Getting started with Input-Output Ports

e-Yantra Team

Embedded Real-Time Systems (ERTS) Lab
Indian Institute of Technology, Bombay

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- Combines 256KB ISP flash memory, 8KB SRAM, 4KB EEPROM.
- Consists of 100 pins.
- Consists of 6 timers/counters, PWM, 4 UARTs, 16-channel 10 bit A/D converter and much more.

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     Port G;
- All Port pins can be individually configured as Input/Output.

GPIO header on eYFi-Mega

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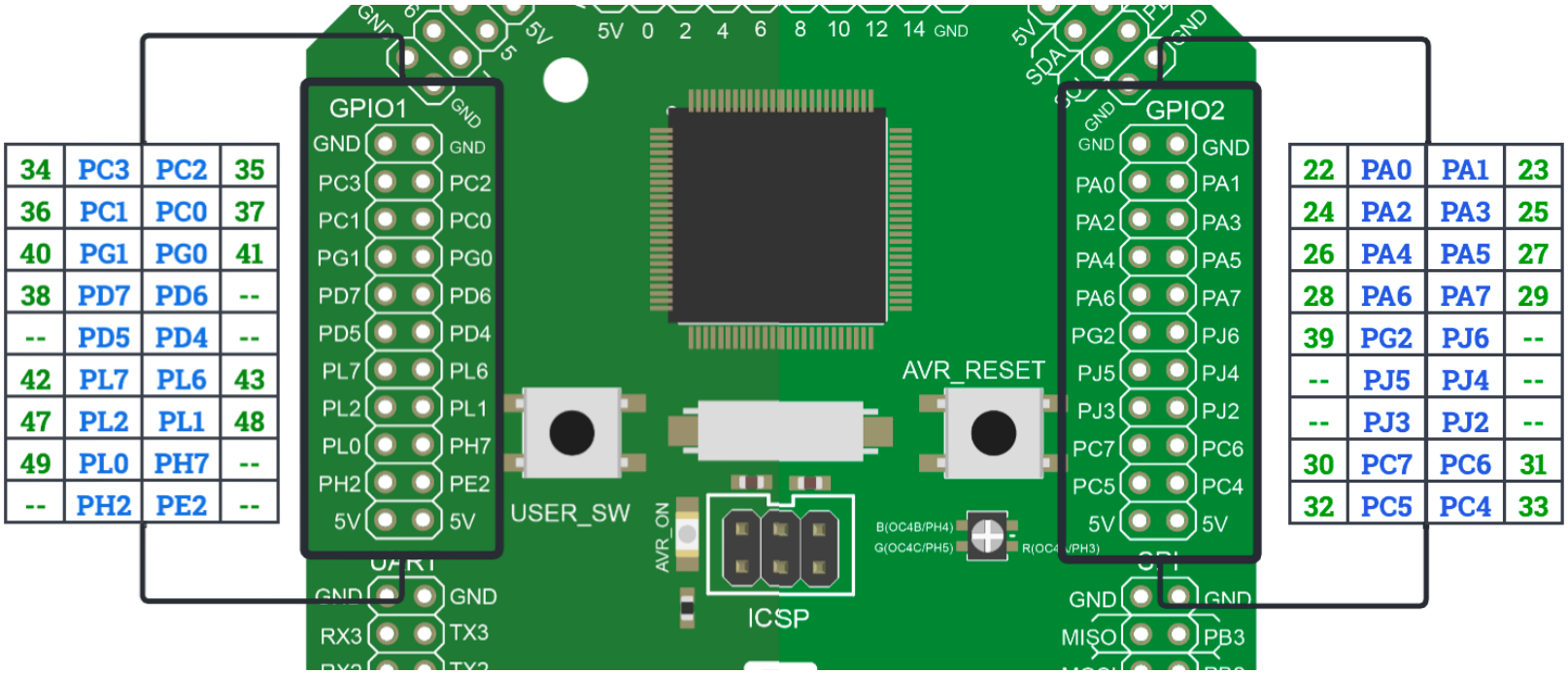

RGB LED and Switch Interfacing

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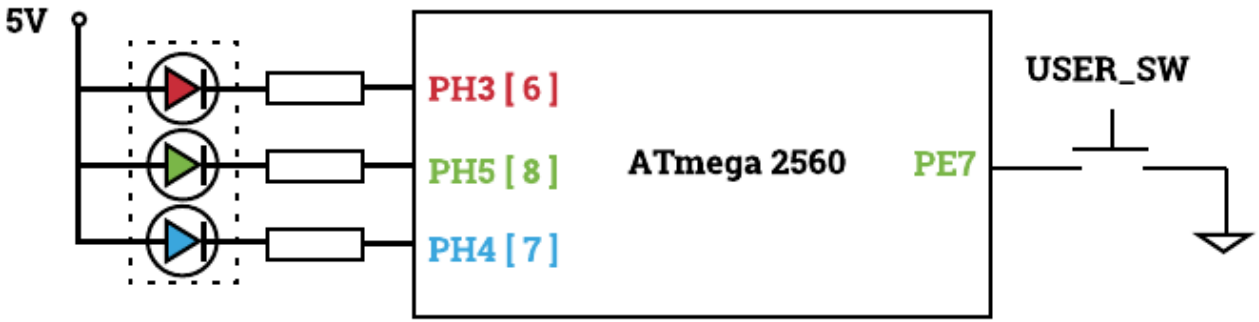

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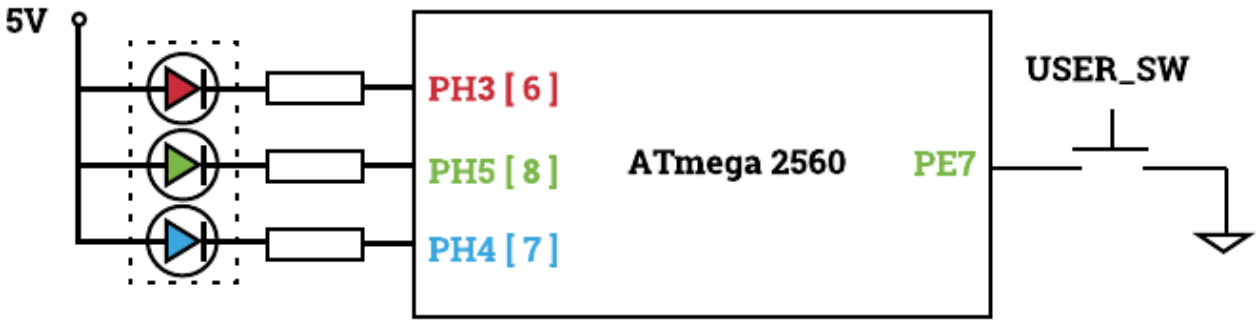

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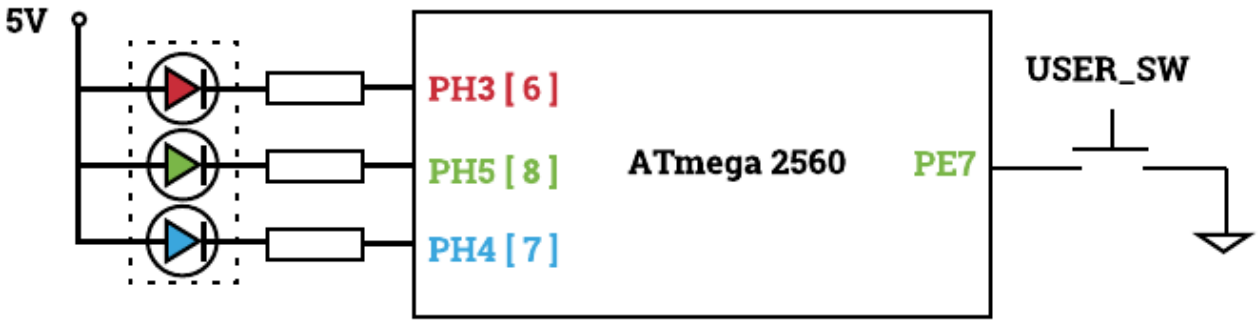

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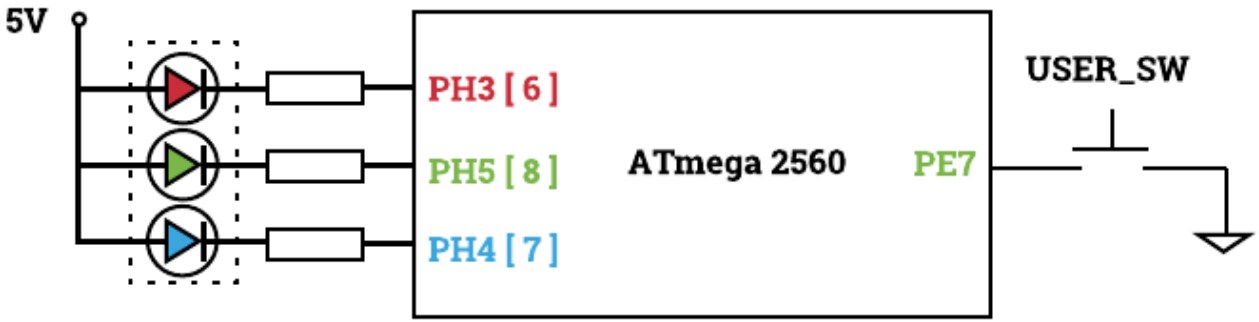

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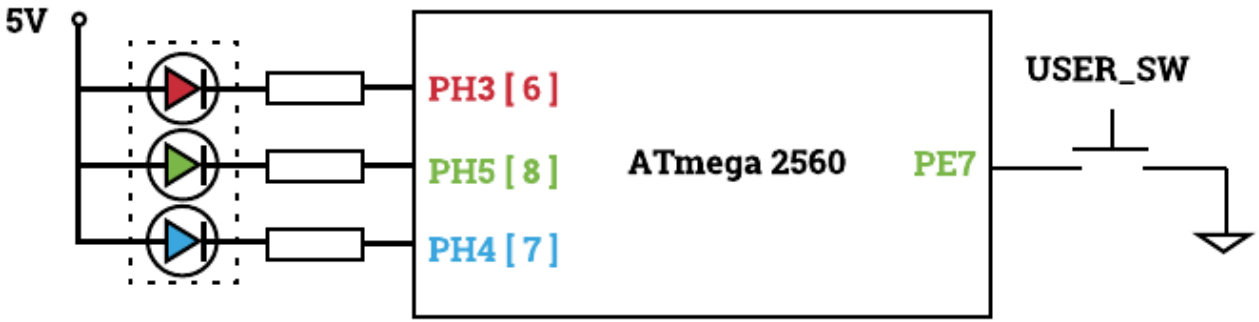

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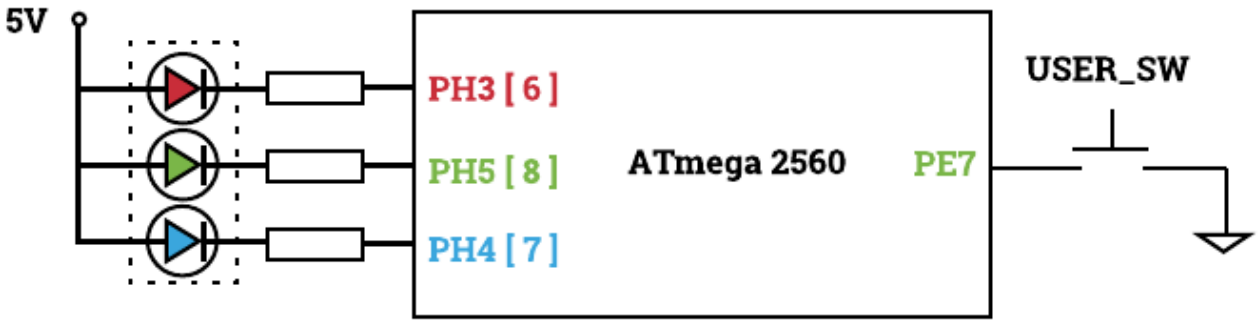

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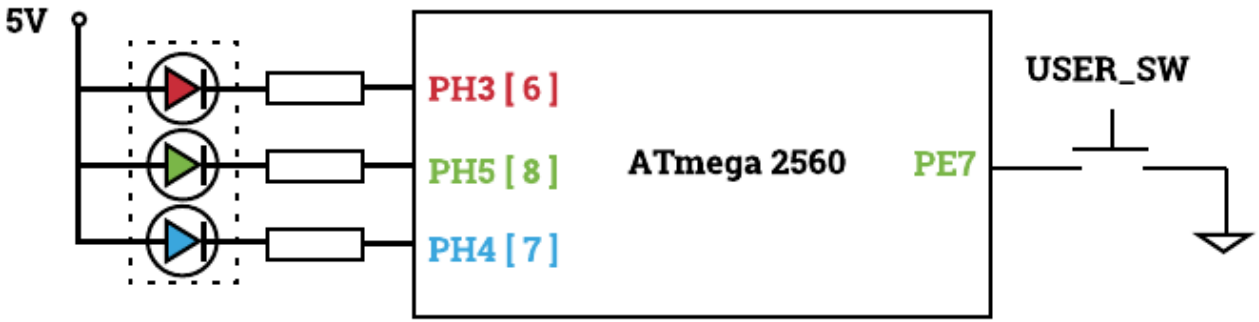

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Assignment 1

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1. **Problem Statement:**
   Follow the following Diwali pattern on RGB LED:

   - Red
   - Green
   - Blue
   - Yellow (Red + Green)
   - Cyan (Green + Blue)
   - Magenta (Blue + Red)

   Repeat the cycle continuously.

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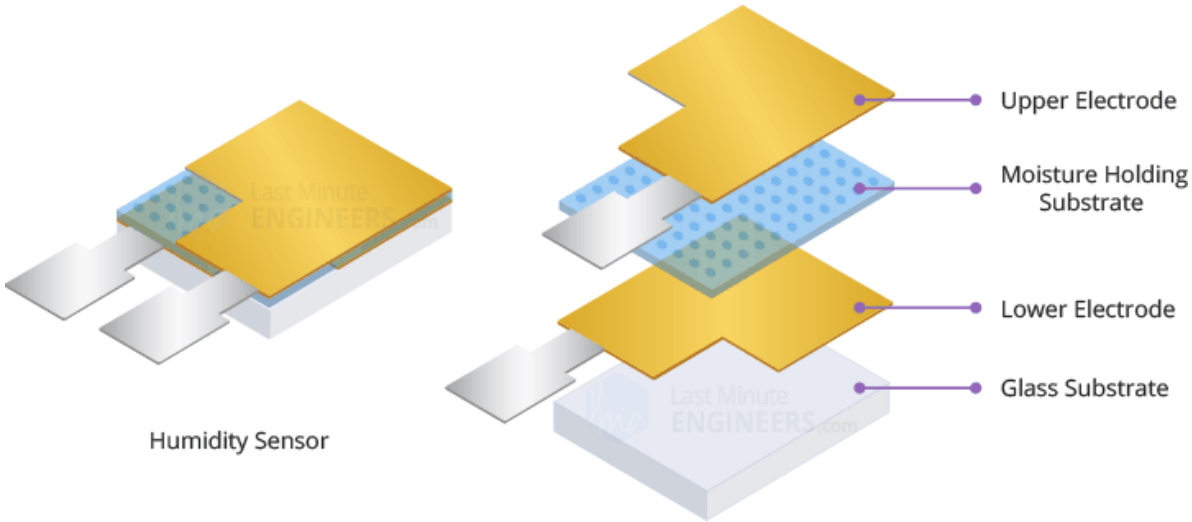
- Max. Current drawn: 2.5 mA (while measurement)

Working


Upper Electrode
Moisture Holding Substrate
Lower Electrode
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Humidity Sensor

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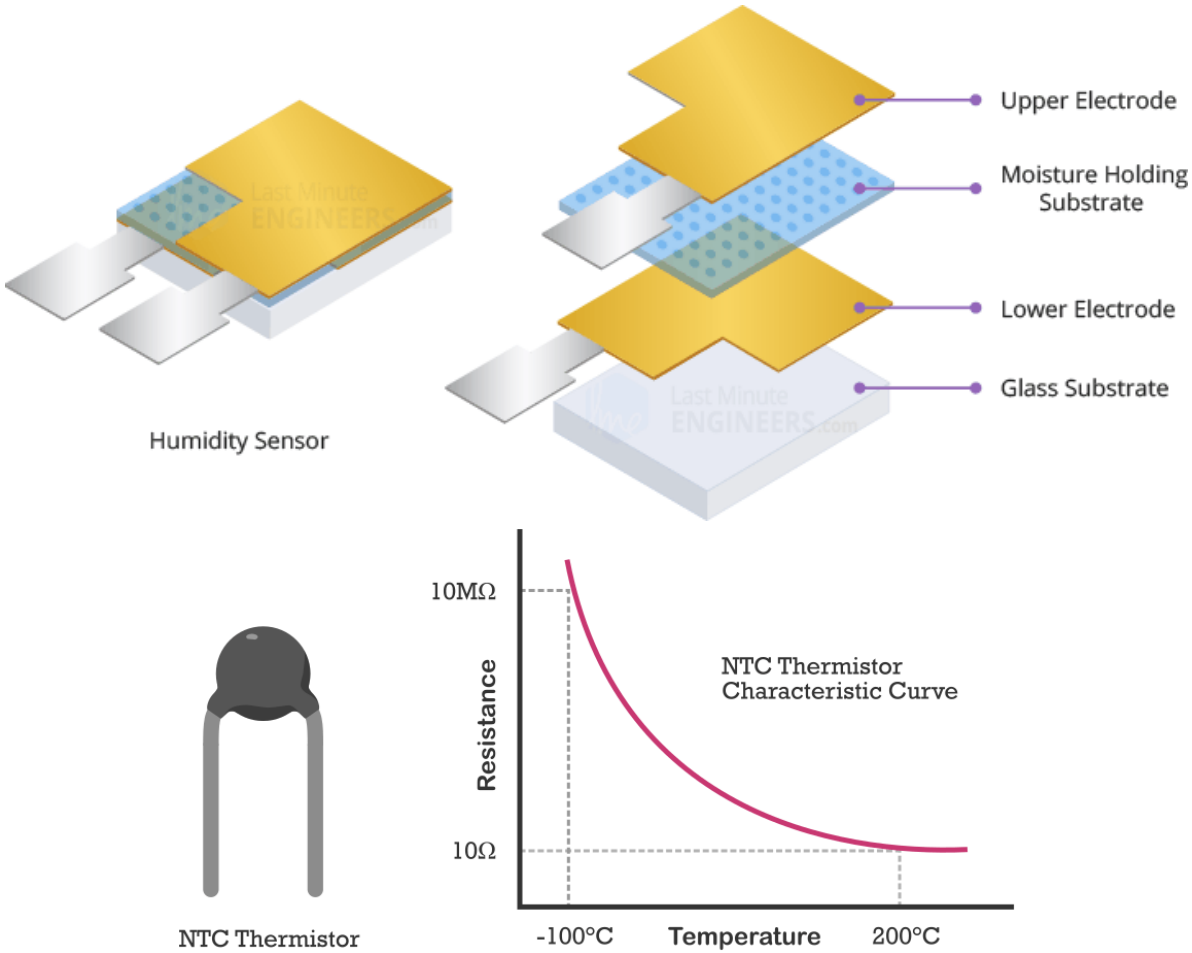
Upper Electrode
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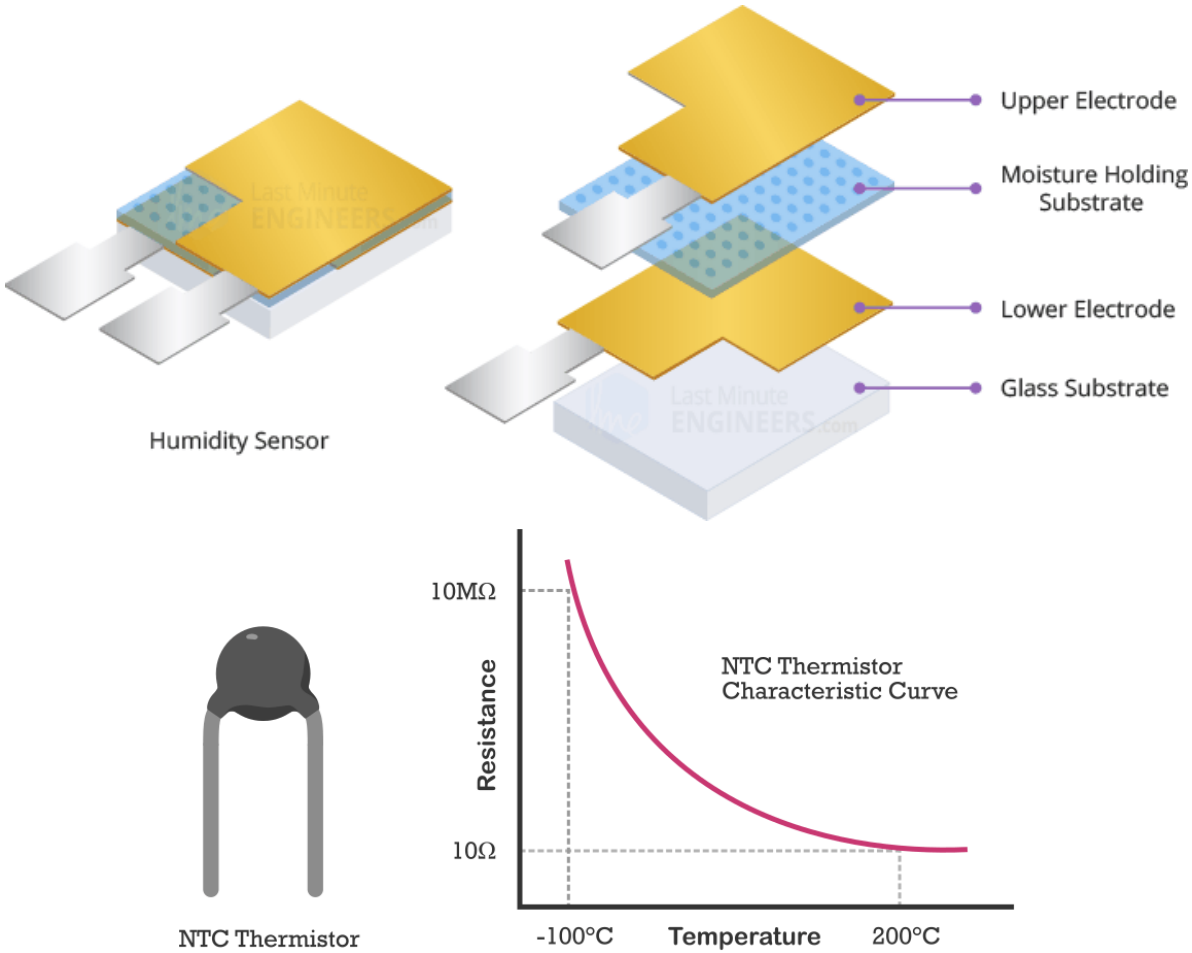
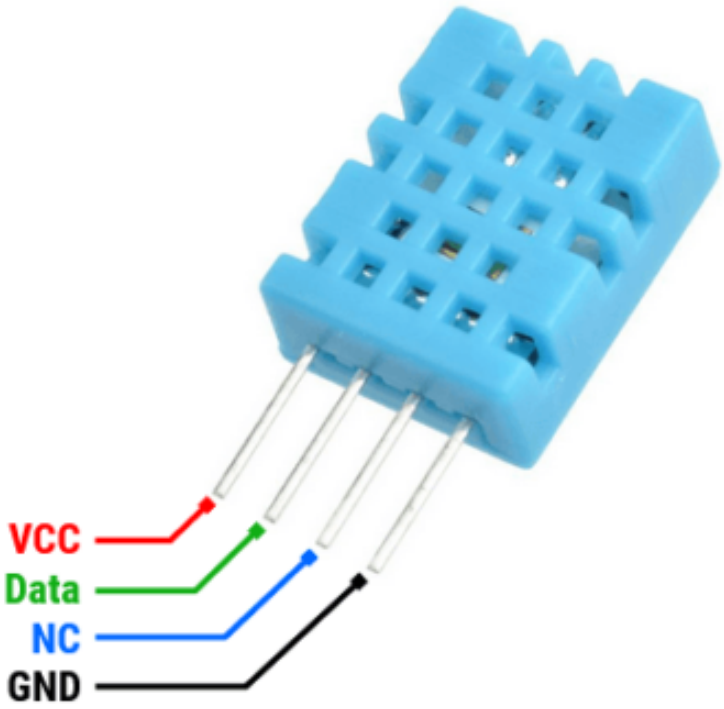
Humidity Sensor
NTC Thermistor
10MΩ
Resistance
10Ω
NTC Thermistor Characteristic Curve
-100°C
Temperature
200°C

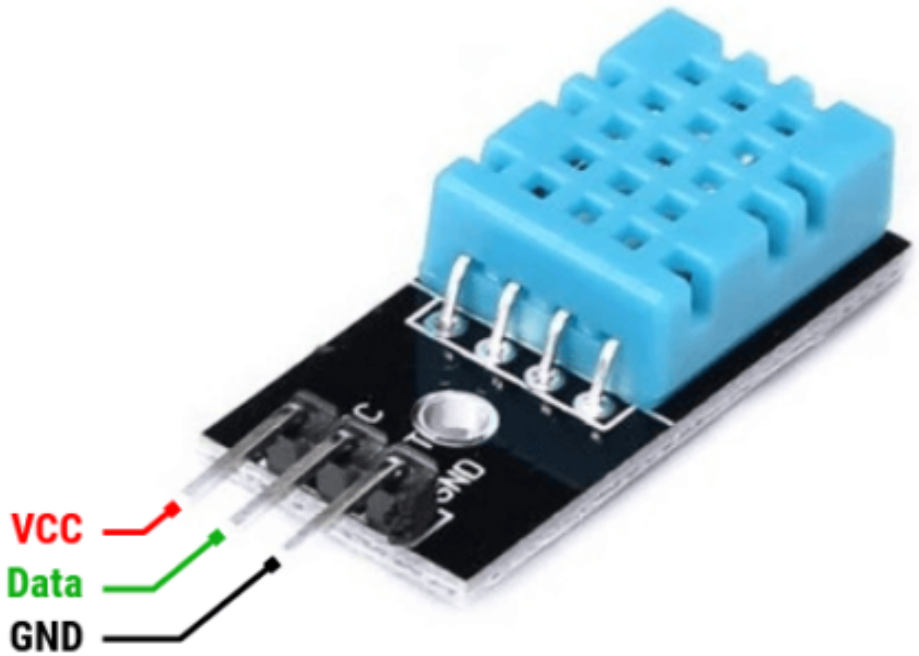
Working



https://www.circuitgeeks.com/arduino-dht11-and-dht22-sensor-tutorial/

Pinout





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DHT dht(25, DHT11);           // configure the sensor
dht.begin();                  // initialize the sensor

h = dht.readHumidity();       // get humidity value
t = dht.readTemperature();    // get temperature value

// printing the values on Serial Monitor
Serial.print("Humidity = ");
Serial.print(h);
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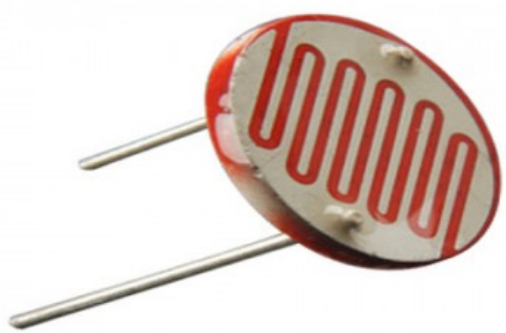

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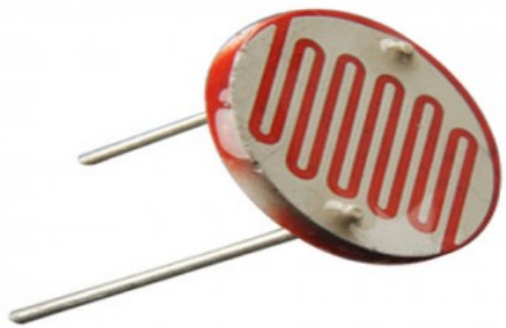

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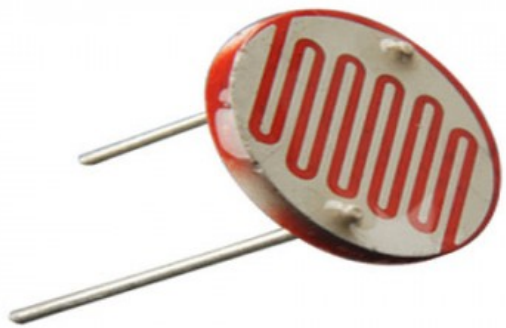

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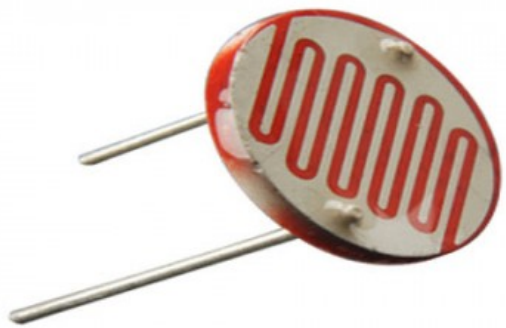

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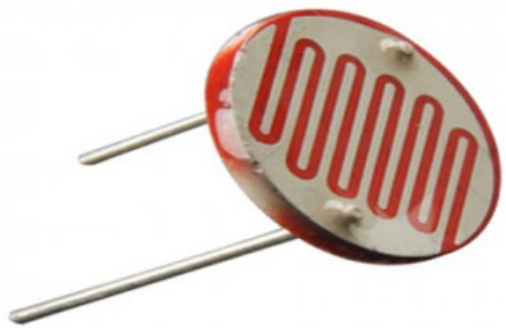

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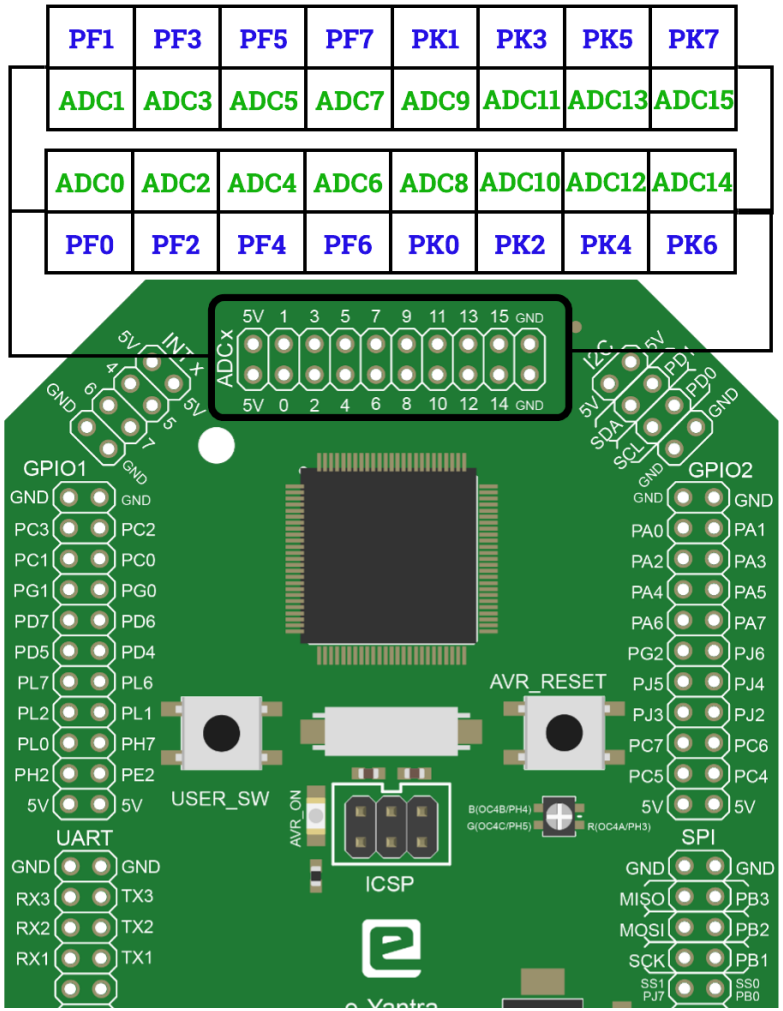

Interfacing Diagram

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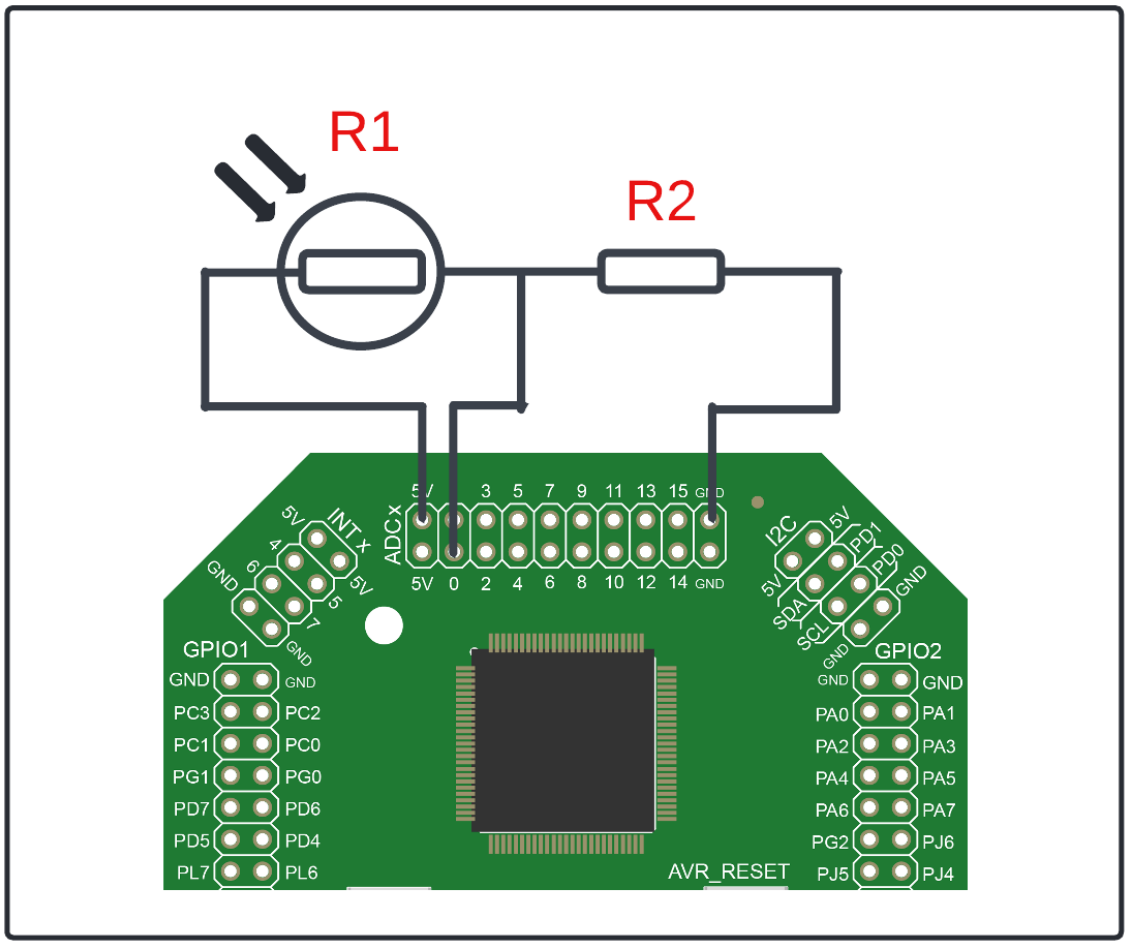

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//Select the input pin for LDR
SensorPin = A0;

//Getting LDR values using the function analogRead()
SensorVal = analogRead(SensorPin);

//Printing the values in Serial Monitor
Serial.println(SensorVal);
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//setting led as output
pinMode(13, OUTPUT)

//logic for turning the led on or off
if(SensorVal < threshold)
==> turn on led
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Thank You!

Post your queries on: helpdesk@e-yantra.org