#include "ThingSpeak.h"

#include <ESP8266WiFi.h>

#include <LiquidCrystal\_I2C.h>

LiquidCrystal\_I2C lcd(0x27, 16, 2);

//----------- Enter you Wi-Fi Details---------//

char ssid[] = "heyhihlo"; //SSID

char pass[] = "hlohihey"; // Password

//-------------------------------------------//

// ---------- garbage bin details ------------//

const int total\_height = 10; // garbage bin height in CM

const int hold\_height = 8;// garbage holding capacity (height) in CM

//-------------------------------------------//

//----- Minutes -----//

int Minute = 1; // Data update in min.

//------------------//

//----------- Channel Details -------------//

unsigned long Channel\_ID = 2147979; // Channel ID

const char \* WriteAPIKey = "T7A82LILHDL95E7A"; // Your write API Key

// ----------------------------------------//

const int trigger = 14;

const int echo = 12;

long Time;

int x;

int i;

int distanceCM;

int resultCM;

int bin\_lvl = 0;

int snsr\_to\_max = 0;

const int Field\_number = 1;

WiFiClient  client;

void setup()

{

  lcd.init();

  lcd.backlight();

  lcd.setCursor(0, 0);

  lcd.print("IoT Garbage lvl");

  lcd.setCursor(0, 1);

  lcd.print("Monitoring Sys.");

  Serial.begin(115200);

  pinMode(trigger, OUTPUT);

  pinMode(echo, INPUT);

  WiFi.mode(WIFI\_STA);

  ThingSpeak.begin(client);

  snsr\_to\_max = total\_height - hold\_height;

  delay(2500);

}

void loop()

{

  internet();

  measure();

  lcd.clear();

  lcd.setCursor(0, 0);

  lcd.print("Garbage Level:");

  lcd.setCursor(5, 1);

  lcd.print(bin\_lvl);

  lcd.print('%');

  Serial.print("Garbage Level:");

  Serial.print(bin\_lvl);

  Serial.println("%");

  upload();

  for (i = 0; i < Minute; i++)

  {

    Serial.println("-------------------------");

    Serial.println("System Standby....");

    Serial.print(i);

    Serial.println(" Minutes elapsed.");

    delay(20000);

    delay(20000);

    delay(20000);

  }

}

void upload()

{

  internet();

  x = ThingSpeak.writeField(Channel\_ID, Field\_number, bin\_lvl, WriteAPIKey);

  if (x == 200)Serial.println("Data Updated.");

  if (x != 200)

  {

    Serial.println("Data upload failed, retrying....");

    delay(15000);

    upload();

  }

}

void measure()

{

  delay(100);

  digitalWrite(trigger, HIGH);

  delayMicroseconds(10);

  digitalWrite(trigger, LOW);

  Time = pulseIn(echo, HIGH);

  distanceCM = Time \* 0.034;

  resultCM = distanceCM / 2;

  bin\_lvl = map(resultCM, snsr\_to\_max, total\_height, 100, 0);

  if (bin\_lvl > 100) bin\_lvl = 100;

  if (bin\_lvl < 0) bin\_lvl = 0;

}

void internet()

{

  if (WiFi.status() != WL\_CONNECTED)

  {

    Serial.print("Attempting to connect to SSID: ");

    Serial.println(ssid);

    while (WiFi.status() != WL\_CONNECTED)

    {

      WiFi.begin(ssid, pass);

      Serial.print(".");

      delay(5000);

    }

    Serial.println("\nConnected.");

  }

}