**PRACTICAL 9**

**Write a program to understand the use of Firebasae with Raspberry Pie to control sensors**

import smbus

import time

from firebase import firebase

# Get I2C bus

bus = smbus.SMBus(1) #If I2C library detects the pull up then initialize the register using sensors

# SHT31 address, 0x44(68)

# Send measurement command, 0x2C(44)

# 0x06(06) High repeatability measurement

bus.write\_i2c\_block\_data(0x44, 0x2C, [0x06])

time.sleep(0.5)

# SHT31 address, 0x44(68)

#6 bytes ->

#0,1-> 2 bytes for MSB and LSB for Temperature, 2 -> 1 byte for CRC , 3,4-> 2 byte for MSB and LSB for humidity, 5 -> 1byte for CRC.

# Temp MSB, Temp LSB, Temp CRC, Humidity MSB, Humidity LSB, Humidity CRC

# Read data back from 0x00(00), 6 bytes

data = bus.read\_i2c\_block\_data(0x44, 0x00, 6)

# Convert the data

temp = data[0] \* 256 + data[1] #shifting data[0] to left side and adding data[1] xisting in right side

cTemp = -45 + (175 \* temp / 65535.0) #formula mentioned in datasheet

fTemp = -49 + (315 \* temp / 65535.0) #formula mentioned in datasheet

humidity = 100 \* (data[3] \* 256 + data[4]) / 65535.0

# Print the readings and show it RPI OS CLI

print "Temperature in Celsius is : %.2f C" %cTemp

print "Temperature in Fahrenheit is : %.2f F" %fTemp

print "Relative Humidity is : %.2f %%RH" %humidity

time.sleep(5) #5milliseconds

#store the Host ID(provided in firebase database) in variable where you want to send the real time sensor data.

firebase= firebase.FirebaseApplication('HOST ID')

#store the readings in variable and convert it into string and using firbase.post then data will be posted to databse of firebase

result = firebase.post('Project Name', {'cTemp':str(cTemp),'ftemp':str(fTemp), 'humidity':str(humidity)})

print(result)