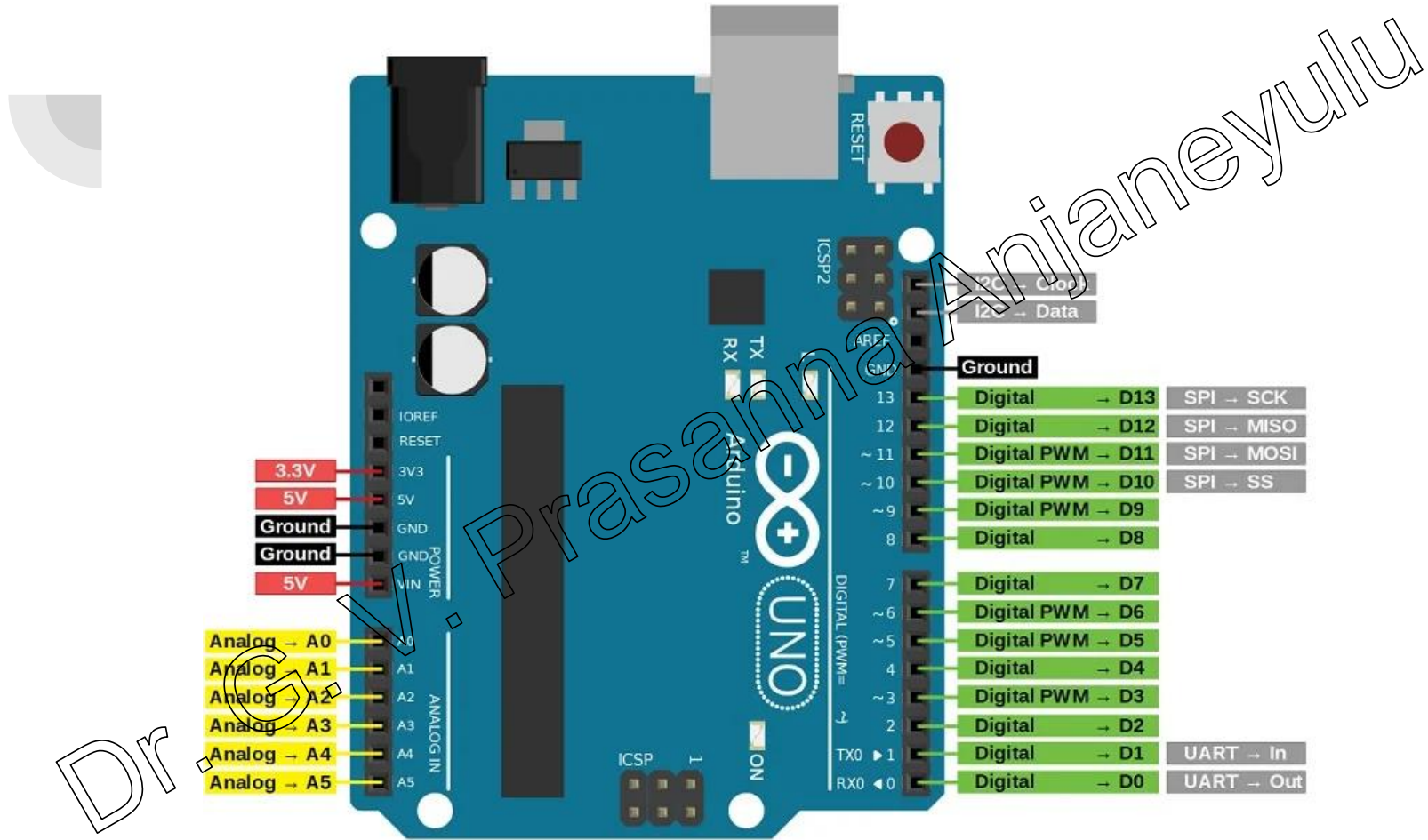


Humidity and Temperature measurement with ARDUINO

From
Dr. G.V.Prasanna Anjaneyulu



Humidity_Temperature Measurement by Dr.GVP

SENSOR-DHT11

Dr. G. V. Prasanna Anjaneyulu

DHT11 sensor

Here are the ranges and accuracy of the DHT11:

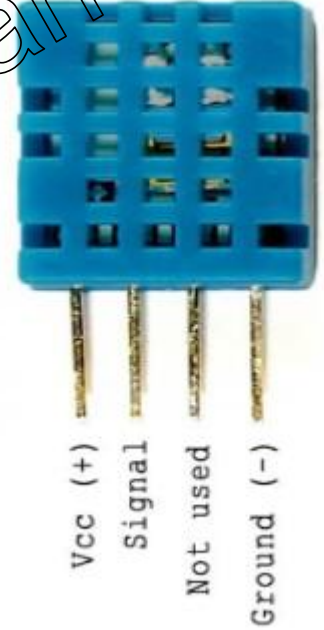
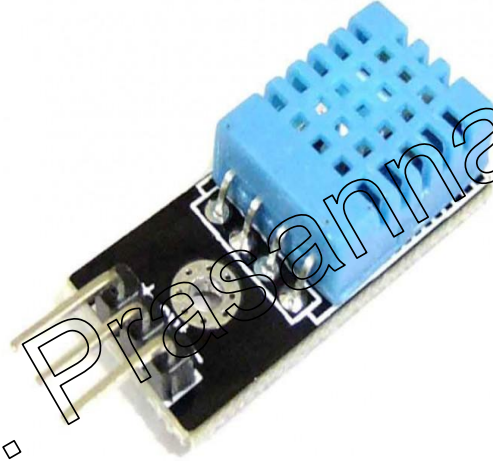
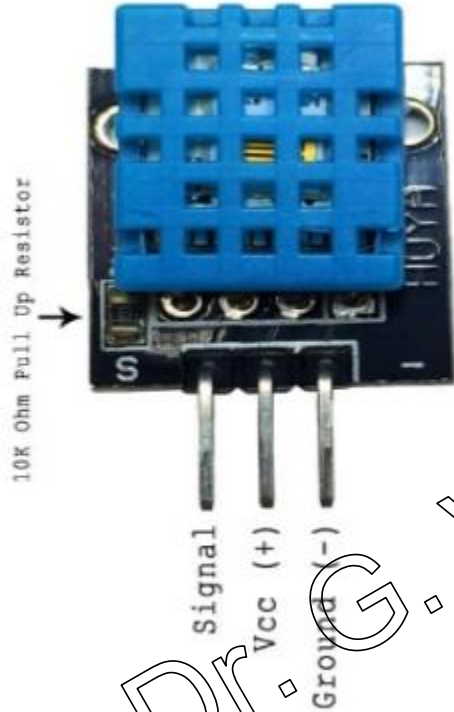
- Humidity Range: 20-90% RH
- Humidity Accuracy: $\pm 5\%$ RH
- Temperature Range: 0-50°C
- Temperature Accuracy: $\pm 2\%$ °C
- Operating Voltage: 3V to 5.5V

Types of DHT11 sensors

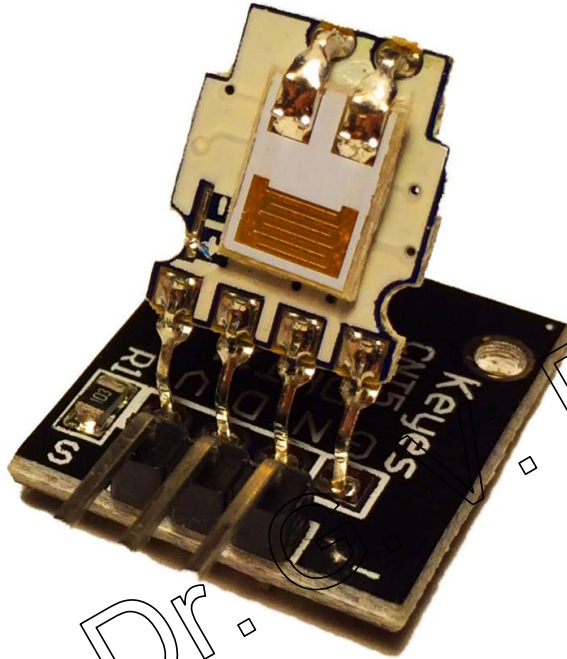
- 3-Terminal DHT Sensor
- 4-Terminal DHT Sensor

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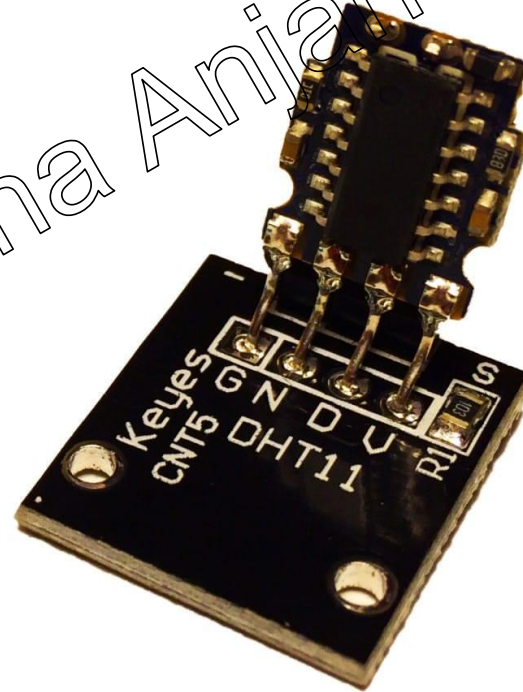
Images



Inside views



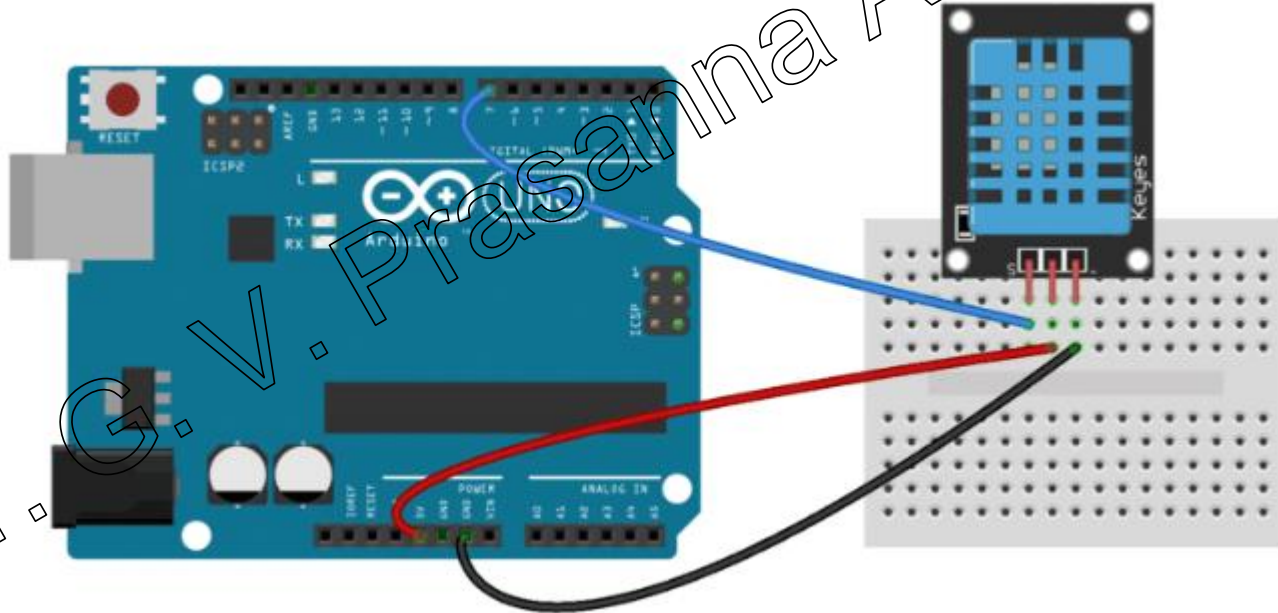
Front view with
cover removed



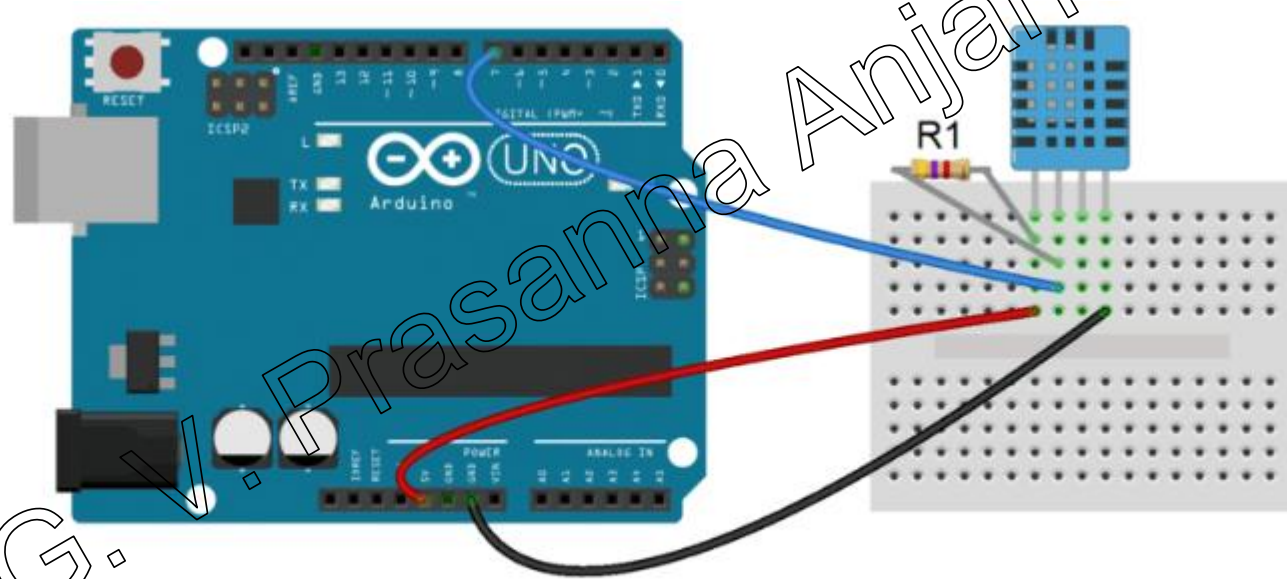
Rear view with
cover removed

HOW TO SET UP THE DHT11 ON AN ARDUINO

1. CONNECTING A THREE PIN DHT11



2. CONNECTING A FOUR PIN DHT11



• R1: 10K Ohm pull up resistor

Lab Experiment - Apparatus

1.PC with Arduino IDE

2.Arduino UNO Board

3.USB cable

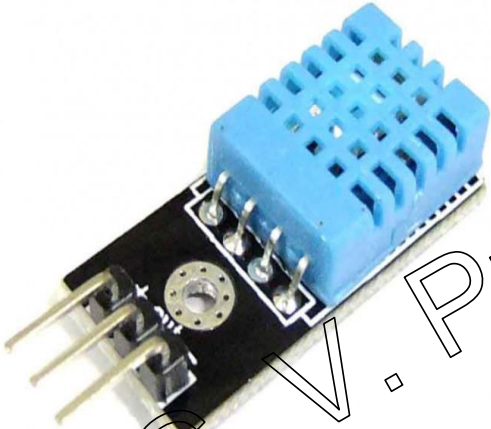
4.Humidity and Temperature sensor [3pin - DHT11]

5.Bread board

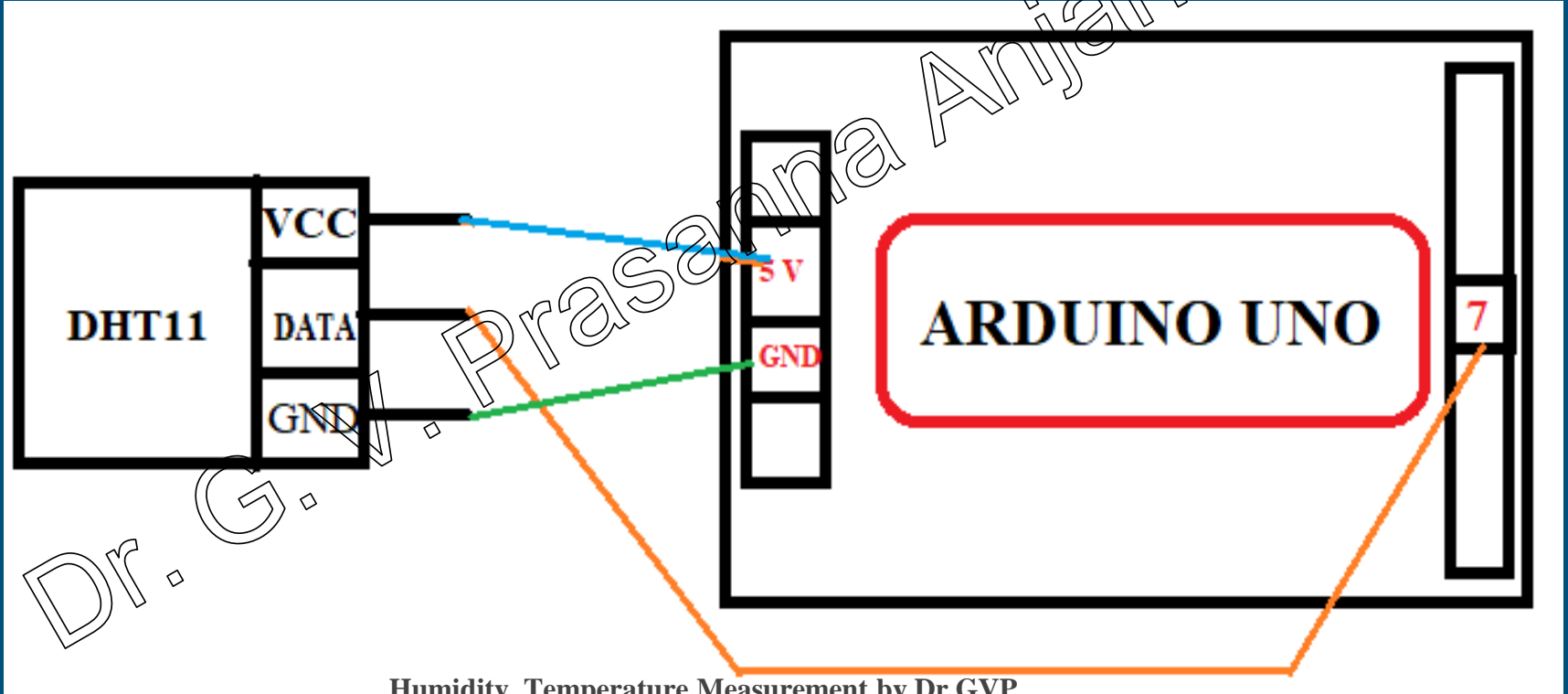
6.Jumper wires

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Lab sensor



Circuit diagram



Case-1

DISPLAY HUMIDITY AND TEMPERATURE ON THE SERIAL MONITOR

Dr. G. V. Prasanna Anjaneyulu

Program

```
#include <dht.h>

dht DHT;

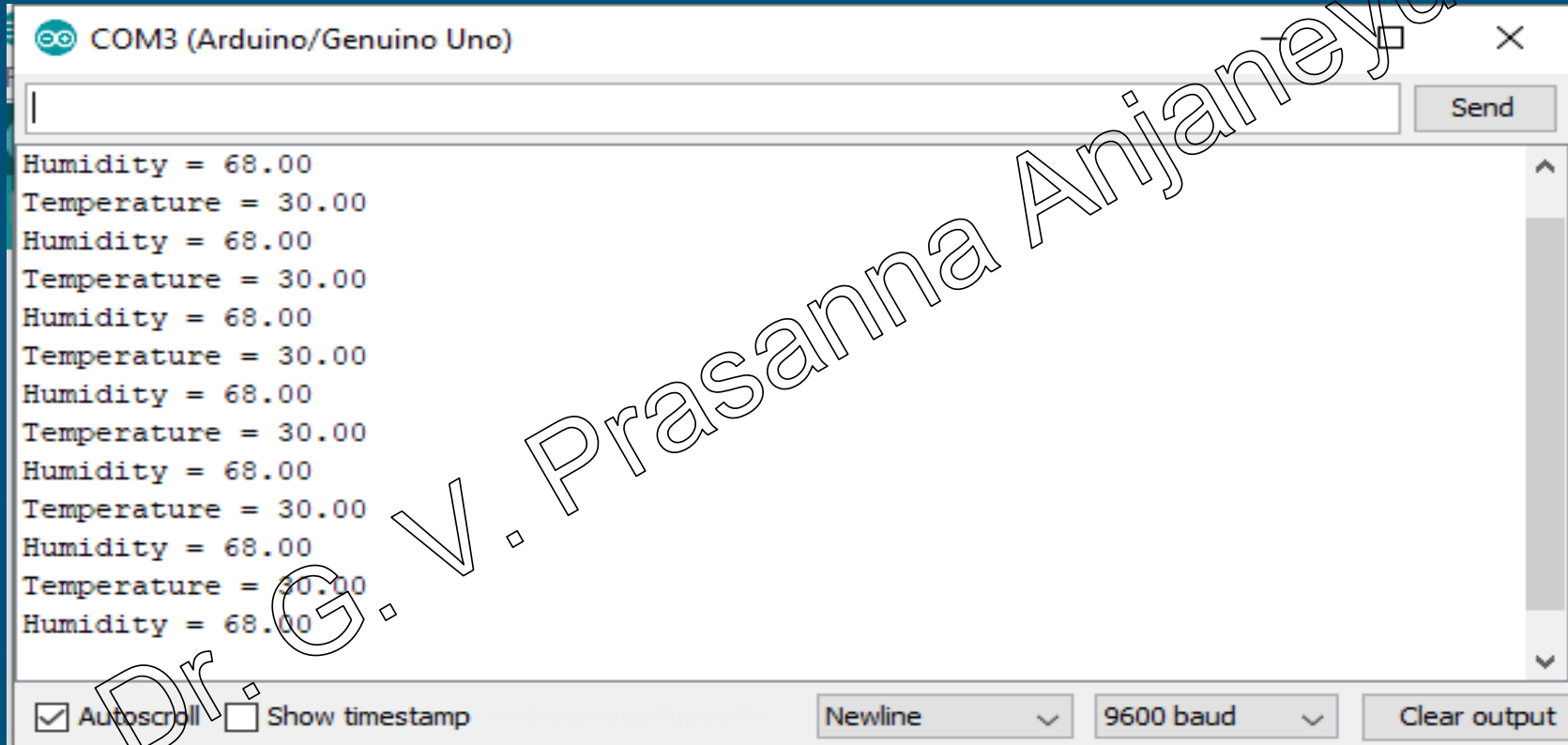
#define DHT11_PIN 7

void setup()
{
    Serial.begin(9600);
}

void loop()
{
    int chk = DHT.read11(DHT11_PIN);
    Serial.print("Temperature = ");
    Serial.println(DHT.temperature);
    Serial.print("Humidity = ");
    Serial.println(DHT.humidity);
    delay(1000);
}
```

Humidity_Temperature Measurement by Dr.GVP

Output



The screenshot shows the Serial Monitor window for COM3 (Arduino/Genuino Uno). The window displays a series of data readings: Humidity = 68.00 and Temperature = 30.00, repeated ten times. The window includes a 'Send' button, a scroll bar, and settings for 'Autoscroll' (checked), 'Show timestamp' (unchecked), 'Newline' (dropdown), '9600 baud' (dropdown), and 'Clear output'.

```
COM3 (Arduino/Genuino Uno)
```

Humidity = 68.00
Temperature = 30.00
Humidity = 68.00
Temperature = 30.00
Humidity = 68.00
Temperature = 30.00
Humidity = 68.00
Temperature = 30.00
Humidity = 68.00
Temperature = 30.00
Humidity = 68.00
Temperature = 30.00
Humidity = 68.00

☒ Autoscroll ☐ Show timestamp Newline 9600 baud Clear output

Case-2

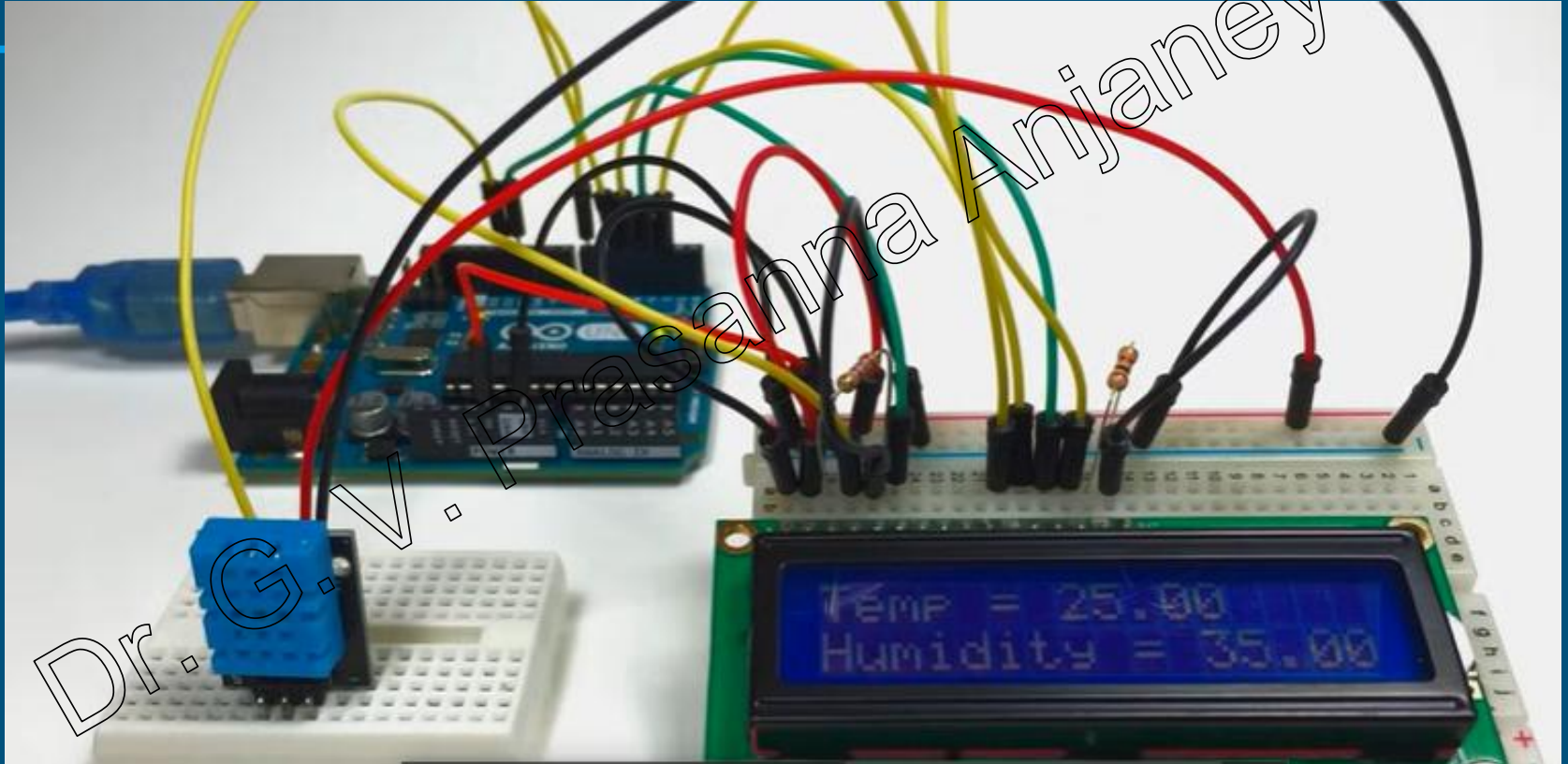
DISPLAY HUMIDITY AND TEMPERATURE ON AN LCD

Program

```
#include <dht.h>
#include <LiquidCrystal.h>
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);
dht DHT;
#define DHT11_PIN 7
void setup()
{
  lcd.begin(16, 2);
}
void loop()
{
  int chk = DHT.read11(DHT11_PIN);
  lcd.setCursor(0,0);
  lcd.print("Temp: ");
  lcd.print(DHT.temperature);
  lcd.print((char)223);
  lcd.print("C");
  lcd.setCursor(0,1);
  lcd.print("Humidity: ");
  lcd.print(DHT.humidity);
  lcd.print("%");
  delay(1000);
}
```

Humidity_Temperature Measurement by Dr.GVP

Implementation



DHT11 Zip file link

https://drive.google.com/file/d/1cEem9CWXDtPmrDey4CmJNHj61qi3Piz/view?usp=drive_link

Dr. G. V. Prasanna Anjaneyulu

Thank you

Dr. G. V. Prasanna Anjaneyulu