

Objets connectés - TP3/4

Correction du sujet 1

Le code Arduino pour la connexion d'une carte Nano avec extension Ethernet et un capteur DHT11/22 et l'envoi des données vers **ThingSpeak.com** avec la prise un compte du serveur proxy de l'école (172.19.1.12:3128).

```
#include <SPI.h>
#include <UIPEthernet.h>
#include "DHT.h"
#define DHTTYPE DHT11 // DHT 11
byte mac[] = { 0xDE, 0xFA, 0x12, 0xAA, 0xFC, 0xED };

byte ip[] = {172,19,65,56};
byte dnsa[] = {172,19,0,4};
byte gateway[] = {172,19,64,3};
byte subnet[] = {255,255,248,0};
byte proxy[] = {172,19,1,12};

EthernetClient client;

#define DHTPIN 4

DHT dht(DHTPIN, DHTTYPE);
float h ;
float t ;
float f ;

char *key="77QWEFDSMCU3TMGU";
char postData[100]; //="api_key=77QWEFDSMCU3TMGU&field4=42.0&field5=82.97";

int TSupdate(char *data)
{
  String str(data);
  int c=0;
  Serial.println("connecting.");
  while(!client.connect("172.19.1.12",3128)&& c<30) { delay(100); c++;}

  if (c<30) { // "172.19.1.12:3128 proxy
    client.println("POST http://184.106.153.149/update HTTP/1.1");
    client.println("Host: 172.19.1.12");
    client.println("User-Agent: Arduino/1.0");
    client.println("Connection: keep-alive"); // or close
    client.print("Content-Length: ");
    client.println(str.length());
    client.println();
    client.println(str);
  } else {
    Serial.println("connection failed");
  }
  delay(2000);
  Serial.println("disconnecting.");
  //client.stop();
}
```

```

void setup() {
  Serial.begin(9600);
  Serial.println("DHTxx test!");
  dht.begin();
  Ethernet.begin(mac,ip,dnsa,gateway,subnet); // use with proxy
  delay(1000);
  Serial.print("IP = ");
  Serial.println(Ethernet.localIP());
}

void gettemp() {
  // Wait a few seconds between measurements.
  delay(2000);

  // Reading temperature or humidity takes about 250 milliseconds!
  // Sensor readings may also be up to 2 seconds 'old' (its a very slow sensor)
  h = dht.readHumidity();
  // Read temperature as Celsius (the default)
  t = dht.readTemperature();
  // Read temperature as Fahrenheit (isFahrenheit = true)
  f = dht.readTemperature(true);

  // Check if any reads failed and exit early (to try again).
  if (isnan(h) || isnan(t) || isnan(f)) {
    Serial.println("Failed to read from DHT sensor!");
    return;
  }
  // Compute heat index in Fahrenheit (the default)
  float hif = dht.computeHeatIndex(f, h);
  // Compute heat index in Celsius (isFahreheit = false)
  float hic = dht.computeHeatIndex(t, h, false);

  Serial.print("Humidity: ");
  Serial.print(h);
  Serial.print(" %\t");
  Serial.print("Temperature: ");
  Serial.print(t);
  Serial.print(" *C ");
  Serial.print(f);
  Serial.print(" *F\t");
  Serial.print("Heat index: ");
  Serial.print(hic);
  Serial.print(" *C ");
  Serial.print(hif);
  Serial.println(" *F");
}

void loop() {
  Serial.println("next update");
  gettemp();
  int ti,td,hi,hd;
  ti= int(t); td=int(100.0*(t - (int)t));
  hi= int(h); hd=int(100.0*(h - (int)h));

  sprintf(PostData,"api_key=%s&field1=%02d.%02d&field2=%02d.
%02d",key,ti,td,hi,hd);
  TSupdate(PostData);
  delay(60000);
}

```