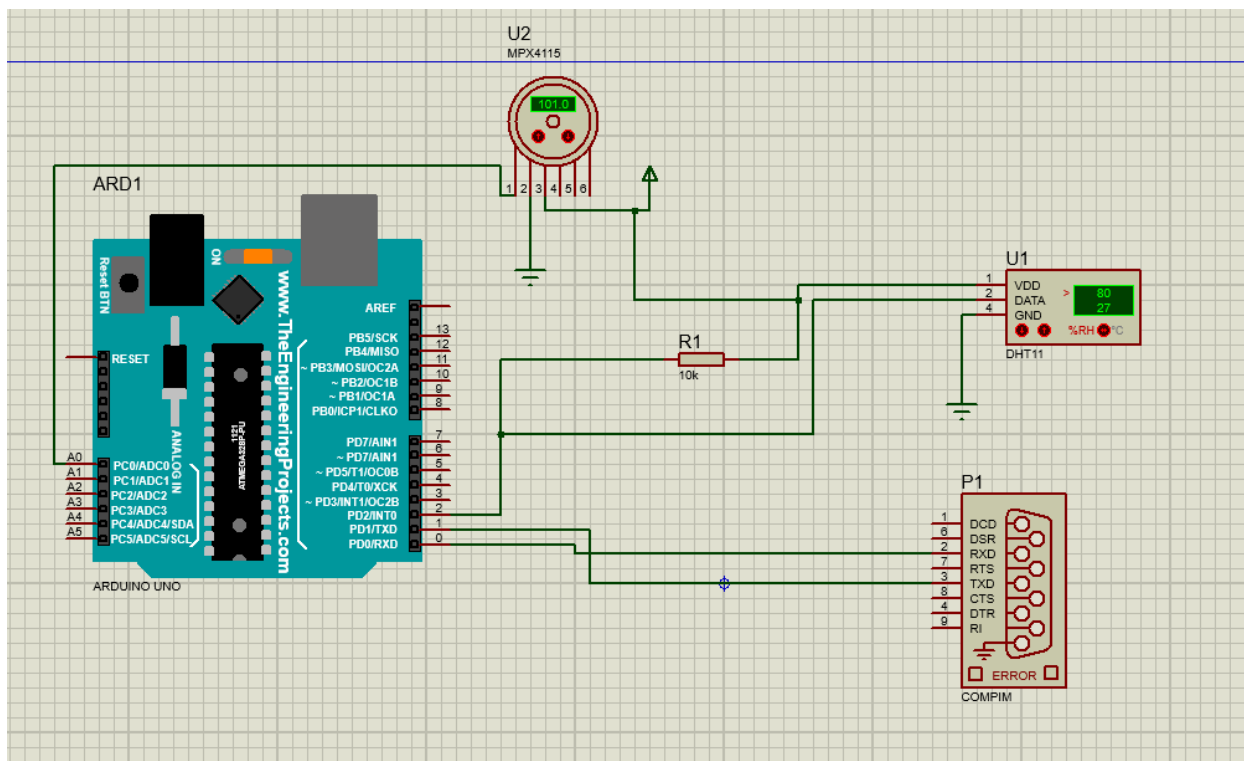Nama: Ronaldo Rizki Samudra

Nim   : 201910370311408

Buatlah laporan dokumentasi lengkap beserta bukti implementasi dari materi Flask + Proteus
Rangkaian awal pada Proteus

Dengan komponen :
 1. Arduino UNO
 2. MPX4115
 3. DHT11
 4. Resistor
 5. COMPIM

Setelah menyusun topologi seperti diatas , kita masuk ke coding

```cpp
#include "DHT.h"
#define DHTPIN 2
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);
void setup() {
// put your setup code here, to run once:
Serial.begin(9600);
dht.begin();
}
void loop() {
// put your main code here, to run repeatedly:
delay(2000);
float h = dht.readHumidity();
float t = dht.readTemperature();
float Vout = analogRead(A0);
float p = (Vout/float(1023) + 0.095)/0.009;
//Check if any reads failed and exit early (to try again).
if (isnan(h) || isnan(t) || isnan(p)){
Serial.println(F("failed to read from sensor!"));
return;
}
String rain = "";
if(h > 85.0 || t < 20.0 || p > 80){
rain = "heavy rain";
}else if(h < 60.0 || t > 30.0 || p < 80){
rain = "Dry";
}else{
rain = "Unknown";
}
Serial.print(t);
Serial.print(";");
Serial.print(h);
Serial.print(";");
Serial.print(p);
Serial.print(";");
Serial.println(rain);
}
```

Output setelah run di proteus

Setting python flask + environment

```
E:\kuliah\Semester 6\piranti\real_time_flask>ls
app.py  data.py  get.py  templates

E:\kuliah\Semester 6\piranti\real_time_flask>python -m venv env webserver

E:\kuliah\Semester 6\piranti\real_time_flask> webserver\Scripts\activate

(webserver) E:\kuliah\Semester 6\piranti\real_time_flask>python
Python 3.10.4 (tags/v3.10.4:9d38120, Mar 23 2022, 23:13:41) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> exit()

(webserver) E:\kuliah\Semester 6\piranti\real_time_flask>pip install flask
Collecting flask
  Downloading Flask-2.1.1-py3-none-any.whl (95 kB)
     ------------------------------------ 95.2/95.2 KB 904.0 kB/s eta 0:00:00
Collecting itsdangerous>=2.0
  Downloading itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Collecting Werkzeug>=2.0
  Downloading Werkzeug-2.1.1-py3-none-any.whl (224 kB)
     ------------------------------------ 224.7/224.7 KB 3.4 MB/s eta 0:00:00
Collecting Jinja2>=3.0
  Downloading Jinja2-3.1.1-py3-none-any.whl (132 kB)
     ------------------------------------ 132.6/132.6 KB 3.9 MB/s eta 0:00:00
Collecting click>=8.0
  Downloading click-8.1.2-py3-none-any.whl (96 kB)
     ------------------------------------ 96.6/96.6 KB 5.8 MB/s eta 0:00:00
Collecting colorama
  Downloading colorama-0.4.4-py2.py3-none-any.whl (16 kB)
Collecting MarkupSafe>=2.0
  Downloading MarkupSafe-2.1.1-cp310-cp310-win_amd64.whl (17 kB)
Installing collected packages: Werkzeug, MarkupSafe, itsdangerous, colorama, Jinja2, click, flask
Successfully installed Jinja2-3.1.1 MarkupSafe-2.1.1 Werkzeug-2.1.1 click-8.1.2 colorama-0.4.4 flask-2.1.1 itsdangerous-2.1.2

(webserver) E:\kuliah\Semester 6\piranti\real_time_flask>set FLASK_APP=app.py

(webserver) E:\kuliah\Semester 6\piranti\real_time_flask>flask run
 * Serving Flask app 'app.py' (lazy loading)
 * Environment: production
   WARNING: This is a development server. Do not use it in a production deployment.
   Use a production WSGI server instead.
 * Debug mode: off
 * Running on http://127.0.0.1:5000 (Press CTRL+C to quit)
127.0.0.1 - - [20/Apr/2022 15:08:33] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [20/Apr/2022 15:08:34] "GET /favicon.ico HTTP/1.1" 404 -
[2022-04-20 15:08:35,918] ERROR in app: Exception on /reqt [POST]
```

Setelah kita install python , kita mengambil directory dari python dan python/scripts yang akan ditambah di environment (path).

Install Library yang digunakan di get.py

```
E:\kuliah\Semester 6\piranti\real_time_flask>pip3 install pyserial
Collecting pyserial
  Downloading pyserial-3.5-py2.py3-none-any.whl (90 kB)
     ------------------------------------ 90.6/90.6 KB 1.0 MB/s eta 0:00:00
Installing collected packages: pyserial
Successfully installed pyserial-3.5
```

```
      import requests
ModuleNotFoundError: No module named 'requests'

E:\kuliah\Semester 6\piranti\real_time_flask>pip install requests
Collecting requests
  Downloading requests-2.27.1-py2.py3-none-any.whl (63 kB)
     ------------------------------------ 63.1/63.1 KB 1.1 MB/s eta 0:00:00
Collecting certifi>=2017.4.17
  Downloading certifi-2021.10.8-py2.py3-none-any.whl (149 kB)
     ------------------------------------ 149.2/149.2 KB 1.8 MB/s eta 0:00:00
Collecting urllib3<1.27,>=1.21.1
  Downloading urllib3-1.26.9-py2.py3-none-any.whl (138 kB)
     ------------------------------------ 139.0/139.0 KB 4.2 MB/s eta 0:00:00
Collecting idna<4,>=2.5
  Downloading idna-3.3-py3-none-any.whl (61 kB)
     ------------------------------------ 61.2/61.2 KB 3.2 MB/s eta 0:00:00
Collecting charset-normalizer~=2.0.0
  Downloading charset_normalizer-2.0.12-py3-none-any.whl (39 kB)
Installing collected packages: certifi, urllib3, idna, charset-normalizer, requests
Successfully installed certifi-2021.10.8 charset-normalizer-2.0.12 idna-3.3 requests-2.27.1 urllib3-1.26.9
```

Setelah kita selesai get data dari proteus otomatis di local server kita data akan ikut juga berganti


```
E:\kuliah\Semester 6\piranti\real_time_flask>python baru.py
Running UNO
2022-04-20 15:20:01.066
['33.00', '61.00', '77.46', 'Dry']
success
['33.00', '61.00', '77.46', 'Dry']
success
['33.00', '61.00', '77.46', 'Dry']
success
['33.00', '61.00', '77.46', 'Dry']
```


Wed Apr 20 2022 15:25:53 GMT+0700 (Western Indonesia Time) : Dry

Precipitation Data Streaming