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LAMPIRAN A

Program Arduino MEGA

```
#include <Wire.h>
#include <SoftwareSerial.h>
#include "TFMini.h"
#include <UTFT.h>
#include <URTouch.h>
TFMini tfmini;
SoftwareSerial SerialTFMini(10, 11); //RX,TX TF MINI
SoftwareSerial SerialESP32(62,63); //RX,TX ESP
UTFT myGLCD(ILI9341_16,38,39,40,41);
URTouch myTouch(6,5,4,3,2);
float PANJANG, LEBAR, TINGGI, LUAS, VOLUME;
float LUMEN;
float LED;
float TL;
float LUX;
float BTU;
float PK;
float WATTAC;
float WATTEX;
float CMH;
//==== Defining Variables
```

```
extern uint8_t SmallFont[];
extern uint8_t BigFont[];
extern uint8_t SevenSegNumFont[];
int sensor;
int x, y;
int distance;
int sensorValue;
int PILIHLUX;
char currentPage, selectedUnit;
unsigned long prevMillis = 0;
byte hitung = 0;
void getTFminiData(int *distance, int *strength)
{
  static uint8_t i = 0;
  uint8_t j = 0;
  uint16_t checksum = 0;
  static uint8_t rx[9];
  if (SerialTFMini.available())
  {
    rx[i] = SerialTFMini.read();

    if (rx[0] != 0x59)
    {
```

```
  i = 0;
}
else if (i == 1 && rx[1] != 0x59)
{
  i = 0;
}
else if (i == 8)
{
  for (j = 0; j < i; j++)
  {
    checksum += rx[j];
  }

  if (rx[8] == (checksum % 256))
  {
    *distance = rx[2] + rx[3] * 256;
    *strength = rx[4] + rx[5] * 256;
  }

  i = 0;
}
else
{
```

```
      i++;
    }
  }
}
void setup() {

// Initial setup
  myGLCD.InitLCD();
  myGLCD.clrScr();
  myTouch.InitTouch();
  myTouch.setPrecision(PREC_MEDIUM);

 Serial.begin(115200);        //Initialize hardware serial port (serial debug port)
  while (!Serial);             // wait for serial port to connect. Needed for native USB port only
  Serial.println ("Initializing...");
  SerialTFMini.begin(115200);        //Initialize the data rate for the SoftwareSerial port
  tfmini.begin(&SerialTFMini);          //Initialize the TF Mini sensor
  Serial1.begin(115200);

  halaman0();
  currentPage = '0';
```

```
  selectedUnit = '0';


}

void loop() {

  int distance = 0;
  int strength = 0;

  getTFminiData(&distance, &strength);
  while (!distance)
  {
    getTFminiData(&distance, &strength);
    if (distance)
    {
      Serial.print(distance);
      Serial.print("cm\t");
      Serial.print("strength: ");
      Serial.println(strength);
    } }
  //Serial1.print(distance);
  delay(100);
```

```
    unsigned long millis();
  if (millis() - prevMillis >= 500)
  {
    prevMillis = millis();
  }
 if (currentPage == '0') {
    if (myTouch.dataAvailable()) {
      myTouch.read();
      x=myTouch.getX(); // X coordinate where the screen has been pressed
      y=myTouch.getY(); // Y coordinates where the screen has been pressed

      // If we press the Distance Sensor Button
      if ((x>=35) && (x<=285) && (y>=100)  && (y<=140)) {
        drawFrame(35, 100, 285, 140);
        currentPage = '1';
        myGLCD.clrScr();
        halaman1();
      }
      // tombol hitubg ac ditekan
      if ((x>=35)&&(x<=285)&&(y>=150)&&(y<=190)){
        drawFrame(35, 150, 285, 190);
        currentPage = '4';
```

```
      myGLCD.clrScr();
      halaman4();
    }


  }}
  if (currentPage=='1'){
      if (myTouch.dataAvailable()) {
    myTouch.read();
    x=myTouch.getX(); // X coordinate where the screen has been pressed
    y=myTouch.getY();
    // TOMBOL BACK DITEKAN
    if  ((x>=10) && (x<=60) && (y>=204)  && (y<=230)){
      drawFrame(10,204,60,230);
      currentPage = '0';
      myGLCD.clrScr();
      halaman0();}
    // TOMBOL NEXT DITEKAN
    if ((x>=235) && (x<=310) && (y>=210)  && (y<=230)){
      drawFrame(235,210,310,230);
      currentPage = '2';
      myGLCD.clrScr();
      halaman2();
    }
```

```
    }



     if (myTouch.dataAvailable()) {
      myTouch.read();
      x=myTouch.getX(); // X coordinate where the screen has been pressed
      y=myTouch.getY();
      if ((x>=225)&&(x<=280)&&(y>=70)&&(y<=85))
      {drawFrame(225,70,280,85);
        PANJANG = distance;
          myGLCD.setBackColor(0,0,0);
          myGLCD.setColor(255,255,255);
          myGLCD.setFont(BigFont);
          myGLCD.printNumI(PANJANG, 135, 70);
          myGLCD.print("cm",185,70);
      }}
    if (myTouch.dataAvailable()) {
      myTouch.read();
      x=myTouch.getX(); // X coordinate where the screen has been pressed
      y=myTouch.getY();
      if ((x>=225)&&(x<=280)&&(y>=100)&&(y<=115))
      { drawFrame(225,100,280,115);
```

```
   LEBAR = distance;
    myGLCD.setBackColor(0,0,0);
     myGLCD.setColor(255,255,255);
     myGLCD.setFont(BigFont);
     myGLCD.printNumI(LEBAR, 135, 100);
     myGLCD.print("cm",185,100);
  }}
if (myTouch.dataAvailable()){
  myTouch.read();
  x=myTouch.getX();
  y=myTouch.getY();

if ((x>=225)&&(x<=310)&&(y>=130)&&(y<=145)){
  drawFrame(225, 130, 280, 145);
  LUAS=PANJANG*LEBAR/10000;
    myGLCD.setBackColor(0,0,0);
     myGLCD.setColor(255,255,255);
     myGLCD.setFont(BigFont);
     myGLCD.printNumI(LUAS, 135, 130);
     myGLCD.print("M2",185,130);
}
}}
```

```
  if (currentPage == '2'){




    if (myTouch.dataAvailable()) {
     myTouch.read();
     x=myTouch.getX(); // X coordinate where the screen has been pressed
     y=myTouch.getY();


    switch (PILIHLUX) {
    case 0:
        // tombol 100 ditekan
    if ((x>=25)&&(x<=105)&&(y>=50)&&(y<=100)){
     drawFrame(25, 50, 105, 100);
     LUX=100;
     currentPage = '3';
     myGLCD.clrScr();
     halaman3();}
     case 1:
     // tombol 150 ditekan
     if ((x>=115)&&(x<=195)&&(y>=50)&&(y<=100)){
      drawFrame(115, 50, 195, 100);
      LUX=150;
```

```
 currentPage = '3';
myGLCD.clrScr();
halaman3();}
case 2:
  if ((x>=205)&&(x<=285)&&(y>=50)&&(y<=100)){
drawFrame(205, 50, 285, 100);
LUX=200;
currentPage = '3';
myGLCD.clrScr();
halaman3();}
case 3:
if ((x>=25)&&(x<=105)&&(y>=110)&&(y<=160)){
drawFrame(25, 110, 105, 160);
LUX=250;
currentPage = '3';
myGLCD.clrScr();
halaman3();}
case 4:
if ((x>=115)&&(x<=195)&&(y>=110)&&(y<=160)){
drawFrame(115, 110, 195, 160);
LUX=300;
currentPage = '3';
myGLCD.clrScr();
```

```
halaman3();}
case 5:
if ((x>=205)&&(x<=285)&&(y>=110)&&(y<=160)){
drawFrame(205, 110, 285, 160);
LUX=350;
currentPage = '3';
myGLCD.clrScr();
halaman3();}
case 6:
if ((x>=25)&&(x<=105)&&(y>=170)&&(y<=220)){
drawFrame(25, 170, 105, 220);
LUX=500;
currentPage = '3';
myGLCD.clrScr();
halaman3();}
case 7:
if ((x>=115)&&(x<=195)&&(y>=170)&&(y<=220)){
drawFrame(115, 170, 195, 220);
LUX=750;
currentPage = '3';
myGLCD.clrScr();
halaman3();}
case 8:
```

```
      if ((x>=205)&&(x<=285)&&(y>=170)&&(y<=220)){
      drawFrame(205, 170, 285, 220);
      LUX=1000;
      currentPage = '3';
      myGLCD.clrScr();
      halaman3();}
     }
     if ((x>=290)&&(x<=310)&&(y>=10)&&(y<=30)){
      drawFrame(290, 10, 310, 30);
      currentPage = '6';
      myGLCD.clrScr();
      halamanmenu1();}
     }


   }

if (currentPage =='3'){


  if (myTouch.dataAvailable()) {
      myTouch.read();
      x=myTouch.getX(); // X coordinate where the screen has been
pressed
      y=myTouch.getY();
```

```
  // TOMBOL SAVE DITEKAN
 if  ((x>=10) && (x<=85) && (y>=210)  && (y<=230)){
  drawFrame(10,210,85,230);
  Serial1.print(PANJANG);
  Serial1.print(",");
  Serial1.print(LEBAR);
  Serial1.print(",");
  Serial1.print(TINGGI);
  Serial1.print(",");
  Serial1.print(LUAS);
  Serial1.print(",");
  Serial1.print(LUX);
  Serial1.print(",");
  Serial1.print(LUMEN);
  Serial1.print(",");
  Serial1.print(LED);
  Serial1.print(",");
  Serial1.print(TL);
  Serial1.print(",");
  Serial1.print(BTU);
  Serial1.print(",");
  Serial1.print(PK);
  Serial1.print(",");
```

```
      Serial1.print(WATTAC);
      Serial1.print(",");
      Serial1.print(CMH);
      Serial1.print(",");
      Serial1.print(WATTEX);
      }
    // TOMBOL HOME DITEKAN
    if ((x>=235) && (x<=310) && (y>=210)  && (y<=230)){
      drawFrame(235,210,310,230);
      currentPage = '0';
      myGLCD.clrScr();
      halaman0();
    }
}}


  if (currentPage=='4'){
   // tombol set panjang
 if (myTouch.dataAvailable()) {
    myTouch.read();
    x=myTouch.getX(); // X coordinate where the screen has been pressed
    y=myTouch.getY();
    // TOMBOL BACK DITEKAN
```

```
    if  ((x>=10) && (x<=60) && (y>=204)  && (y<=230)){
      drawFrame(10,204,60,230);
      currentPage = '0';
      myGLCD.clrScr();
      halaman0();}
    // TOMBOL NEXT DITEKAN
    if ((x>=235) && (x<=310) && (y>=210)  && (y<=230)){
      drawFrame(235,210,310,230);
      currentPage = '5';
      myGLCD.clrScr();
      halaman5();
    }}
     switch (hitung) {
  case 0:
   //  sensor = distance/30.48;
    sensorValue = distance;
   // sensorValue = distance;
   sensor = sensorValue / 100 + 0.17;
    case 1:
    if (myTouch.dataAvailable()) {
     myTouch.read();
     x=myTouch.getX(); // X coordinate where the screen has been
pressed
     y=myTouch.getY();
```

```
    if ((x>=225)&&(x<=280)&&(y>=70)&&(y<=85))
    {drawFrame(225,70,280,85);
     PANJANG = distance;
      myGLCD.setBackColor(0,0,0);
      myGLCD.setColor(255,255,255);
      myGLCD.setFont(BigFont);
      myGLCD.printNumI(PANJANG, 135, 70);
       myGLCD.setColor(255,255,255);
      myGLCD.setFont(BigFont);
      myGLCD.print("cm",185,70);

     break;
    }}

  case 2:
  if (myTouch.dataAvailable()) {
    myTouch.read();
    x=myTouch.getX(); // X coordinate where the screen has been pressed
    y=myTouch.getY();
    if ((x>=225)&&(x<=280)&&(y>=100)&&(y<=115))
    { drawFrame(225,100,280,115);
     LEBAR = distance;
      myGLCD.setBackColor(0,0,0);
```

```
    myGLCD.setColor(255,255,255);
    myGLCD.setFont(BigFont);
    myGLCD.printNumI(LEBAR, 135, 100);
    myGLCD.setColor(255,255,255);
    myGLCD.setFont(BigFont);
    myGLCD.print("cm",185,100);
   break;
  }}

case 3:
if (myTouch.dataAvailable()){
  myTouch.read();
  x=myTouch.getX();
  y=myTouch.getY();

if ((x>=225)&&(x<=280)&&(y>=130)&&(y<=145)){
  drawFrame(225, 130, 280, 145);
  TINGGI= distance;
    myGLCD.setBackColor(0,0,0);
    myGLCD.setColor(255,255,255);
    myGLCD.setFont(BigFont);
    myGLCD.printNumI(TINGGI, 135, 130);
    myGLCD.setColor(255,255,255);
```

```
      myGLCD.setFont(BigFont);
      myGLCD.print("cm",185,130);
    break;
  }
  }
  case 4:
if (myTouch.dataAvailable()){
  myTouch.read();
  x=myTouch.getX();
  y=myTouch.getY();
if ((x>=225)&&(x<=280)&&(y>=160)&&(y<=175)){
  drawFrame(225, 160, 280, 175);
  VOLUME=PANJANG*LEBAR*TINGGI*0.000001;
      myGLCD.setBackColor(0,0,0);
      myGLCD.setColor(255,255,255);
      myGLCD.setFont(BigFont);
      myGLCD.printNumI(VOLUME, 135, 160);
      myGLCD.setColor(255,255,255);
      myGLCD.setFont(BigFont);
      myGLCD.print("M3",185,160);
  break;
}
  }
```

```
  }


}
 if (currentPage =='5'){
    BTU=VOLUME/3*500;
     myGLCD.setColor(255,255,255);
     myGLCD.setBackColor(0,0,0);
     myGLCD.setFont(BigFont);
     myGLCD.printNumI(BTU,160,60);
   if ((BTU>=100)&&(BTU<=4500)){
     PK=0.5;
   }
   else if ((BTU>=4501)&&(BTU<=7000)) {
     PK=0.75;
   }
   else if ((BTU>=7001)&&(BTU<=9000)) {
      PK=1;
   }
   else if ((BTU>=9001)&&(BTU<=13500)) {
   PK=1.5;
   }
   else if ((BTU>=13501)&&(BTU<=18000)) {
```

```
PK=2;
}
else if ((BTU>=18001)&&(BTU<=22500)) {
PK=2.5;
}
else if ((BTU>=22501)&&(BTU<=27000)) {
PK=3;
}
else if ((BTU>=27001)&&(BTU<=31500)) {
PK=3.5;
}
else if ((BTU>=31501)&&(BTU<=36000)) {
PK=4;
}
 myGLCD.setColor(255,255,255);
 myGLCD.setBackColor(0,0,0);
 myGLCD.setFont(BigFont);
 myGLCD.printNumI(PK,160,90);
 myGLCD.printNumI(PK*750,160,75);
 myGLCD.printNumI(VOLUME*10,160,105);
 myGLCD.printNumI(VOLUME*10/30,210,120);
if (myTouch.dataAvailable()){
myTouch.read();
```

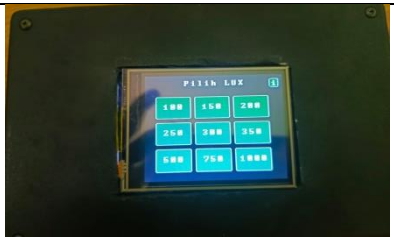
```
x=myTouch.getX();
y=myTouch.getY();
//tombol SAVE
if  ((x>=10) && (x<=85) && (y>=210)  && (y<=230)){
   drawFrame(10,210,85,230);
     Serial1.print(PANJANG);
   Serial1.print(",");
   Serial1.print(LEBAR);
   Serial1.print(",");
   Serial1.print(TINGGI);
   Serial1.print(",");
   Serial1.print(LUAS);
   Serial1.print(",");
   Serial1.print(LUX);
   Serial1.print(",");
   Serial1.print(LUMEN);
   Serial1.print(",");
   Serial1.print(LED);
   Serial1.print(",");
   Serial1.print(TL);
   Serial1.print(",");
   Serial1.print(BTU);
   Serial1.print(",");
```

```
      Serial1.print(PK);
      Serial1.print(",");
      Serial1.print(WATTAC);
      Serial1.print(",");
      Serial1.print(CMH);
      Serial1.print(",");
      Serial1.print(WATTEX);
   }
    // TOMBOL HOME DITEKAN
    if ((x>=235) && (x<=310) && (y>=210)  && (y<=230)){
      drawFrame(235,210,310,230);
      currentPage = '0';
      myGLCD.clrScr();
      halaman0();
    }
 }}

if (currentPage =='6'){

   if (myTouch.dataAvailable()) {
    myTouch.read();
    x=myTouch.getX(); // X coordinate where the screen has been pressed
```

```
y=myTouch.getY(); // Y coordinates where the screen has been pressed


// If we press the Distance Sensor Button
if ((x>=235) && (x<=310) && (y>=210)  && (y<=230)) {
  drawFrame(235, 210, 310, 230);
  currentPage = '7';
  myGLCD.clrScr();
  halamanmenu2();
}
if ((x>=35) && (x<=285) && (y>=45)  && (y<=75)) {
  drawFrame(35, 45, 285, 75);
  currentPage = '8';
  myGLCD.clrScr();
  rumahtinggal();
}
if ((x>=35) && (x<=285) && (y>=80)  && (y<=110)) {
  drawFrame(35, 80, 285, 110);
  currentPage = '9';
  myGLCD.clrScr();
  tempatibadah();
}
if ((x>=35) && (x<=285) && (y>=115)  && (y<=145)) {
  drawFrame(35, 115, 285, 145);
```

```
  currentPage = 'A';
  myGLCD.clrScr();
  pertokoan();
 }
 if ((x>=35) && (x<=285) && (y>=150)  && (y<=180)) {
  drawFrame(35, 150, 285, 180);
  currentPage = 'B';
  myGLCD.clrScr();
  pendidikan();
 }}}
```

LAMPIRAN B

Halaman awal layar	
Halaman pengukuran	
Halaman pilih nilai LUX	
Halaman informasi nilai LUX	

Halaman hasil	

BIODATA PENULIS

Nama	: Hasan Sarito
Tempat/Tanggal Lahir	: Tangerang, 24 Juni 2002
Alamat	: Jl. Kalianja RT/RW 004/00 Desa. Petir, Kec. Kalibagor Kab. Banyumas 53191
Email	: hasansarito24@gmail.com
Telepon/HP	: 081953428184
Hobi	: Memelihara reptil
Motto	: Dikasih cobaan ya dicobain dikasih kenikmatan ya dinikmatin.

Riwayat Pendidikan

- SD Negeri 2 Petir — Tahun 2008-2014
- SMP Negeri 1 Sokaraja — Tahun 2014-2017
- SMK Negeri 2 Purwokerto — Tahun 2017-2021
- Politeknik Negeri Cilacap Prodi D3 Teknik Listrik — Tahun 2021-2024

Penulis telah mengikuti seminar proposal pada tanggal 6 Agustus 2024 sebagai salah satu persyaratan untuk memperoleh gelar Ahli Madya (A.Md).