075whr

For 8 hr a day = 0.075\*24 = 1.8 whr

Total load = (2.74+1.8) = 4.55 whr

Battery Voltage = 3.7 V

Battery Capacity = 3600mAh = 3.6mAh

Solar Charge controller = 4.5 V with 90% efficiency

Power Controller = 3.3V regulator with 85% efficiency

Charge Depth = 75%

Power Required = (0.90\*0.85\*0.75)\*3.7\*3.6 = 7.6423 whr

Cell Required = load/power = 4.55/7.6423 = 0.5953~1