WORKSHEET-1.3

Class:26-B

Group Members Details

| NAME	UID
RAJDEEP JAISWAL	20BCS2761

AIM:

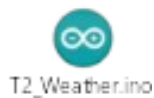Design a Cloud based weather monitoring system using IoTplatform and relevant sensors.

APPARATUS:

- PC withArduino
- ConnectingWires
- Breadboard
- DOIT ESP32 DEVKITV1
- 10uF ElectrolyticCapacitor
- WireClipper
- USB Type A to Micro USBCable
- DC 5V PowerSupply
- DC 3.3V PowerSupply
- BMP280

Circuit Diagram:

Code (if any):

T2_Weather.ino
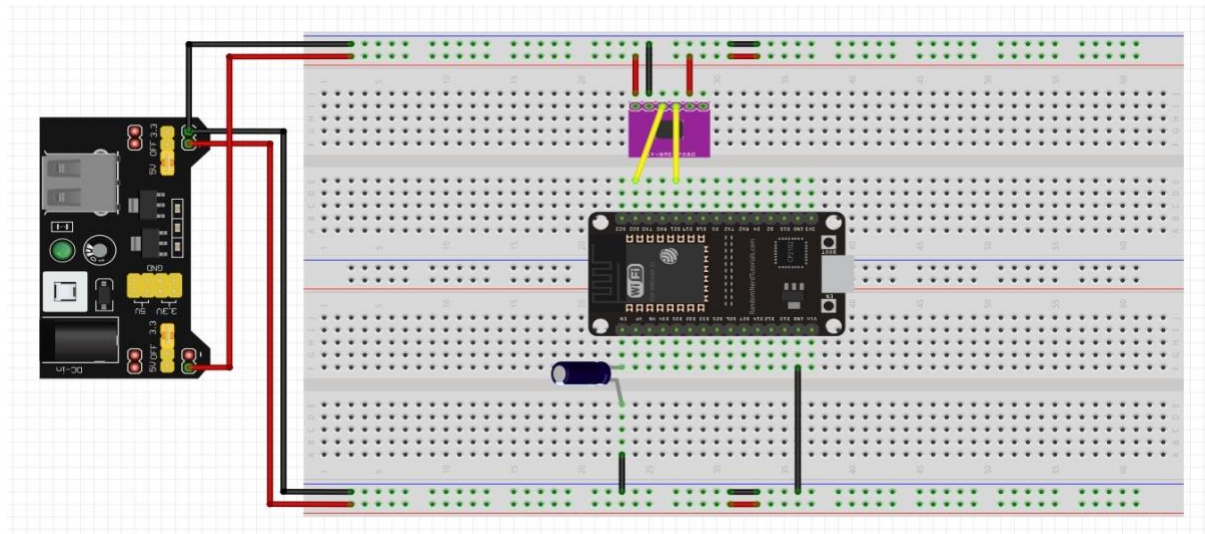
```
/*
 * Board: DOIT ESP32 DEVKITv1
 *
 * BMP280 -https://components101.com/sensors/gy-bmp280-module
 * BMP280 Library -https://github.com/adafruit/Adafruit_BMP280_Library
 * ArduinoSensor Library -https://github.com/adafruit/Adafruit_Sensor
 * UBIDOTS MQTT Library -https://github.com/brendanvanbreda/ubidots-mqtt-esp
 * PubSubClient-https://github.com/knolleary/pubsubclient
 *
 * CSB ->HIGH for configuring BMP280 to I2C communicationmode.
 */
#include <Adafruit_BMP280.h>
```

```
#include <UbidotsESPMQTT.h>


#define BMP_SDA 21
#define BMP_SCL 22


#defineTOKEN"BBFF-zkPpscJnEANLm6jB82ZbIEGAieVOXh"          // Your

UbidotsTOKEN #define WIFISSID "Joker" // YourSSID

#define WIFIPASS "Joker@tenda" // Your Wifi Pass


Adafruit_BMP280 bmp280;

Ubidotsclient(TOKEN);


voidcallback(char* topic, byte* payload, unsigned intlength) {
  Serial.print("Message arrived [");
  Serial.print(topic);
  Serial.print("] ");
  for (inti = 0; i< length; i++) {
    Serial.print((char)payload[i
    ]);
  }
  Serial.println();
}


void setup() {
  Serial.begin(9600);
  Serial.println("Init... T2_Weather");



  Serial.println("Initializing BMP280");
  boolean status =
  bmp280.begin(0x76); if (!status) {
```

```
   Serial.println("BMP280 Not connected!");
 }
 Serial.println("Done");


 Serial.print("Connecting to
 SSID: "); Serial.print(WIFISSID);
 Serial.print(", Password: ");
 Serial.println(WIFIPASS);
 client.wifiConnection(WIFISSID,
 WIFIPASS); Serial.println("Done");


 Serial.println(" Initializing Ubidots Connection...");
   client.ubidotsSetBroker("things.ubidots.com");        // Sets the broker properly for the
business account
 client.setDebug(true);              //Passatrueorfalseboolvaluetoactivatedebugmessages
 client.begin(callback);
 Serial.println("Done");



 Serial.println("DONE");
}
void loop() {
 // Acquiring data from BMP280
 float temp =
 bmp280.readTemperature(); float
 pressure = bmp280.readPressure();
 float altitude = bmp280.readAltitude();
 floatwater_boiling_point= bmp280.waterBoilingPoint(pressure);
 Serial.print("Temperature: ");
 Serial.print(temp);
 Serial.println(" °C");
 Serial.print("Pressure:
 ");
```

```
Serial.print(pressure);

Serial.println(" Pa");

Serial.print("Altitude: ");

Serial.print(altitude);

Serial.println(" m");

Serial.print("Water Boiling Point:

");

Serial.print(water_boiling_point);

Serial.println(" F");


// Establising connection with

Ubidotsif (!client.connected()) {

client.reconnect();

}


// Publising data of both variable to Ubidots

client.add("temp", temp); // Insert your variable Labels and the value to be sent

client.add("pressure", pressure);

client.add("altitude", altitude); // Insert your variable Labels and the value to be sent

client.add("wbp", water_boiling_point);

client.ubidotsPublish("weather-monitoring-system"); // insert your device label here

client.loop();

delay(5000);

}
```
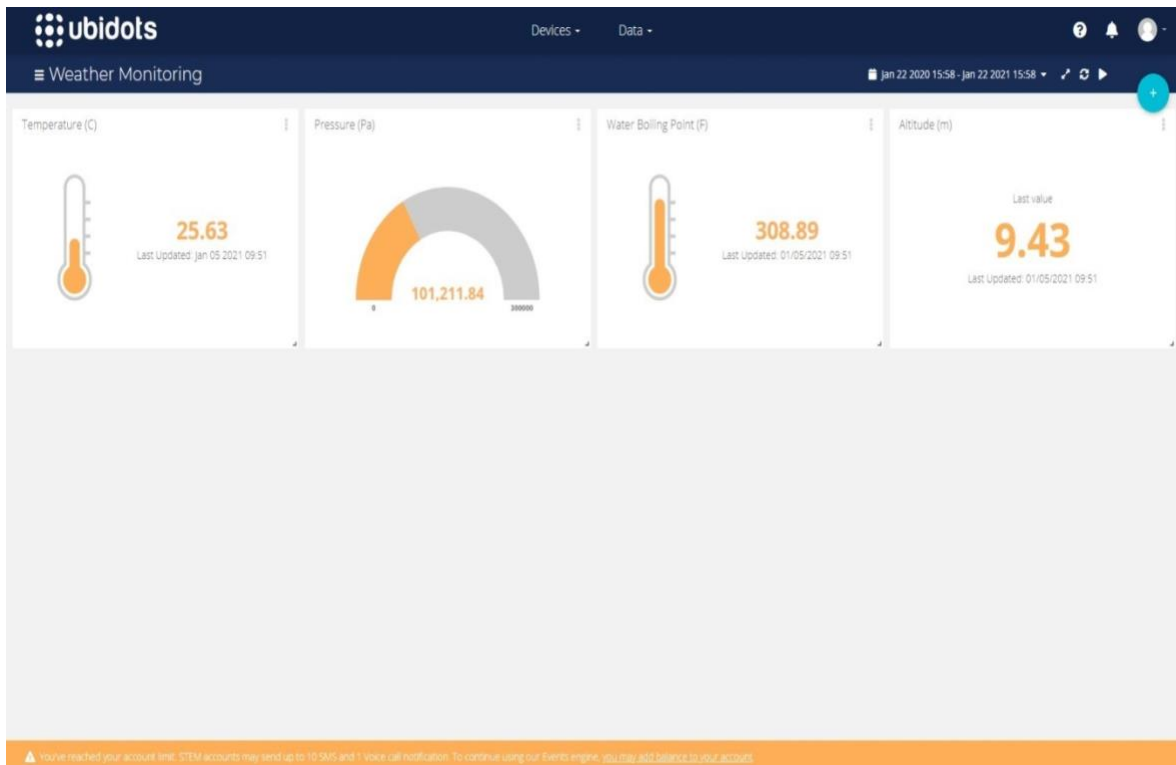
Outcome:

1. We can record temperature, altitude, boiling point and pressure.