SE22MAID002 PARAM SHIV ASHISH
IOT ASSIGNMENT 3

Install Raspberry Pi OS using Raspberry Pi Imager, with the supported OS which is available directly on the official Pi OS website

Install adafruit library using the following command in the terminal.

>> pip install Adafruit-DHT

This library is used to interface with the sensor, which is DHT11 in our case

Install pyrebase library using the following command in the terminal

>> pip install pyrebase

This library is used to connect with the firebase realtime database

PYTHON CODE

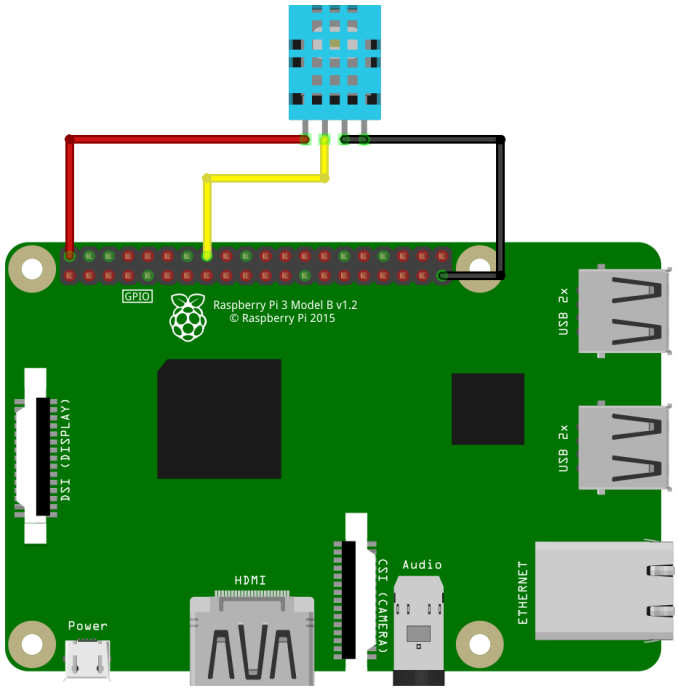
```
import Adafruit_DHT
import time
import pyrebase

firebaseConfig = {
    "apiKey": "AIzaSyAvcYdKnQ51KOgtOrJkadaXhWRR8HfSVGs",
    "authDomain": "shiv-raspi.firebaseapp.com",
    "databaseURL": "https://shiv-raspi-default-rtdb.asia-southea
    "storageBucket": "shiv-raspi.appspot.com"}
fireClient = pyrebase.initialize_app(firebaseConfig)
rltd = fireClient.database()
dht = Adafruit_DHT.DHT11
gpio = 23
while True:
    humi, temp = Adafruit_DHT.read_retry(dht, gpio)
    if humi is not None and temp is not None:
        print(f'Temperature : {temp} C  Humidity :{humi} %')
        sensorData = {"Temperature" : temp, "Humidity" : humi}
        rltd.child("Sensor_Data").push(sensorData)
        rltd.update(sensorData)
        print("Updated Firebase Real-Time Database")
    else:
        print('Failed, Trying Again')
    time.sleep(1)
```

- We import the required libraries
- Initialize our firebase config
- (Firebase config is obtained by first creating an firebase application and instantiating a storage bucket)
- Connect to firebase real time database using pyrebase library as shown in the code
- Instantiate a while loop which reads the sensor data continuously in a loop
- Lastly update this sensor data in firebase using the defined client connection in above section

CIRCUIT DIAGRAM (Fritzing)

DHT11 Vcc => Raspberry Pi Vcc
DHT11 Gnd => Raspberry Pi Gnd
DHT11 Digital Out => Raspberry Pi GPIO 23



FIREBASE RLDB

Firebase Real Time Database is updated in the following way, here's a screenshot of the real time database which has updated with the latest values which where measured using the raspberry pi setup

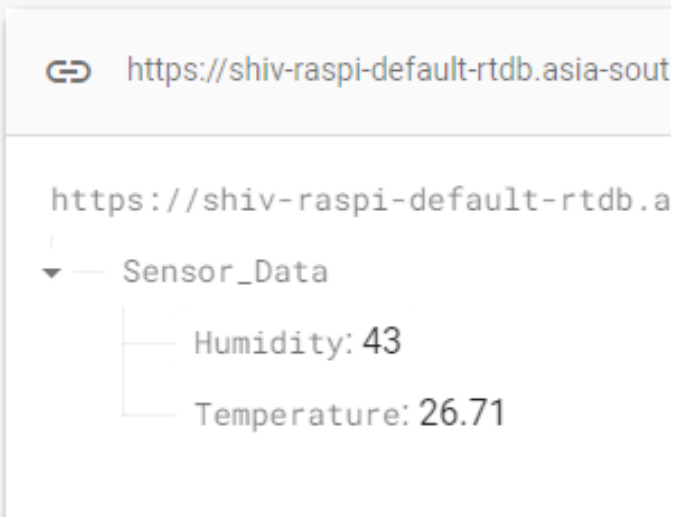


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IMAGE OF THE RASPBERRY PI SETUP