# 📊 Power & Battery Calculations🔋

# Power Consumption

• Soil Moisture Sensor:  
 - V = 3.47V, I = 12mA  
 -

• Arduino UNO:  
 - V = 5V, I = 50mA  
 -

• Bluetooth Module (HC-05):  
 - V = 5V, I = 30mA  
 -

• Motor with L298N:  
 - V = 5V, I = 500mA  
 -

• Buzzer:  
 - V = 5V, I = 30mA  
 -

Total Power Consumption:

# Battery Calculations

Battery Specs: 3.7V, 2600mAh = 2.6Ah

Energy per Battery:

Runtime with 1 battery:

Required Runtime = 7 hours

Total Energy Required =

Number of Batteries Required =

# Solar Panel Efficiency

* **Panel Power** =
* **Panel Dimensions** =
* **Voc** ≈ 2.4 V
* **Isc** =

**Total 42 Such panels will be required.**

**✅ For 42 Panels:**

* **Total Power** =
* **Total Area** =

# Summary Table

|  |  |
| --- | --- |
| Component | Power (W) |
| Soil Moisture Sensor | 0.041 |
| Arduino UNO | 0.250 |
| Bluetooth HC-05 | 0.150 |
| Motor & L298N | 2.500 |
| Buzzer | 0.150 |
| Total | 3.1 |