

What is Rain Sensor?



Rain sensor is a switching device that makes use of rainfall for activation purposes. The working principle of the rain sensor is that whenever it detects water, it automatically closes the switch. The main applications of the rain sensor are in water conservation devices in irrigations and keeping the interiors of automobiles safe from moisture.

Scientific Fact and Applications

The sensor is either capacitive or resistive in nature. In housing material, the rain sensors are made up of polypropylene. In windshield wipers, the material used in sensors is aluminium.

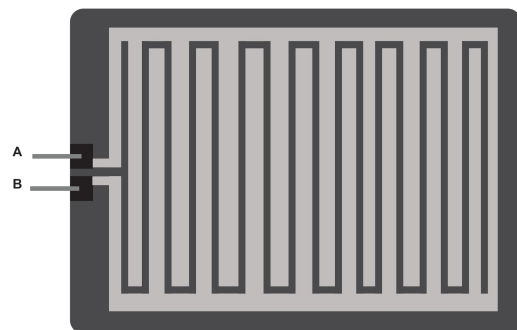
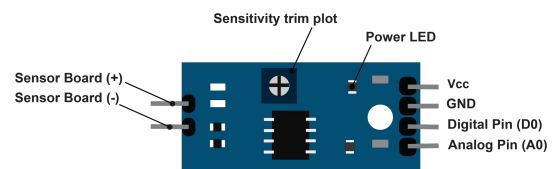
Applications:

Irrigation Systems:

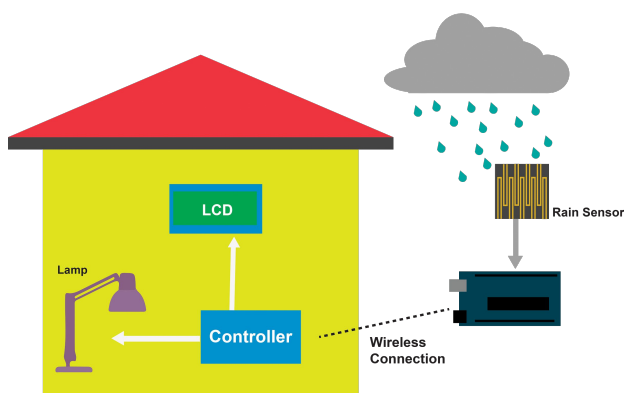
They make use of a hygroscopic disk, which expands upon absorbing moisture from the rain and in turn is used to turn off the irrigation system.

Automotive sensors:

These rain sensors are installed in the windshield wipers of the automobiles. Wipers will activate upon detection of rain on the windshield.



Bakelite or Mica Board



$$\text{Cloud} + \text{Rain Sensor} = \text{Lower Voltage output}$$

$$\text{Sun} + \text{Rain Sensor} = \text{Higher Voltage output}$$

Rain Sensor

(Application Note)

Project

To check the presence of water droplets using the rain sensor with arduino

Procedure

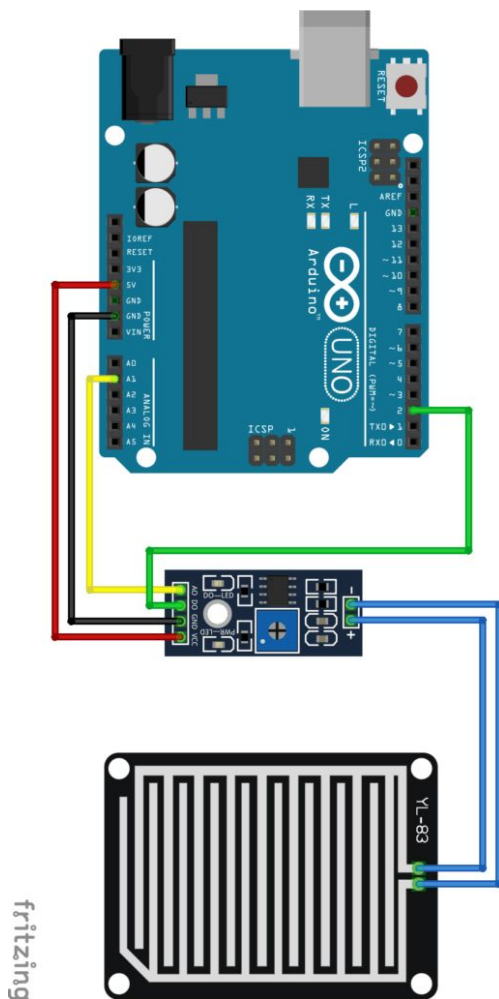
Rain Sensor IC Module:

- Connect **Vcc** pin of sensor to **5V** of Arduino
- Wire **GND** pin of the sensor to **GND** of the Arduino
- Connect **AO** pin to **A1** pin of Arduino
- Connect **DO** pin to **2** pin of Arduino

Sensor Mesh:

- Connect both the wires to - and + of IC module respectively

Schematic



Challenge Yourself

1. Design automatic wiper system using rain sensor
2. Make a model, if it rained a particular day, there shouldn't be watering the plants

Components Required

Component	Part No.	Qty
Arduino UNO	EMX-00001-A	1
Rain Sensor	EMS-00024-A	1

Code

```
const int Digvalue = 2; /*Use pin 2 of
Arduino as INPUT Digital value from
sensor*/
const int Analogval = A1; /*A1 pin = INPUT
Analog value from sensor*/
int val_analog; /*variable defined to store
the analog value*/

void setup() {
  pinMode(Digvalue, INPUT);
  pinMode(Analogval, INPUT);
  Serial.begin(9600); /*baudrate =9600*/
}

void loop() {
  if(digitalRead(Digvalue) == LOW) /*check if
the INPUT from Digvalue is LOW*/
  {
    Serial.println("Digital value :
wet"); /*if INPUT from Digvalue is LOW,
"Digital value : wet" will be printed on
serial monitor*/
    delay(12); /*wait for 12ms*/
  }
  else
  {
    Serial.println("Digital value :
dry"); /*if the INPUT from Digvalue is not
LOW, "Digital value : dry" will be printed
on serial monitor*/
    delay(12); /*wait for 12ms*/
  }
  val_analog =
  analogRead(Analogval); /*Reading the Analog
value of the sensor and storing it in
val_analog variable*/
  Serial.print("Analog value : "); /*Printing
"Analog value : " on the serial monitor*/
  Serial.println(val_analog);
  /*Printing the value stored in val_analog
on serial monitor*/
  Serial.println(""); /*Printing "" for
coming in next line*/
  delay(1000); /*wait 1000ms ie 1s*/
}
```