# LAMPIRAN

1. List program

```
#include <LiquidCrystal_I2C.h>
LiquidCrystal_I2C lcd(0x27,2,16);

#include <PZEM004Tv30.h>
PZEM004Tv30 pzem (13,12);
float Power, Voltage, Current, Energy;
#include <PZEM004Tv30.h>
PZEM004Tv30 pzem1 (14,16);
float Power1, Voltage1, Current1, Energy1;

float Biaya = 1352;
float hasil;
float hasil1;

#include <BlynkSimpleEsp8266.h>
#include <ESP8266WiFi.h>
char auth []="Xaugso6WgpOIYdUhShNWpeMYSoyADOXe";
char ssid[]="ELEKTRO UNDIKSHA";
char pass[]="12345678";

void setup() {
 Serial.begin(9600);
 lcd.init();
 lcd.backlight();

 WiFi.begin (ssid,pass);
 while(WiFi.status() != WL_CONNECTED)
  {
    lcd.setCursor(1,0);
  lcd.print("STATUS KONEKSI");
  lcd.setCursor(5,1);
  lcd.print("Tunggu");
  delay (2000);
  lcd.clear();

  }
```

```
   lcd.setCursor(2,0);
  lcd.print("Terkoneksi Ke");
  lcd.setCursor(0,1);
  lcd.print(ssid);
  delay (2000);
  lcd.clear();

 Blynk.begin (auth, ssid, pass);



}

void loop() {

 //DAYA
 Power = pzem.power();
 Serial.print("Power : ");
 Serial.print(Power);
 Serial.println("W");
  lcd.setCursor(0,0);
  lcd.print("Daya1 : ");
  lcd.print(Power);
  lcd.print("W");


 Power1 = pzem1.power();
 Serial.print("Power1 : ");
 Serial.print(Power1);
 Serial.println("W");
  lcd.setCursor(0,1);
  lcd.print("Daya2 : ");
  lcd.print(Power1);
  lcd.print("W");
Serial.println ();
delay (2500);
lcd.clear();



  //TEGANGAN
 Voltage = pzem.voltage();
```

```
 Serial.print("Voltage : ");
 Serial.print(Voltage);
 Serial.println("V");
  lcd.setCursor(0,0);
  lcd.print("Teg1 : ");
  lcd.print(Voltage);
  lcd.print("V");


 Voltage1 = pzem1.voltage();
 Serial.print("Voltage1 : ");
 Serial.print(Voltage1);
 Serial.println("V");
  lcd.setCursor(0,1);
  lcd.print("Teg2 : ");
  lcd.print(Voltage1);
  lcd.print("V");
Serial.println ();
delay (2500);
lcd.clear();


  //ARUS
 Current = pzem.current();
 Serial.print("Current : ");
 Serial.print(Current);
 Serial.println("A");
  lcd.setCursor(0,0);
  lcd.print("Arus1 : ");
  lcd.print(Current);
  lcd.print("A");


 Current1 = pzem1.current();
 Serial.print("Current1 : ");
 Serial.print(Current1);
 Serial.print("A");
  lcd.setCursor(0,1);
  lcd.print("Arus2 : ");
  lcd.print(Current1);
  lcd.print("A");
```

```
Serial.println ();
delay (2500);
lcd.clear();

 //ENERGY
 Energy = pzem.energy();

 if (Power==0)
 {
  Energy = pzem.resetEnergy();
  lcd.setCursor(0,0);
  lcd.print("Energy1 : ");
  lcd.print(Energy*0);
  lcd.print("kWh");

  }
  else
  {
Energy = pzem.energy();
Serial.print("Energy : ");
Serial.print(Energy);
Serial.println("kWh");
 lcd.setCursor(0,0);
 lcd.print("Energy1 : ");
 lcd.print(Energy);
 lcd.print("kWh");
  }

 Energy1 = pzem1.energy();

 if (Power1==0)
 {
  Energy1 = pzem1.resetEnergy();
  lcd.setCursor(0,1);
  lcd.print("Energy2 : ");
  lcd.print(Energy1*0);
  lcd.print("kWh");
  }

 else
 {
Energy1 = pzem1.energy();
```

```
 Serial.print("Energy1 : ");
 Serial.print(Energy1);
 Serial.println("kWh");
  lcd.setCursor(0,1);
  lcd.print("Energy2 : ");
  lcd.print(Energy1);
  lcd.print("kWh");
    }

Serial.println ();
delay (2500);
lcd.clear();



  //biaya listrik Rp

 if (Power==0)
 {
  hasil = Biaya*0 ;
  Serial.print ("Rp : ");
  Serial.print (hasil);
  Serial.println (",00");
  lcd.setCursor (0,0);
  lcd.print ("BL1 Rp : ");
  lcd.print (hasil);

 }
 else
 {
   hasil = Biaya*Energy ;
  Serial.print ("Rp : ");
  Serial.print (hasil);
  Serial.println (",00");
  lcd.setCursor (0,0);
  lcd.print ("BL1 Rp : ");
  lcd.print (hasil);
 }
if (Power1==0)
{
  hasil1 = Biaya*0 ;
  Serial.print ("Rp : ");
```

```
  Serial.print (hasil1);
  Serial.println (",00");
  lcd.setCursor (0,1);
  lcd.print ("BL2 Rp : ");
  lcd.print (hasil1);
  }
else
{
  hasil1 = Biaya*Energy1 ;
  Serial.print ("Rp : ");
  Serial.print (hasil1);
  Serial.println (",00");
  lcd.setCursor (0,1);
  lcd.print ("BL2 Rp : ");
  lcd.print (hasil1);
 }

Serial.println ();
delay (2500);
lcd.clear();

 //KONEKSI KE BLYNK
  Blynk.virtualWrite (V0, Power);
  if (Power==0)
  {
  Blynk.virtualWrite (V1, Energy*0);
  }
  else
  {
  Blynk.virtualWrite (V1, Energy);
    }
  Blynk.virtualWrite (V2, Voltage);
  Blynk.virtualWrite (V3, Current);
    Blynk.virtualWrite (V4, Power1);
    if (Power1==0)
    {
    Blynk.virtualWrite (V5, Energy1*0);
    }
    else
    {
    Blynk.virtualWrite (V5, Energy1);
    }
```

```
    Blynk.virtualWrite (V6, Voltage1);
    Blynk.virtualWrite (V7, Current1);
    Blynk.virtualWrite (V8, hasil);
    Blynk.virtualWrite (V9, hasil1);
  Blynk.run ();
 }
```

2. Dokumentasi pembuatan alat