



Homautomation
or How do I automate my home



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Measure soil Moisture with Arduino – Gardening

By Vincent Demay in [Arduino, Electronics](#)

June 20, 2014 12 Comments

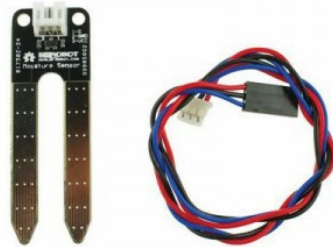


Needed Hardware



Arduino Uno

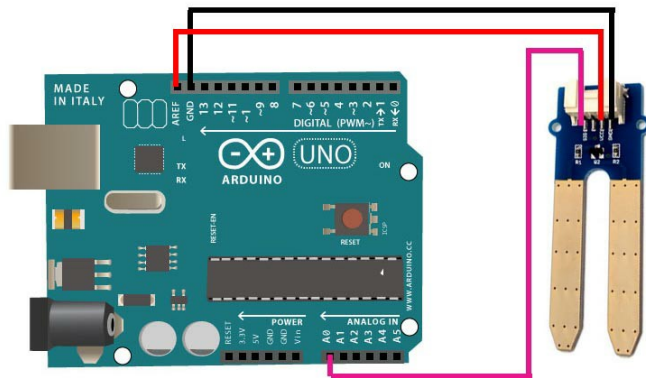
Price: less than \$30 (Amazon)



A moisture sensor

Price: less than \$7 (Amazon)

Simple Way to connect to the Arduino



code

```
int sensorPin = 0; // select the input pin for the potentiometer
int sensorValue = 0; // variable to store the value coming from the sensor

void setup() {
  // declare the ledPin as an OUTPUT:
  Serial.begin(9600);
}

void loop() {
  // read the value from the sensor:
  sensorValue = analogRead(sensorPin);
  delay(1000);
  Serial.print("sensor = ");
  Serial.println(sensorValue);
}
```

Output

Sensot in air: value = 0

```
sensor = 0
sensor = 0
sensor = 0
sensor = 0
```



amazon

Shop. Connect. Enjoy.

All from Earth's biggest selection
Shop now

Privacy

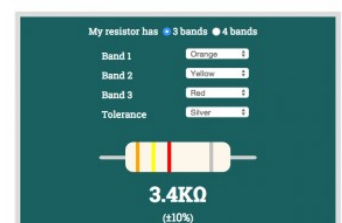
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MY ONLINE RESISTOR CALCULATOR

Compute your resistor value :



Sensor in dry soil: 0 < value < 300

```

sensor = 35
sensor = 41
sensor = 38
sensor = 49

```

Sensor in humid soil: 300 < value < 700

```

sensor = 578
sensor = 576
sensor = 582
sensor = 589

```

Sensor in water: value > 700

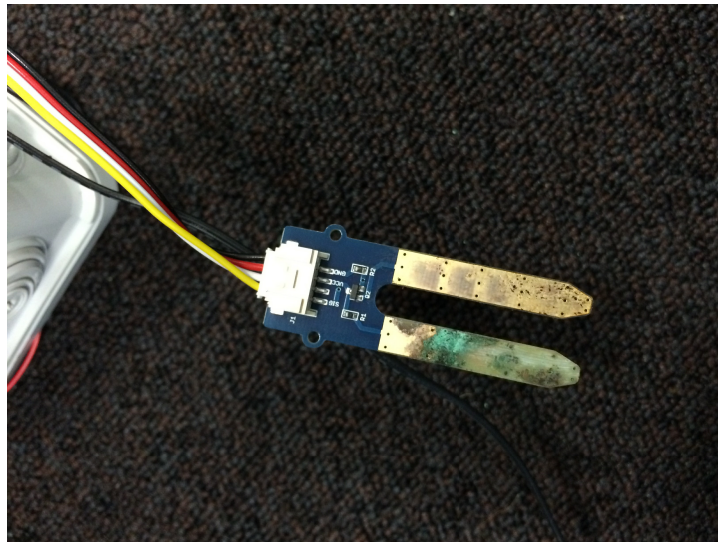
```

sensor = 934
sensor = 940
sensor = 938
sensor = 940

```

Drawbacks

Using this sensor on this way always makes current cross over the sensor. It can cause corrosion across the probes.

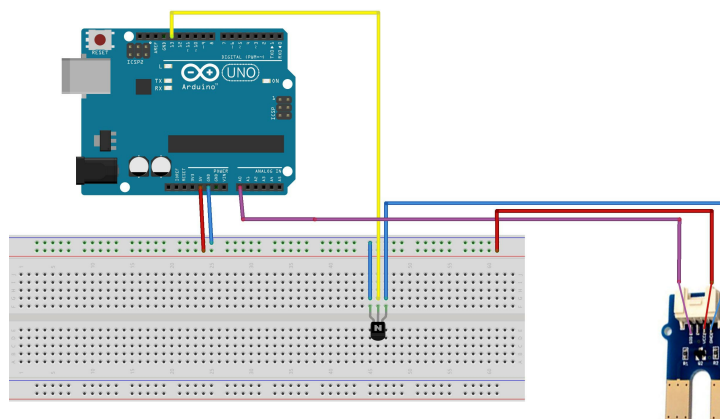


Solutions:

- Do not left in place the sensor.
- Stop to power the sensor when is not used (see below)

Keep your sensor alive for a while

Here the aim is to stop to power the sensor when it is not used. Let says we want to get a value each 1min.



Code

```

int sensorPin = 0; // select the input pin for the potentiometer
int sensorValue = 0; // variable to store the value coming from the sensor

int sensorVCC = 13;

void setup() {
  // declare the ledPin as an OUTPUT:
  Serial.begin(9600);
  pinMode(sensorVCC, OUTPUT);
  digitalWrite(sensorVCC, LOW);
}

void loop() {
  // power the sensor
  digitalWrite(sensorVCC, HIGH);
  delay(100); //make sure the sensor is powered
  // read the value from the sensor:
  sensorValue = analogRead(sensorPin);
  //stop power
  digitalWrite(sensorVCC, LOW);
  //wait

```

fritzing

Download Fritzing parts of breakouts and components used in this blog clicking here

```
delay(60*1000);
Serial.print("sensor = " );
Serial.println(sensorValue);
}
```

Perspectives

This kind of sensor can be used to check plant watering or to auto water a plant.



2



TAGS

arduino

humidity

soil moisture



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12 COMMENTS



MG

November 3, 2014 at 5:52 pm

Hi

Thx for the NPN trick, I noticed that if you want an accurate value, the delay value must be over 100ms

np : I'm not using the same model of sensor

Reply

Pingback: Measure soil Moisture with Arduino – Gard...



Benadski

December 10, 2014 at 2:29 pm

Very cool projects!

If you use AC on the sensor it will last forever. Just desolder all of the active components on the sensor and wire both vcc and gnd to digital pins. Measure the voltage on the output just after the gnd pin is low and vcc is high and you should be fine I think. Also do an analog read when the applied power is opposite and ignore the reading, then make both pins vcc or gnd.

Reply



Vincent Demay

December 10, 2014 at 2:55 pm

Hi Benadski

Thanks for the trick

Best,

↩ Reply



Daniel Pamp

🕒 May 22, 2015 at 9:39 pm

Lovely project! Which kind of NPN – transistor is that? Would it be possible to control the on/off – position of the sensor without one? I'm new at this, trying to introduce it to my 7th graders.

↩ Reply

Pingback: Walipini | Pearltrees



senz90

🕒 August 11, 2015 at 7:36 am

Using a transistor without a base resistor? Not a good idea!

A BC-337-40 with 1k base resistor works well. Little oversized.

↩ Reply



San

🕒 November 1, 2016 at 6:19 pm

Hello Senz,

Can you please tell why using transistor without a base resistor not a good idea?

↩ Reply



ajay

🕒 November 17, 2015 at 5:05 am

hi, Vincent Demay

i tried to do this, but the output i'm getting for sensor in air is 1023,when i connect analog pin A0, when i connect to other pins such as a2,a3,a4,a5, its getting decreased values til 500.

can u kindly tell me where i went wrong!?

↩ Reply

Pingback: Yeni Proje: Sera – 02– Requirements | tetproject



mehmet savas

🕒 March 27, 2016 at 9:14 pm

do you think the Rain Sensor's have the same problem of corroding and NPN would work with them as well?

↩ Reply



San

🕒 November 1, 2016 at 6:18 pm

I cannot find BC-337 npn on internet . Will either from this (https://www.amazon.in/gp/aw/d/B00OIZDJG/ref=mp_s_a_1_2?ie=UTF8&qid=1478020566&sr=8-2&pi= SX200_QL40&keywords=npn&dpPl=1&dpID=31n9vD1MrL&ref=plSrch) be good enough?

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