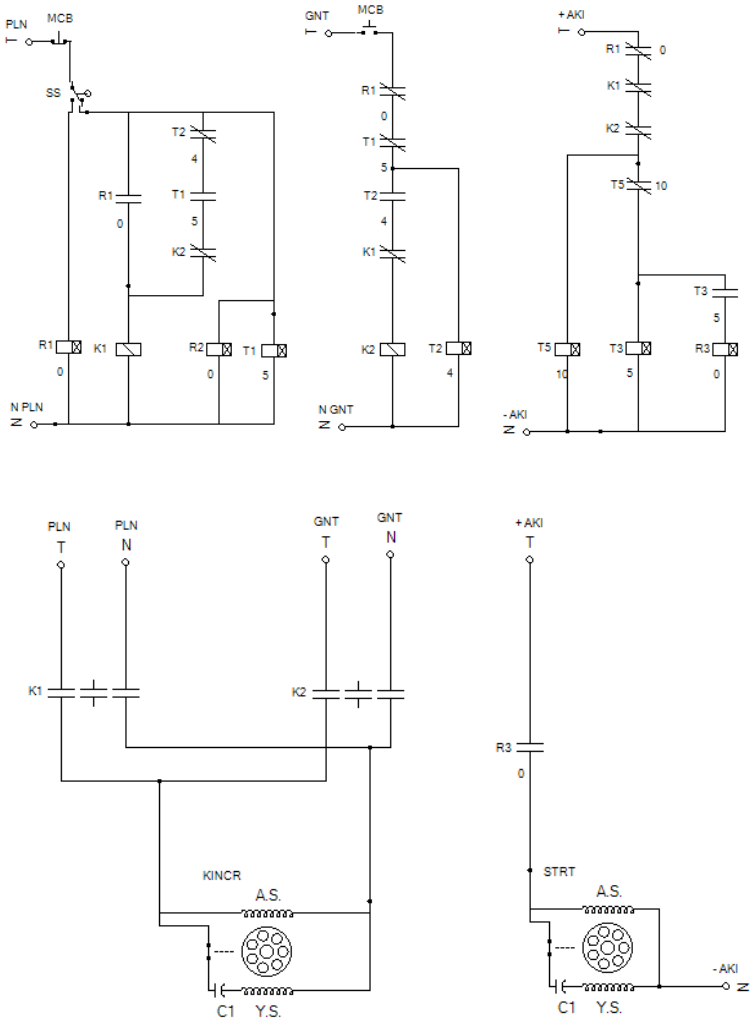
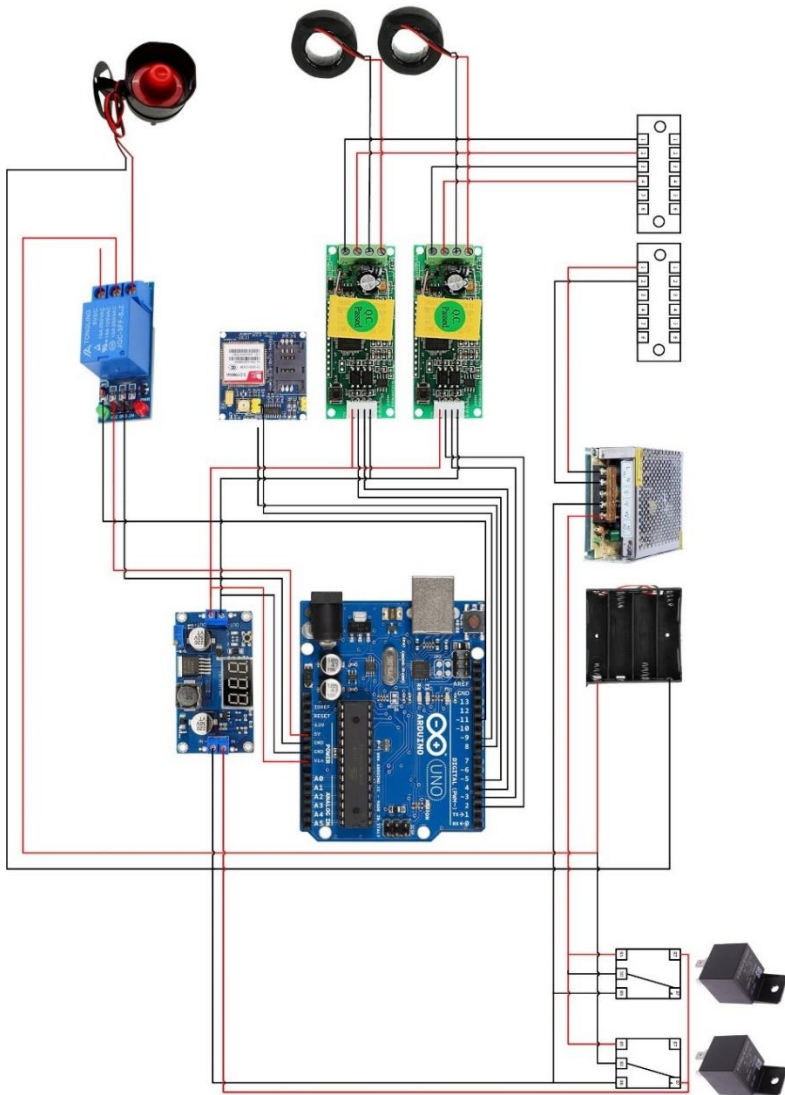


LAMPIRAN A RANGKAIAN SISTEM ATS-AMF



LAMPIRAN B RANGKAIAN SISTEM MONITORING



LAMPIRAN C LISTING PROGRAM ARDUINO

```
#include <SoftwareSerial.h>
#include <PZEM004Tv30.h>
#define RELAY 11

SoftwareSerial gprsSerial(8, 9);// RX,TX
PZEM004Tv30 pzem2(4 , 5); // RX,TX
PZEM004Tv30 pzem1(2 , 3); // RX,TX
int analogPin = A0;

float Vmodul = 0.0;
float voltageaki = 0.0;
float r1 = 30000.0;
float r2 = 7500.00;
int value = 0;

float voltage, current, energy;
#include <String.h>
String api_key_thingspeak = "L5GYA3FS4G5ISCAI";
void init();

void setup()
{

  pinMode (RELAY, OUTPUT);
  gprsSerial.begin(115200);          // the GPRS baud rate
  Serial.begin(115200);             // the GPRS baud rateSerial
  Serial.begin(9600);
  Serial.println ("mengukur tegangan");
  delay(1000);
  if (gprsSerial.available())
    Serial.write(gprsSerial.read());
  gprsSerial.println("AT"); delay(1000);
  ShowSerialData();
  gprsSerial.println("AT+CPIN?"); delay(1000);
  ShowSerialData();
  gprsSerial.println("AT+CREG?"); delay(1000);
  ShowSerialData()
```

```

gprsSerial.println("AT+CGATT?"); delay(1000);
ShowSerialData();
gprsSerial.println("AT+CIPSHUT"); delay(1000);
ShowSerialData();
gprsSerial.println("AT+CIPSTATUS"); delay(1000);
ShowSerialData();
gprsSerial.println("AT+CIPMUX=0"); delay(1000);
ShowSerialData();
gprsSerial.println("AT+CSTT=\"tsl-sns\""); delay(1000);
ShowSerialData();
gprsSerial.println("AT+CIICR"); delay(1000);
ShowSerialData();
gprsSerial.println("AT+CIFSR"); delay(1000);
ShowSerialData();
gprsSerial.println("AT+CIPSPRT=0"); delay(1000);
ShowSerialData();

}
void ShowSerialData()
{
  while (gprsSerial.available() != 0)
    Serial.write(gprsSerial.read());
  delay(1000);
}
void loop() {
  ///Pembacaan Voltageaki///

  value = analogRead(analogPin);
  Vmodul = (value * 5.0) / 1024.0;
  voltageaki = (Vmodul * (r1 + r2) / r2) * 1.02209;
  Serial.print(" Tegangan aki : ");
  Serial.println (voltageaki, 2);
  delay(2000);

  /// TEGANGAN ///
  voltage = pzem1.voltage();
  if (voltage != NAN) {
    Serial.print("Voltage pln : ");

```

```

Serial.print(voltage);
Serial.println("V");
} else {
Serial.println("Error reading voltage");
}

///ARUS///
current = pzem1.current();
if (current != NAN) {
Serial.print("Current pln : ");
Serial.print(current);
Serial.println("A");
} else {
Serial.println("Error reading current");
}
///energy///
energy = pzem1.energy();
if (current != NAN) {
Serial.print("energy pln: ");
Serial.print(energy);
Serial.println("Wh");
} else {
Serial.println("Error reading energy");
}
if (voltage > 200 & voltage < 280 ) {
digitalWrite(RELAY, HIGH);
Serial.println("SIRINE MATI");

gprsSerial.println("AT+CIPSTART=\"TCP\", \"api.thingspeak.com\", \"80\"); delay(6000);
ShowSerialData();
gprsSerial.println("AT+CIPSEND"); delay(5000);
ShowSerialData();
String str = "GET https://api.thingspeak.com/update?api_key=" +
api_key_thingspeak + "&field1=" + String(voltage) + "&field2=" +
String(current * 5) + "&field3=" + String(voltage * current * 5 * 24 /

```

```

1000) + "&field4=" + 0 + "&field5=" + 0 + "&field6=" + 0 +
"&field7=" + String(voltageaki);
    Serial.println(str);
    gprsSerial.println(str);
    delay(1000);
    gprsSerial.println((char)26); delay(1000);
    gprsSerial.println();
    gprsSerial.println("AT+CHIPSHUT");
    delay(100);
    ShowSerialData();

}
else {
    digitalWrite (RELAY, LOW);
    Serial.println("SIRINE NYALA");
    Serial.println();

gprsSerial.println("AT+CIPSTART=\"TCP\", \"api.thingspeak.com\", \"8
0\"); delay(6000);
    ShowSerialData();
    gprsSerial.println("AT+CIPSEND"); delay(5000);
    ShowSerialData();
    String str = "GET https://api.thingspeak.com/update?api_key=" +
api_key_thingspeak + "&field1=" + 0 + "&field2=" + 0 + "&field3=" +
0;
    Serial.println(str);
    gprsSerial.println(str);
    delay(1000);
    gprsSerial.println((char)26); delay(1000);
    gprsSerial.println();
    gprsSerial.println("AT+CHIPSHUT");
    delay(100);
    ShowSerialData();
}

```



```

ShowSerialData();
gprsSerial.println("AT+CIPSEND"); delay(5000);
ShowSerialData();
String str = "GET https://api.thingspeak.com/update?api_key=" +
api_key_thingspeak + "&field1=" + 0 + "&field2=" + 0 + "&field3=" +
0 + "&field4=" + String(voltage) + "&field5=" + String(current * 5) +
"&field6=" + String(voltage * current * 5 * 24 / 1000) + "&field5=" +
String(voltageaki) ;
Serial.println(str);
gprsSerial.println(str);
delay(1000);
gprsSerial.println((char)26); delay(1000);
gprsSerial.println();
gprsSerial.println("AT+CHIPSHUT");
delay(100);
ShowSerialData();

}
else {
Serial.println ("Error");
}
}
}

```


LAMPIRAN D LISTING PROGRAM MIT APP INVENTOR

```
initialize global Voltage1 to 0
initialize global Current1 to 0
initialize global Power1 to 0
initialize global Voltage2 to 0
initialize global Current2 to 0
initialize global Power2 to 0
initialize global link to "https://api.thingspeak.com/channels/2139753/feed..."
```

```
when Web1 GotText
  url responseCode responseType responseContent
do
  if get responseCode = 200
  then
    initialize local json to call Web1 .JsonTextDecode
    jsonText get responseContent
  in
    set global Voltage1 to look up in pairs key field1
    pairs get json
    notFound not found
    set global Current1 to look up in pairs key field2
    pairs get json
    notFound not found
    set global Power1 to look up in pairs key field3
    pairs get json
    notFound not found
    set global Voltage2 to look up in pairs key field4
    pairs get json
    notFound not found
    set global Current2 to look up in pairs key field5
    pairs get json
    notFound not found
    set global Power2 to look up in pairs key field6
    pairs get json
    notFound not found
    set global Voltageaki to look up in pairs key field7
    pairs get json
    notFound not found
```

```

when Clock1 - .Timer
do
  call baka -
  set Label16 - .Text - to get global Voltage1 -
  if get global Voltage1 - ≠ - " null "
  then
    set HorizontalArrangement2 - .BackgroundColor - to 
    call Player1 - .Stop
  if get global Voltage1 - = - " null "
  then
    set HorizontalArrangement2 - .BackgroundColor - to 
    if get global Voltage1 - = - " null "
    then
      call Notify_v31 - .Build
      icon " Warning "
      color 
      title " JARINGAN LISTRIK PLN PADAM "
      text " Periksa Aplikasi Dan Kondisi Pada Tambak "
      numberID 1
      showWhen true -
      autoCancel true -
      startValue " Screen1 "
      call Player1 - .Start
    set Label10 - .Text - to get global Current1 -
    set Label13 - .Text - to get global Power1 -
    set Label21 - .Text - to get global Voltage2 -
    if get global Voltage2 - ≠ - " null "
    then
      set HorizontalArrangement6 - .BackgroundColor - to 
      if get global Voltage2 - ≠ - " null "
      then
        call Notify_v31 - .Build
        icon " Warning "
        color 
        title " JARINGAN LISTRIK GENSET HIDUP "
        text " Periksa Aplikasi Dan Kondisi Pada Tambak "
        numberID 2
        showWhen true -
        autoCancel true -
        startValue " Screen1 "
        call Notify_v31 - .CancelNotification
        numberID 1
      if get global Voltage2 - = - " null "
      then
        set HorizontalArrangement6 - .BackgroundColor - to 
        set Label24 - .Text - to get global Current2 -
        set Label27 - .Text - to get global Power2 -

```

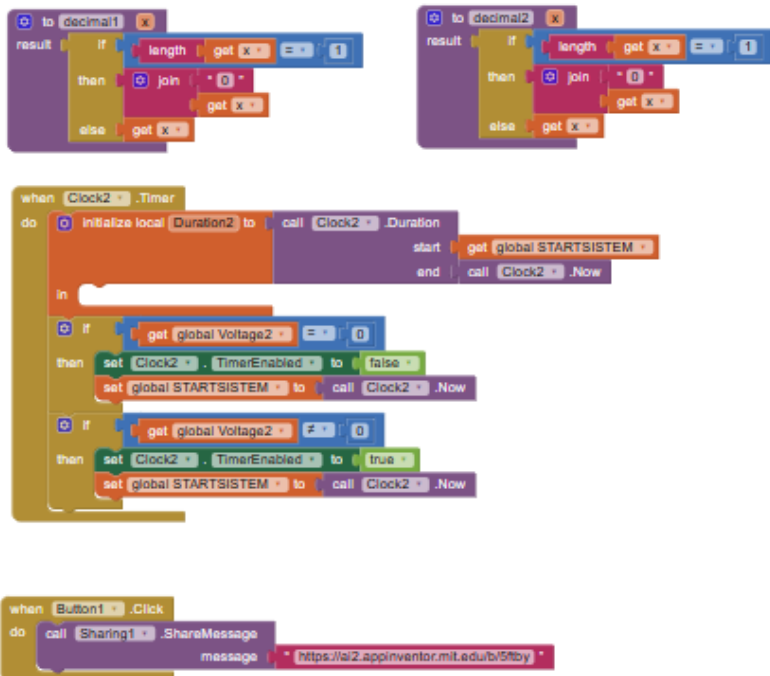
```

do
  to back
  do
    set wobj3 to call to get global link3
    call wobj3 to do
  end
end

when Clock1.Timer
do
  initiate soul Duration1 to call Clock2.Duration
  start get global STARTSYSTEM
  end call Clock2.New
  set Label39 to Text to 0 join call Decim2
  x call Clock2.DurationToHours duration get Duration1
  * Jam *
  call Decim2
  x modulus of call Clock2.DurationToMinutes duration get Duration1 * 60
  * Menit *
  call Decim2
  x modulus of call Clock2.DurationToSeconds duration get Duration1 * 60
  * Detik *
end

call back3
set Label16 to Text to get global Voltage1
0 #
  get global Voltage1 23 * full * and get global Voltage1 23 * 0
then
  set HorizontalArrangement2 BackgroundColor to
  set Label7 to Visible to true
  set Label42 to Visible to false
  call Player1 stop
0 #
  get global Voltage1 23 * full * and get global Voltage1 23 * 0
then
  set HorizontalArrangement2 BackgroundColor to
  set Label43 to Visible to false
  set Label45 to Visible to true
  0 #
  get global Voltage1 23 * 0
then
  call Notify_v31 Build
  icon
  color
  title
  text
  numberID
  showWhen
  autoCancel
  startValue
  call Player1 start
set Label19 to Text to get global Current1
set Label13 to Text to get global Power1
set Label21 to Text to get global Voltage2
0 #
  get global Voltage2 23 * 0
then
  set HorizontalArrangement6 BackgroundColor to
  set Label43 to Visible to false
  set Label50 to Visible to true
0 #
  get global Voltage2 23 * 0
then
  set HorizontalArrangement5 BackgroundColor to
  call Player1 stop
  set Label43 to Visible to true
  set Label50 to Visible to false
set Label24 to Text to get global Current2
set Label27 to Text to get global Power2
set Label41 to Text to get global Voltage3
0 #
  get global Voltage3 23 * 23
then
  set HorizontalArrangement7 BackgroundColor to
  set Label43 to Visible to false
  set Label52 to Visible to true
  call Notify_v31 Build
  icon
  color
  title
  text
  numberID
  showWhen
  autoCancel
  startValue
  call Player2 start
0 #
  get global Voltage3 23 * 23
then
  set HorizontalArrangement7 BackgroundColor to
  set Label43 to Visible to true
  set Label52 to Visible to false
  call Notify_v31 CancelAllNotifications
  call Player2 stop

```



LAMPIRAN E HASIL ALAT

A. Gambar Tampak Depan



B. Gambar Tampak Samping



C. Gambar Tampak Atas



D. Gambar Tampak Belakang



E. Gambar Rangkaian Pada Pintu Panel



F. Gambar Rangkaian ATS-AMF



G. Gambar Rangkaian Monitoring



BIODATA PENULIS



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Berkebun
Moto : Lihat, Tiru dan Tambahkan
Riwayat Pendidikan :

- SD Negeri 1 Somagede Tahun 2008 – 2014
- SMP Negeri 2 Sempor Tahun 2014 – 2017
- SMK Negeri 1 Gombang Tahun 2017 – 2020
Teknik Kendaraan Ringan Otomotif
- Politeknik Negeri Cilacap Tahun 2020 – 2023
Prodi D3 – Teknik Listrik

Penulis telah mengikuti sidang Tugas Akhir pada tanggal 28 Juli 2023 sebagai salah satu persyaratan untuk memperoleh gelar Ahli Madya (A.Md)