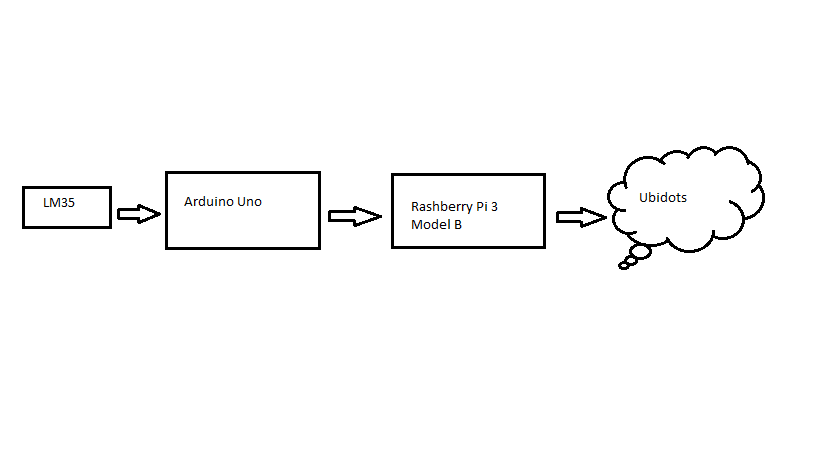
**EXP NO. 12**

**Group 9**

**OBJECTIVE : Publishing data in Ubidots using LM35 analog sensor using Rashberry Pie 3 Model B**

**BLOCK DIAGRAM:**

****

**Fig 1**

**EXPLANATION:**

Here we firstly connect the LM35 sensor in a bread-board then to Arduino UNO (in any of the analog pins).After this connect Arduino Uno board to Rashberry Pi 3 Model B board via serial communication and code a program to get a desired output in the serial-monitor and upload it to the Ubidots IoT cloud server.

**APPARATUS:**

* Lm35 sensor
* Resistor
* Jumper Wires
* Arduino Uno
* Rashberry Pie 3 Model B board
* PC(with RPI IDE )
* Micro USB cable

**CODE:**

import serial

import time

import requests

import math

import random

# Geo- Coordinate

res = requests.get("https://ipinfo.io/")

data = res.json()

# ubiDots Credential

TOKEN = "BBFF-0wnE9y4GWddlgbFB6sEFGVl42MskEL" # Put your TOKEN here

DEVICE\_LABEL = "rpi\_temp" # Put your device label here

VARIABLE\_LABEL\_1 = "temp" # Put your first variable label here

VARIABLE\_LABEL\_2 = "position"

# data reading from Arduino

ser = serial.Serial('/dev/ttyACM0',9600)

#def build\_payload(variable\_1, variable\_2, variable\_3):

def build\_payload(variable\_1,variable\_2):

value\_1 = 0

if(ser.in\_waiting > 0):

line = ser.readline()

line=line.rstrip()

line=line.decode("utf-8")

value\_1 = line.split(",")[0]

print(value\_1)

res = requests.get("https://ipinfo.io/")

data = res.json()

location = data['loc'].split(',')

#print(location)

lat = location[0]

lng = location[1]

payload = {variable\_1: value\_1,variable\_2: {"value": 1, "context": {"lat": lat, "lng": lng}}}

return payload

def post\_request(payload):

# Creates the headers for the HTTP requests

url = "http://industrial.api.ubidots.com"

url = "{}/api/v1.6/devices/{}".format(url, DEVICE\_LABEL)

headers = {"X-Auth-Token": TOKEN, "Content-Type": "application/json"}

# Makes the HTTP requests

status = 400

attempts = 0

while status >= 400 and attempts <= 5:

req = requests.post(url=url, headers=headers, json=payload)

status = req.status\_code

attempts += 1

time.sleep(1)

# Processes results

print(req.status\_code, req.json())

if status >= 400:

print("[ERROR] Could not send data after 5 attempts, please check \

your token credentials and internet connection")

return False

print("[INFO] request made properly, your device is updated")

return True

def main():

payload = build\_payload(VARIABLE\_LABEL\_1,VARIABLE\_LABEL\_2)

print("[INFO] Attemping to send data")

post\_request(payload)

print("[INFO] finished")

if \_\_name\_\_ == '\_\_main\_\_':

while (True):

main()

time.sleep(1)