SolarGuardn v0.7.02

# Parts

(Only one of each part is needed, but some things are cheaper in quantity if you don’t have them laying around already. The parts specified above are just examples, use what you have laying around or can find locally, as desired)

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| --- | --- | --- |
| **Description** | **Source** | **Price** |
| NodeMCU devkit V1.0 ESP-12E | <http://a.co/10eGSEd> | $8.69 |
| Solderable Protoboard | <http://a.co/g65cxVk> (qty 3) | $12.52 |
| Yard light to hack | <http://a.co/i6eFgRK> | $9.99 |
| DC to DC Voltage Regulator | <http://a.co/eJytx5X> (qty 5) | $7.99 |
| 10K ohm trim pot | <http://a.co/iqWQHtd> (qty 10) | $7.99 |
| BME280 I2C Weather Sensor | <http://a.co/6fis93Z> | $12.72 |
| 100ohm resistor | <http://a.co/1EHDSJW> (qty100) | $5.16 |
| NPN transistor | <http://a.co/6SemMNQ> (qty 100) | $5.90 |
| Electrolytic Capacitor | <http://a.co/3eo9hUW> | $5.86 |
| Sonoff POW | <https://www.itead.cc/sonoff-pow.html> | $10.50 |

I suggest building your circuit on a solderless breadboard first, then transfer to soldered protoboard once you are satisfied with its operation. I highly recommend soldering female header strips to your PCB for the NodeMCU, the BME module and even the transistor, so they’re easily replaced or repurposed.

# Features

* ESP8266/Arduino platform
* Over-the-Air (OTA) updates from Arduino IDE
* BME280 to read Temperature, Humidity, Pressure
* Soil moisture reading
* AdafruitIO/MQTT data logging
* WiFi client, to control other devices
* WiFi web server, for status page and remote reset
* Pump control by custom URL (works with Sonoff/Tasmota, etc)
* SPIFFS config file, eventually configured thru web page

# pin definitions

|  |  |  |
| --- | --- | --- |
| **GPIO** | **Pin label** | **Description** |
| ADC | A0 | MOIST (analog) |
| 4 | D2 | MPOW |
| 0 | D3 | BUTTON (flash) |
| 14 | D5 | I2C-CLK |
| 12 | D6 | I2C-DAT |