TOPIC : REAL TIME ENVIRONMENT MONITORING (TEMPERATURE , LIGHT INTENSITY , HUMIDITY) USING ARDUINO

GROUP - 1

1. RAMGOPAL GARUDKAR

2. VARUN VISWANATHAN

3. ADITYA NAMJOSHI

THE LINKS USED FOR REFERENCE IN THIS PROJECT

1. https://youtu.be/qKku-mmwNIA

2. **https://youtu.be/OogldLc9uYc**

3. TINKERCAD FOR CIRCUIT CONNECTIONS

4. JERREMY BLUM'S TUTORIALS

HARDWARE USED IN THIS PROJECT

1.BREAD BOARD

2.ARDUINO R3

3.10K Ω RESISTOR x 2

4. PHOTORESISTOR (LDR)

5. DHT-11/22 HUMIDITY AND TEMPERATURE SENSOR

ARDUINO R3

The Arduino Uno R3 is a microcontroller board based on a removable, dual-inline-package (DIP) ATmega328 AVR microcontroller. It has 20 digital input/output pins (of which 6 can be used as PWM outputs and 6 can be used as analog inputs). Programs can be loaded on to it from the easy-to-use Arduino computer program.

DHT-11/22 HUMIDITY AND TEMPERATURE SENSOR

The DHT-11/22 (also named as AM2302) is a digital-output, relative humidity, and temperature sensor. It uses a capacitive humidity sensor and a thermistor to measure the surrounding air, and sends a digital signal on the data pin.
In this example, you will learn how to use this sensor with Arduino UNO. The room temperature and humidity will be printed to the serial monitor.

DHT22 pins	
1	VCC
2	DATA
3	NC
4	GND

Technical Details
- Power – 3-5V
- Max Current – 2.5mA
- Humidity – 0-100%, 2-5% accuracy
- Temperature – 40 to 80°C, ±0.5°C accuracy
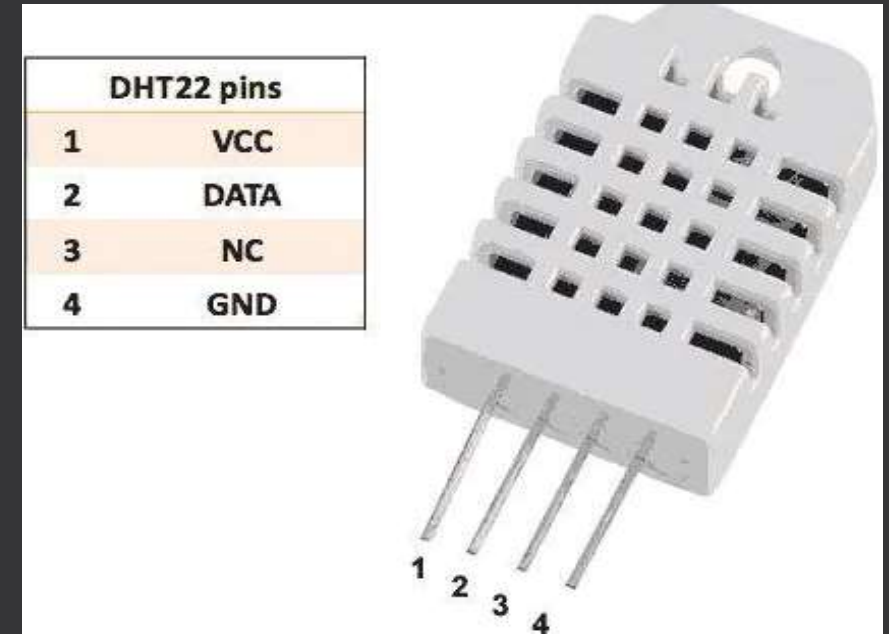
PHOTORESISTOR (LDR)
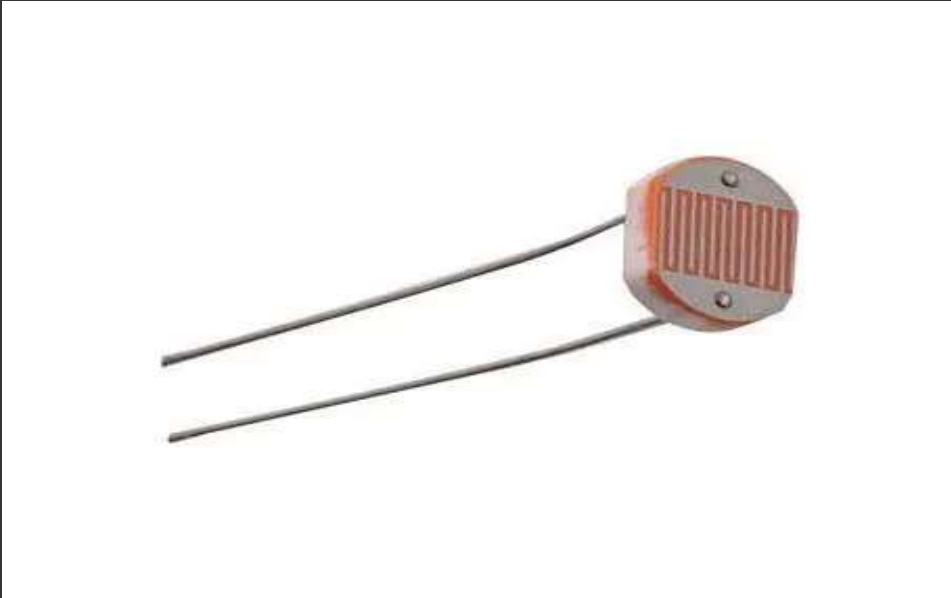
A photoresistor or photocell is a light-controlled variable resistor. The resistance of a photoresistor decreases with increasing incident light intensity. A photoresistor can be applied in light-sensitive detector circuits, and light- and dark-activated switching circuits. It's also called light-dependent resistor (LDR).Here it is used for detecting light sensitivity.

PSEUDO CODE :

Step 1: Declaring the header file dht.h for the humidity and temperature sensor.

Step 2 : Declaring and initialising the variables dht pin and light , creating an object DHT of class dht.

Step 3 : Creating the setup function and initialising serial with baudrate of 9600.

Step 4 : Creating the loop function.

Step 5 : Inside the loop function reading the intensity of light,humidity and temperature.

Step 6 : Printing the values of Light intensity , humidity , temperature using DHT(Object).

Step 7 : Then displaying the surrounding status(i.e, blinking LED,printing required forecast) according to the conditions specified in if - else statements

CIRCUIT CONNECTIONS
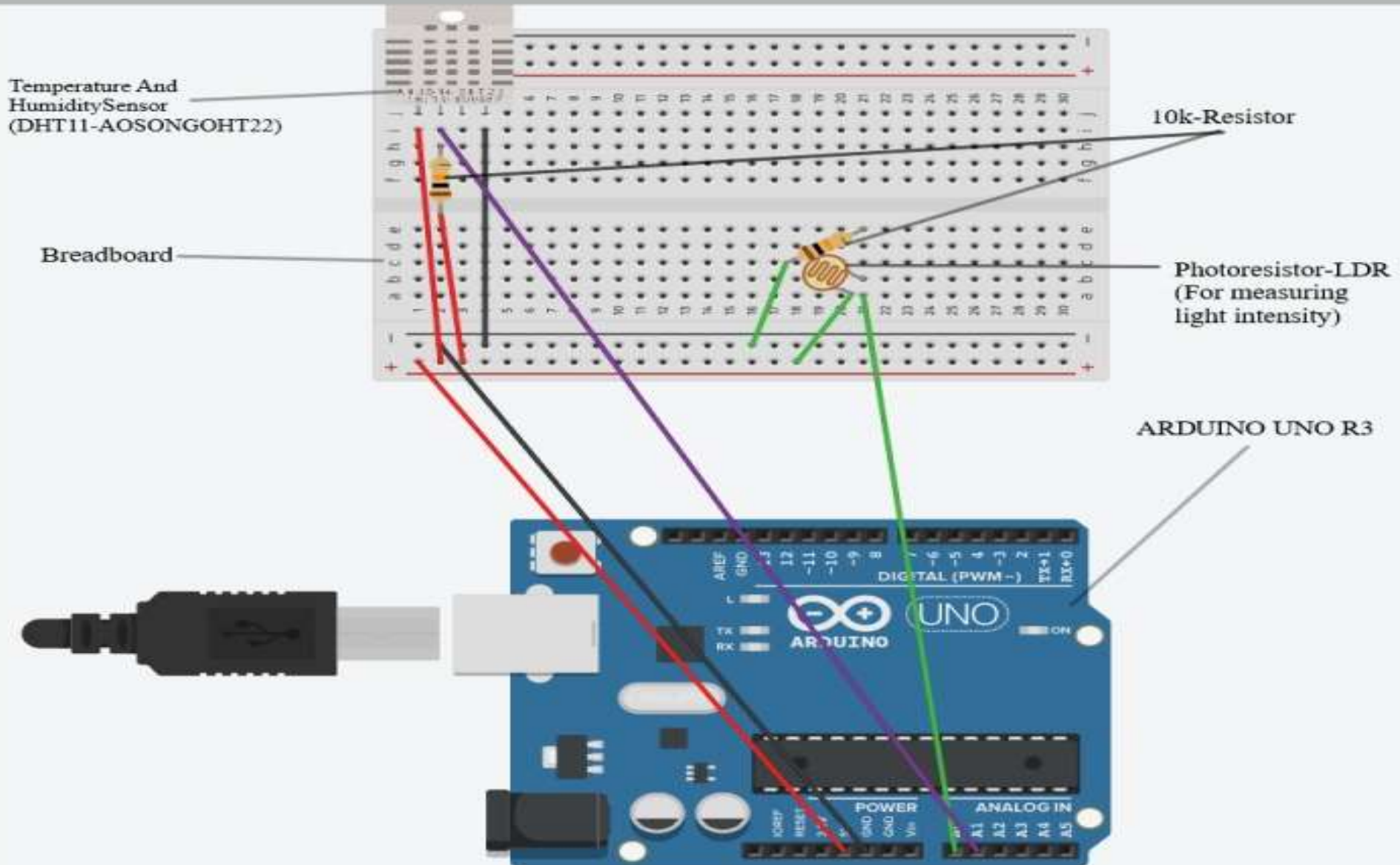
1. 5v output pin of ARDUINO connected to positive of breadboard and Ground connected to negative.

2. Parallel connecting wire connected from positive of breadboard to pin1 of DHT11

3. Data pin(pin2) of the DHT11 sensor connected to analog pin A1 and a pull up 10k resistor connected to positive of beadboard.

4. Ground pin (pin 4)of DHT11 connected to negative of breadboard.

5. Positive of breadboard connected to photoresistor(LDR) in series with 10k resistor and ground connected to negative of breadboard.

6. Connecting wire from negative of photoresistor(LDR) to analog input A0 of the ARDUINO.