

DAFTAR PUSTAKA

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LAMPIRAN A

PROGRAM ATS

```

#include <PZEM004Tv30.h>
PZEM004Tv30 pzem(12, 13);
#include <SoftwareSerial.h>
#include <BlynkSimpleEsp8266.h>
#include <ESP8266WiFi.h>
#define BLYNK_PRINT Serial
BlynkTimer timer;
#include <LiquidCrystal_I2C.h>
LiquidCrystal_I2C lcd(0x27, 20, 4);
#include "TRIGGER_WIFI.h"
#include "TRIGGER_GOOGLESHEETS.h"
#include <TimeLib.h>

float Voltase, Current, Power;
WidgetLCD lcd_blynk(V0);

char auth[] = "sJoC3ieOV5C1uZ6aUHr668R0UQMlIhofT";
char ssid[] = "Dani";
char pass[] = "12345678";

char          column_name_in_sheets[          ][20]          =
{"value1","value2","value3","value4"};
String        Sheets_GAS_ID          =          "AKfycbxCg0rUT3610-
zmNyyw40s6o80yIQtg2zfnMSPQErDN1c6GFP7zPOjqqrViXRuRnz
A4rQ";
int No_of_Parameters = 4;

float Energy;
float whs;
float wh;
float kwh;
float rupiah;
int Time;
int pfr = 16;
int kondisi;
int p=0;

```

```

void setup() {
  Serial.begin(9600);
  lcd.begin();
  lcd.backlight();
  Blynk.begin(auth,ssid,pass);
  pinMode(14, OUTPUT);
  pinMode(2, OUTPUT);
  pinMode(pfr, INPUT);
  digitalWrite(14,HIGH);
  digitalWrite(2,HIGH);
  digitalWrite(pfr,HIGH);
  WIFI_Connect("Dani", "12345678");
  /*Provide you Wi-Fi SSID and password to connect to Wi-Fi*/
  Google_Sheets_Init(column_name_in_sheets,      Sheets_GAS_ID,
  No_of_Parameters );
}

void loop() {
  float Voltase = pzem.voltage();
  float Current = pzem.current();
  float Power = pzem.power();
  float Energy = pzem.energy();
  float frekuensi = pzem.frequency();
  float whs= Power*millis();
  float wh=whs/(60000*60);
  float kwh=wh/1000;
  float rupiah=kwh*1352;
  Data_to_Sheets(No_of_Parameters,      Voltase,      Current,      Power,
  frekuensi);
  Serial.println();

  Blynk.virtualWrite(V1,Voltase);
  Blynk.virtualWrite(V2,Current);
  Blynk.virtualWrite(V3,Power);
  Blynk.virtualWrite(V4,frekuensi);

  lcd.setCursor(0, 0);
  lcd.print("TEGANGAN = ");
  lcd.print(Voltase);

```

```
lcd.print(" ");  
lcd.print(" ");  
lcd.print("V");  
lcd.print(" ");  
lcd.print(" ");  
lcd.print(" ");
```

```
lcd.setCursor(0, 1);  
lcd.print("ARUS  = ");  
lcd.print(Current);  
lcd.print(" ");  
lcd.print(" ");  
lcd.print("A");  
lcd.print(" ");  
lcd.print(" ");
```

```
lcd.setCursor(0, 2);  
lcd.print("DAYA  = ");  
lcd.print(Power);  
lcd.print(" ");  
lcd.print(" ");  
lcd.print("W");  
lcd.print(" ");  
lcd.print(" ");  
lcd.print(" ");  
lcd.print(" ");
```

```
lcd.setCursor(0, 3);  
lcd.print("Frekuensi= ");  
lcd.print(frekuensi);  
lcd.print(" ");  
lcd.print(" ");  
lcd.print("Hz");  
lcd.print(" ");  
Blynk.run();  
kondisi = digitalRead(pfr);  
if(kondisi == 0){  
  digitalWrite(14, HIGH);
```

```
digitalWrite(2, LOW);  
}else{  
digitalWrite(14, LOW);  
digitalWrite(2, HIGH);  
}  
}
```

LAMPIRAN B
DOKUMENTASI HASIL PENGUJIAN

Pengujian Sumber PLN
Beban Lampu 60 W







Pengujian Sumber Genset
Beban lampu 60 W







Pengujian Sumber PLN Beban Charger Hp





TEGANGAN = 213.60 V
ARUS = 0.09 A
DAYA = 9.30 W
Frekuensi = 50.00 Hz



TEGANGAN = 213.60 V
ARUS = 0.09 A
DAYA = 9.30 W
Frekuensi = 50.00 Hz



TEGANGAN = 214.90 V
ARUS = 0.08 A
DAYA = 9.30 W
Frekuensi = 50.00 Hz



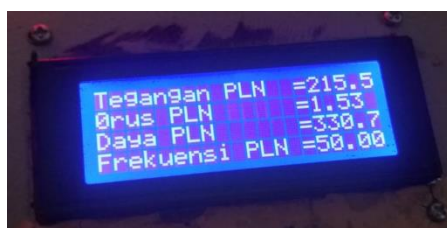
TEGANGAN = 213.30 V
ARUS = 0.08 A
DAYA = 9.30 W
Frekuensi = 50.00 Hz

Pengujian Sumber Genset Beban Charger Hp





Pengujian Sumber PLN Beban Setrika





**Pengujian Sumber Genset
Beban Setrika**



Tegangan GNST =215.0
Arus GNST =1.53
Daya GNST =329.9
Frekuensi GNST=50.00



Tegangan GNST =214.5
Arus GNST =1.53
Daya GNST =328.4
Frekuensi GNST=50.00



Tegangan GNST =211.6
Arus GNST =1.51
Daya GNST =319.7
Frekuensi GNST=50.00



Tegangan GNST =211.4
Arus GNST =1.51
Daya GNST =319.0
Frekuensi GNST=50.00



Tegangan GNST =209.9
Arus GNST =1.50
Daya GNST =313.8
Frekuensi GNST=49.90



Tegangan GNST =210.3
Arus GNST =1.50
Daya GNST =315.0
Frekuensi GNST=49.90



Tegangan GNST =210.0
Arus GNST =1.50
Daya GNST =314.3
Frekuensi GNST=49.90



Tegangan GNST =210.1
Arus GNST =1.50
Daya GNST =314.7
Frekuensi GNST=49.90

Pengujian Google Spreadsheet

× TaATS

T	A	B	C	D	E	F	G	H	I	J
	Date	Time	Tegangan PLN (V)	Arus PLN (A)	Daya PLN (Watt)	Frekuensi PLN (Hz)	Tegangan Genset (V)	Arus Genset (A)	Daya Genset (Watt)	Frekuensi Genset (Hz)
1690	07/09/2022	14.19.54	214.70	0.26	56.40	50.00	nan	nan	nan	nan
1691	07/09/2022	14.19.55	220.20	0.27	58.70	50.00	nan	nan	nan	nan
1692	07/09/2022	14.19.11	219.70	0.27	58.40	50.00	nan	nan	nan	nan
1693	07/09/2022	14.19.21	219.40	0.27	58.40	50.00	nan	nan	nan	nan
1694	07/09/2022	14.19.30	219.10	0.27	58.20	50.00	nan	nan	nan	nan
1695	07/09/2022	14.19.39	219.50	0.27	58.30	50.00	nan	nan	nan	nan
1696	07/09/2022	14.19.50	219.20	0.27	58.30	50.00	nan	nan	nan	nan
1697	07/09/2022	14.20.00	219.00	0.27	58.50	49.80	nan	nan	nan	nan
1698	07/09/2022	14.20.10	217.60	0.27	57.70	50.00	nan	nan	nan	nan
1699	07/09/2022	14.20.26	216.20	0.27	57.10	50.00	nan	nan	nan	nan
1700	07/09/2022	14.20.37	218.40	0.03	1.70	49.80	nan	nan	nan	nan
1701	07/09/2022	14.20.47	219.20	0.03	1.70	49.80	nan	nan	nan	nan
1702	07/09/2022	14.20.58	218.70	0.03	1.70	49.80	nan	nan	nan	nan
1703	07/09/2022	14.21.06	219.20	0.03	1.70	49.80	nan	nan	nan	nan
1704	07/09/2022	14.21.16	218.60	0.03	1.70	50.00	nan	nan	nan	nan
1705	07/09/2022	14.21.25	219.90	0.03	1.70	50.00	nan	nan	nan	nan
1706	07/09/2022	14.21.40	220.10	0.03	1.70	50.00	nan	nan	nan	nan

× TaATS

T	A	B	C	D	E	F	G	H	I	J
	Date	Time	Tegangan PLN (V)	Arus PLN (A)	Daya PLN (Watt)	Frekuensi PLN (Hz)	Tegangan Genset (V)	Arus Genset (A)	Daya Genset (Watt)	Frekuensi Genset (Hz)
1644	07/09/2022	14.06.00	218.00	0.27	57.80	50.00	nan	nan	nan	nan
1645	07/09/2022	14.06.10	219.30	0.03	1.80	50.00	nan	nan	nan	nan
1646	07/09/2022	14.06.20	219.90	0.03	1.80	50.00	nan	nan	nan	nan
1647	07/09/2022	14.06.30	220.20	0.03	1.80	50.00	nan	nan	nan	nan
1648	07/09/2022	14.06.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1649	07/09/2022	14.06.12	nan	nan	nan	nan	nan	nan	nan	nan
1647	07/09/2022	14.06.23	nan	nan	nan	nan	nan	nan	nan	nan
1648	07/09/2022	14.06.32	nan	nan	nan	nan	nan	nan	15300750.00	6526.10
1649	07/09/2022	14.06.41	nan	nan	nan	nan	nan	224.90	0.26	53.19
1650	07/09/2022	14.06.51	nan	nan	nan	nan	nan	225.10	0.28	60.10
1651	07/09/2022	14.09.02	nan	nan	nan	nan	nan	224.00	0.27	58.70
1652	07/09/2022	14.09.12	nan	nan	nan	nan	nan	225.00	0.28	60.20
1653	07/09/2022	14.09.23	nan	nan	nan	nan	nan	225.00	0.28	60.19
1654	07/09/2022	14.09.32	nan	nan	nan	nan	nan	224.90	0.28	60.20
1655	07/09/2022	14.09.43	nan	nan	nan	nan	nan	223.70	0.27	59.70
1656	07/09/2022	14.09.53	nan	nan	nan	nan	nan	220.80	0.27	58.50
1657	07/09/2022	14.10.03	nan	nan	nan	nan	nan	221.40	0.27	58.80

Sheet1

T	A	B	C	D	E	F	G	H	I	J
	Date	Time	Tegangan PLN (V)	Arus PLN (A)	Daya PLN (Watt)	Frekuensi PLN (Hz)	Tegangan Genset (V)	Arus Genset (A)	Daya Genset (Watt)	Frekuensi Genset (Hz)
1699	07/09/2022	14.19.30	219.10	0.27	58.20	50.00	nan	nan	nan	nan
1697	07/09/2022	14.19.39	219.30	0.27	58.30	50.00	nan	nan	nan	nan
1692	07/09/2022	14.19.50	219.20	0.27	58.30	50.00	nan	nan	nan	nan
1695	07/09/2022	14.20.00	219.60	0.27	58.50	49.80	nan	nan	nan	nan
1693	07/09/2022	14.20.10	217.60	0.27	57.70	50.00	nan	nan	nan	nan
1694	07/09/2022	14.20.26	216.20	0.27	57.10	50.00	nan	nan	nan	nan
1696	07/09/2022	14.20.37	218.40	0.03	1.70	49.80	nan	nan	nan	nan
1697	07/09/2022	14.20.47	219.00	0.03	1.70	49.80	nan	nan	nan	nan
1698	07/09/2022	14.20.58	218.70	0.03	1.70	49.80	nan	nan	nan	nan
1700	07/09/2022	14.21.06	219.20	0.03	1.70	49.80	nan	nan	nan	nan
1699	07/09/2022	14.21.16	218.60	0.03	1.70	50.00	nan	nan	nan	nan
1698	07/09/2022	14.21.25	219.90	0.03	1.70	50.00	nan	nan	nan	nan
1699	07/09/2022	14.21.40	220.10	0.03	1.70	50.00	nan	nan	nan	nan
1698	07/09/2022	14.21.51	nan	nan	nan	nan	nan	nan	nan	nan
1699	07/09/2022	14.22.01	nan	nan	nan	nan	nan	nan	nan	nan
1698	07/09/2022	14.22.10	nan	nan	nan	nan	nan	nan	nan	nan
1697	07/09/2022	14.22.20	nan	nan	nan	nan	nan	nan	nan	nan
1696	07/09/2022	14.22.29	nan	nan	nan	nan	nan	nan	nan	nan
1695	07/09/2022	14.22.40	nan	nan	nan	nan	nan	nan	nan	nan
1694	07/09/2022	14.22.49	nan	nan	nan	nan	nan	nan	nan	nan
1693	07/09/2022	14.22.58	nan	nan	nan	nan	nan	nan	nan	nan
1692	07/09/2022	14.23.08	nan	nan	nan	nan	nan	215.70	0.27	56.90
1691	07/09/2022	14.23.19	nan	nan	nan	nan	nan	216.10	0.27	56.90
1690	07/09/2022	14.23.28	nan	nan	nan	nan	nan	217.60	0.27	56.90
1689	07/09/2022	14.23.37	nan	nan	nan	nan	nan	217.90	0.27	56.90
1688	07/09/2022	14.23.47	nan	nan	nan	nan	nan	220.20	0.27	57.80

BIODATA PENULIS

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Hobi : Futsal
Motto : Hidup hanya sekali itu salah, kita hidup setiap hari dan mati sekali

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- SMP N 8 CILACAP 2013-2015
- SMK BOEDI OETOMO 2016-2019
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