#include <Wire.h>

#include <LiquidCrystal.12C.h>

Set the LCD address to 0x27 for a 16 chars and 2 line display

Liquid Crystal 120 led (0 x27 162)

const int Running AverageCount) 64:

float Running AverageBuffert Running AverageCount 1]:

int NextRunning Average 1:

float Running Average Volt 1

int co2:

#include MQ7

#define A PIN 2

#define VOLTAGE 5

init MQ7 device

MO? 07 (A. PIN, VOLTAGE)

int co

#define DHIP 311

Digital pin connected to the DHT sensor

// Feather HLUZZAH ESP8266 note: use pin: 3, 4, 5, 12, 13 от 14

Pin 15 can work hat DHT must he discennested during program upload

Uncomment whatever type you're aving!

#define DHTTYPE DETIL

77#define DHTTYLE DHT22

// DHT 22 (AM2382) AM3321

#define DHITTYPE DHEZI

77 DHT 11

// DHT 21 (AM1)

// Connect pin I on the left of the sensor to SV

NOTE: If using a hoard with 1.3V legic like us Ardaine Dae connect pin

3.3V instead of SVI

Connect pin 2 of the sensor to whatever your DHTPEN is

// Connect pis 3 ion the right of the senser to GREEND if your sensor has 3 pin

// Connect pin 4 lon the right of the senser GROUND and leave the pin 3 EMTY if your

has 4 pins) // Connrei 106 resistor from pin 2 (data) to pin power) of the sensor

// Initialize IXIT senvo

Note that older versions of this library took an antional third parameter to twenk the mings for faster processors. This parametes no longer needed

as the carrent IT reading algorithm adjusts itself to work faster proce

DHT dhi (DHTPIN, DHITYPE):

int ms0p1250

char disp. flag 0:

void setup()

Serial, begin(9600);

initialize the IKD

Icd.begin():

Turn on the blacklight and print a message, led hacklight();

Icd.setCursor(0, 3): led print("10T-AIRPOLLUTION");

lcd.setCursor(0, 1): led print(" MONITORING SYS):

Serial.println("Calibrating MQ):

mq7.calibrate()

If calculates RO

// Serial.println(" Calibration done!)

Serial printin (F(DHT

dht.begin():

elif)://stop interrupts

// set timer2 interrupt at kile

TOCRZA 0/7 net entire TCCR2A register to 0

TOOR280://same for TCURIB

TCNT20://initiutine coontes value 100

//vet compare match register fr 8khz increments

OCRZA 249,17 (10-100) (8000+5) 1 must be <256)

If turn on CTC mode

JOCRZA (1<<<<<<<< WGM21):

Set CS21 bit for K prescaler

TCCR28 (1 << ($21)

enable timet compare interrupt

TIMSK2 (1<<<

set();//allow interrupt

led cleari

ISR (TIMER.COMPA, vect)

++malp125:

if (ms0p 125 4000) // 500mk

disp fing 1

ms0p125

void loop()

Running Average Buffer NextRunning Averagel++ analogRead(AL))

IT (NextRunning Averagel Running AverageCount) NextRunning Averagel 0

Ruoning Average Volti 01

for (il=0: il Running AverageCounti: ++il) Running Average Voltl Running AverageBuffer) [l]

Running Average Volti Running AverageCounil:

if (disp. flug It

Atmospherie C Level 4100ppm

Average indour 350-450ppm

Maximum acceptable 1000ppm

Dangerous levnis 2000ppm

mapi (int) Running Average Volti, 0, 1023, 400, 5000): 4001002 400: else if (co2 > 5000) co2 5000

(int imq7. read1pm1); //20-2900pm

ifics Dico 01

else ificu 9999]co

// Reading temperature or humidity takes about 250 milliseconds

// Sensor readings may also be up to 2 seconds old its very slow sensor)

float hidht readHumidity():

// Read temperature as Celsius (the default)

float tdht read Temperature():

// Read Tm rature as Fahrenheit (isFahrenheit True)

float fdht read Temperature(true))

Check if any reads failed and exit early to try again).

if (isnan (h) || Isman (1) || isnan (T))

//Secial, printin (F("Failed to read from IIT 1"))

return:

// Compute heat indes in Fahrenheit the default)

float hif dht.computeHeatindes (f, h)

// Compute heat index in Celsius (is Fahreheit false)

float hic

dht.compute HeatIndesit, h. false);

Serial.print (Ft Humidity: 11:

// Serial.print(h):

Serial.print():

Serial prini (F Temperature: ");

Serial.print (F("C")):

Serial, print (F):

// Serial print (F(" F Heat index):

Serial print (hic)

// Serial.print | 6 c^ prime prime C

Serial.print(hif);

// Serial.printin (F" F ^ \* )

Serial.print("STemp:");

if (110) Serial.print("")

else ifit < 100) Serial print("");

Serial.print(1, 2); Serial.print("degC, Humy:");

ifth 10) Serial.print("");

else ifth 100) Serial.print(" "):

Serial.print(h. 0);

Serial.print("SRH. CO2:")

if (co210) Serial.print (^ mm )

else if (co2 100) Serial print(""): else if (co2 1000) Serial print("");

Serial.print (co2): Serial.print("ppm, CD: ");

ifico 10) Serial print("

else if (co < 100) Serial print(" ");

else if (co <1000) Serial.print("");

Serial.print(co):

Serial.println("ppens"):

//led.setCursor(0, 0); led.print("C02:1000 ppm T:21");

//lcd.setCursor(0, 1); led print CD:1000 ppm H:99");

led setCursor(0, 0)

lcd.print("002):

if (co210) Icd.print("") else if (co2 < 100) led print("");

else if (co2 1000) Icd.print("");

led.print(co2):

led print("ppm T"):

if (110) led print(");

led.print(10):

lcd.setCursor(0, 1);