LAMPIRAN

Program arduino mega 2560 alat terapi gelombang frekuensi audiosonik

```
// Library KeyPad I2C
#include <AD9850.h>
const int W_CLK_PIN = 7;
const int FQ_UD_PIN = 8;
const int DATA_PIN = 9;
const int RESET_PIN = 10;

double freq = 0;
double trimFreq = 124999500;

int phase = 0;

// Library KeyPad I2C
#include <Key.h>
#include <Keypad.h>
#include <Keypad_I2C.h>
#define I2CADDR 0x20 // Set the Address of the PCF8574
const byte ROWS = 4; // Set the number of Rows
const byte COLS = 4; // Set the number of Columns
// Set the Key at Use (4x4)
char keys [ROWS] [COLS] = {
  {'7', '8', '9', '÷'},
  {'4', '5', '6', 'X'},
  {'1', '2', '3', '-'},
  {'C', '0', '=', '+'}
};

// define active Pin (4x4)
byte rowPins [ROWS] = {0, 1, 2, 3}; // Connect to Keyboard Row Pin
byte colPins [COLS] = {4, 5, 6, 7}; // Connect to Pin column of keypad.
```

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// makeKeymap (keys): Define Keymap
// rowPins:Set Pin to Keyboard Row
// colPins: Set Pin Column of Keypad
// ROWS: Set Number of Rows.
// COLS: Set the number of Columns
// I2CADDR: Set the Address for i2C
// PCF8574: Set the number IC
Keypad_I2C keypad (makeKeymap (keys), rowPins, colPins, ROWS, COLS,
I2CADDR, PCF8574);

// Library LCD1602
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
 LiquidCrystal_I2C lcd(0x27, 16, 2); // SDA-> A4, SCL->A5

//Global var init
String inputFrekuensi;
double frekuensi_input;


void setup () {
 DDS.begin(W_CLK_PIN, FQ_UD_PIN, DATA_PIN, RESET_PIN);
 DDS.calibrate(trimFreq);

 Wire.begin(); //SDA, SCL

 keypad.begin (makeKeymap (keys)); // Call the connection
 Serial.begin (9600);

 // Show Logo
 lcd.begin();
 lcd_print("Input your Hz!", "");
```

```
}
void loop () {
  key();
}


int counter = 0;
void key() {
  char key = keypad.getKey (); // Create a variable named key of type char to hold the characters pressed
  yield();//Constantly waiting for a key to be pressed

  if (key) {
   Serial.println(key);
   lcd.setCursor(counter, 1);
   counter = counter + 1;
   lcd.print(key);
  }
  if (key == '1') { // if the key variable contains
   inputFrekuensi = inputFrekuensi + 1;
  }
  if (key == '2') { // if the key variable contains
   inputFrekuensi = inputFrekuensi + 2;
  }
  if (key == '3') { // if the key variable contains
   inputFrekuensi = inputFrekuensi + 3;
  }
  if (key == '4') { // if the key variable contains
   inputFrekuensi = inputFrekuensi + 4;
  }
  if (key == '5') { // if the key variable contains
   inputFrekuensi = inputFrekuensi + 5;
  }
  if (key == '6') { // if the key variable contains
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  inputFrekuensi = inputFrekuensi + 6;
 }
 if (key == '7') { // if the key variable contains
  inputFrekuensi = inputFrekuensi + 7;
 }
 if (key == '8') { // if the key variable contains
  inputFrekuensi = inputFrekuensi + 8;
 }
 if (key == '9') { // if the key variable contains
  inputFrekuensi = inputFrekuensi + 9;
 }
 if (key == '0') { // if the key variable contains
  inputFrekuensi = inputFrekuensi + 0;
 }
 if (key == 'C') { // if the key variable contains
  clearInput();
 }
 if (key == '=') { // if the key variable contains
  frekuensi_input = inputFrekuensi.toDouble(); //ubah ke integer
  inputFrekuensi = "";
  lcd_print("Running in Hz", String(frekuensi_input));
  Serial.println(frekuensi_input); //show serial
  //do frekuensi out
  int flag = 1;
  while (flag == 1) {
   DDS.setfreq(frekuensi_input, phase);
   char key = keypad.getKey (); // Create a variable named key of type char to hold the characters pressed
   yield();
   if (key == 'C') { // if the key variable contains
    clearInput();
    flag = 2;
   }
```

```
    }
  }
}

void lcd_print(String msg0, String msg1) {
  // Turn on the blacklight and print a message.
  lcd.backlight();
  lcd.clear();
  lcd.setCursor(0, 0);
  lcd.print(msg0);
  lcd.setCursor(0, 1);
  lcd.print(msg1);
}
void clearInput() {
  DDS.setfreq(freq, phase);
  inputFrekuensi = "";
  Serial.println("Clear Input"); //show serial
  counter = 0;
  lcd_print("Input your Hz!", "");
}
```

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