# PROIECT AEMC

# CRONOMETRU

# 

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# 

# Schema electrica:

## COD:

#include <Wire.h>

#include <LiquidCrystal\_I2C.h>

#define STATE\_INIT 0

#define STATE\_STOP 1

#define STATE\_PAUSED 2

#define STATE\_COUNTING 3

int BUTTON\_START = 5;

int BUTTON\_PAUSE = 6;

int BUTTON\_STOP = 7;

int hours = 0;

int minutes = 0;

int seconds = 0;

int counter\_200\_ms = 0;

int STATE = STATE\_INIT;

LiquidCrystal\_I2C lcd(0x27, 2, 1, 0, 4, 5, 6, 7, 3, POSITIVE); // Set the LCD I2C address

void display\_time(void);

void reset\_time(void);

void increase\_time(void);

void task\_200\_ms(void);

void read\_buttons(void);

void setup()

{

pinMode(BUTTON\_START, INPUT);

pinMode(BUTTON\_PAUSE, INPUT);

pinMode(BUTTON\_STOP, INPUT);

lcd.begin(16,2);

for(int i = 0; i< 3; i++)

{

lcd.backlight();

delay(100/16);

lcd.noBacklight();

delay(100/16);

}

lcd.backlight();

lcd.setCursor(0,0);

lcd.print("Cronometru");

delay(1000/16);

lcd.setCursor(0,1);

lcd.print("AEMC");

delay(2000/16);

lcd.clear();

lcd.setCursor(4,0);

//lcd.print("00:00:00");

display\_time();

lcd.setCursor(0,1);

lcd.print("START PAUSE STOP");

STATE = STATE\_STOP;

}

void loop()

{

task\_200\_ms();

delay(200/16);

}

void task\_200\_ms(void)

{

read\_buttons();

switch(STATE)

{

case STATE\_COUNTING:

{

counter\_200\_ms ++;

if (counter\_200\_ms >= 5)

{

counter\_200\_ms = 0;

increase\_time();

display\_time();

}

}

}

}

void increase\_time(void)

{

seconds ++;

if (seconds >= 60)

{

seconds = 0;

minutes ++;

if(minutes >= 60)

{

minutes = 0;

hours ++;

}

}

}

void reset\_time(void)

{

seconds = 0;

minutes = 0;

hours = 0;

}

void display\_time(void)

{

lcd.setCursor(4,0);

lcd.print(hours / 10);

lcd.print(hours % 10);

lcd.print(":");

lcd.print(minutes / 10);

lcd.print(minutes % 10);

lcd.print(":");

lcd.print(seconds / 10);

lcd.print(seconds % 10);

}

void read\_buttons(void)

{

switch(STATE)

{

case STATE\_STOP:

{

if(digitalRead(BUTTON\_START) == LOW)

{

STATE = STATE\_COUNTING;

}

if(digitalRead(BUTTON\_PAUSE) == LOW)

{

// nothing

}

if(digitalRead(BUTTON\_STOP) == LOW)

{

// nothing

}

break;

}

case STATE\_PAUSED:

{

if(digitalRead(BUTTON\_START) == LOW)

{

STATE = STATE\_COUNTING;

}

if(digitalRead(BUTTON\_PAUSE) == LOW)

{

// nothing

}

if(digitalRead(BUTTON\_STOP) == LOW)

{

STATE = STATE\_STOP;

reset\_time();

display\_time();

}

break;

}

case STATE\_COUNTING:

{

if(digitalRead(BUTTON\_START) == LOW)

{

// nothing

}

if(digitalRead(BUTTON\_PAUSE) == LOW)

{

STATE = STATE\_PAUSED;

}

if(digitalRead(BUTTON\_STOP) == LOW)

{

STATE = STATE\_STOP;

reset\_time();

display\_time();

}

break;

}

default:

{

break;

}

}

}

# 