#include <Process.h>

#define APIKEY "3c0c7c8519df9f8d9b57174ed6892aed" // User "gtycxs"'s API KEY

#define DEVICEID 357398 // Device ID of AirQuality

int measurePin = 0; //Connect dust sensor to Arduino A0 pin

int ledPower = 2; //Connect 3 led driver pins of dust sensor to Arduino D2

int samplingTime = 280;

int deltaTime = 40;

int sleepTime = 9680;

float maxValue = 0.0;

int loopTimes = 1;

void setup() {

// run setup code here once

Serial.begin(9600); // init the serial port for debug

Bridge.begin(); // init the bridge to post value via wifi

pinMode(ledPower,OUTPUT); // init the PM2.5 sensor

}

void loop() {

// run main code here repeatedly

float pm = getDustDensity();

if (pm > maxValue) {

maxValue = pm;

}

Serial.print("DustDensity: ");

Serial.println(pm);

Serial.print("Max Value: ");

Serial.println(maxValue);

loopTimes++;

if (loopTimes >= 15) {

// post the max value during each 15 seconds

postValue(0, maxValue);

// reset the max value and loop times

maxValue = 0.0;

loopTimes = 1;

}

delay(1000); // post PM 2.5 value per 15 seconds

}

void postValue(int sensor, float value) {

Process p;

String cmd = "curl --request POST -d '{\"timestamp\":\"'"

+ String("`date '+%Y-%m-%dT%T'`")

+ "'\",\"value\":"

+ value

+ "}' --header \"U-ApiKey: 3c0c7c8519df9f8d9b57174ed6892aed\""

+ " http://api.yeelink.net/v1.0/device/"

+ DEVICEID

+ "/sensor/"

+ String(405549)

+ "/datapoints";

p.runShellCommand(cmd);

Serial.println(cmd);

}

float getDustDensity() {

float voMeasured = 0;

float calcVoltage = 0;

float dustDensity = 0;

digitalWrite(ledPower,LOW); // power on the LED

delayMicroseconds(samplingTime);

voMeasured = analogRead(measurePin); // read the dust value

delayMicroseconds(deltaTime);

digitalWrite(ledPower,HIGH); // turn the LED off

delayMicroseconds(sleepTime);

// 0 - 5V mapped to 0 - 1023 integer values

// recover voltage

calcVoltage = voMeasured \* (5.0 / 1024.0);

// linear eqaution taken from http://www.howmuchsnow.com/arduino/airquality/

// Chris Nafis (c) 2012

dustDensity = (0.17 \* calcVoltage - 0.1) \* 1000;

return dustDensity;

}