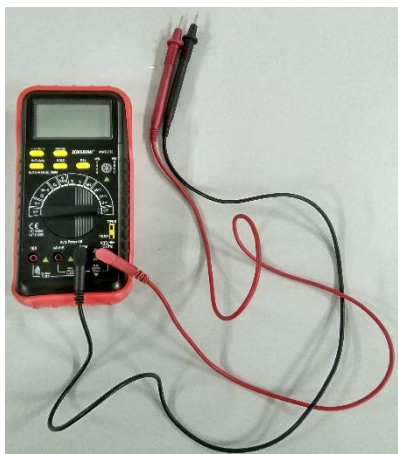


Lampiran 1. Foto Alat



Multimeter



FSM (*Field Strength Meter*)



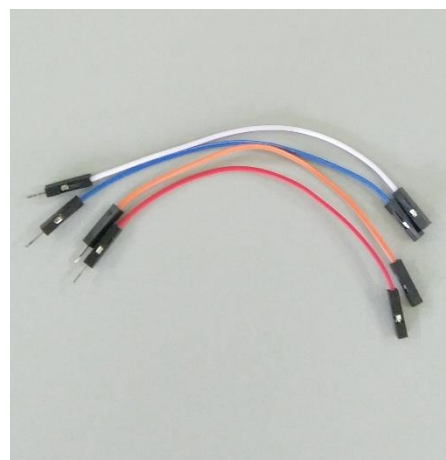
Solder



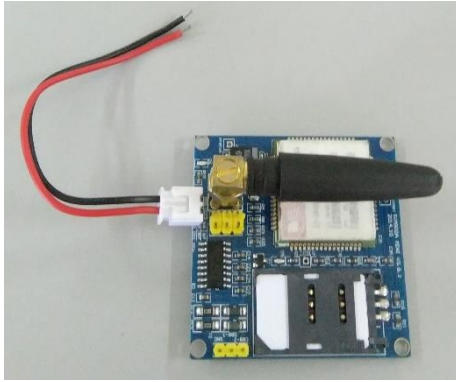
Timah



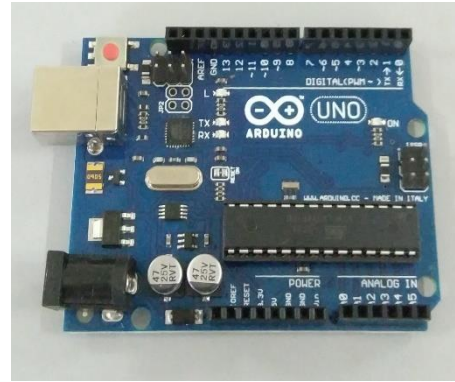
Penyedot Timah



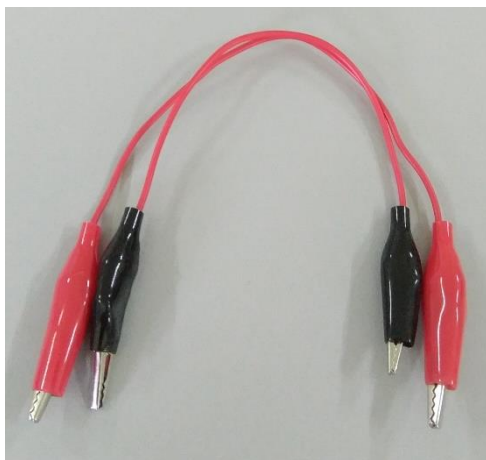
Kabel Jumper



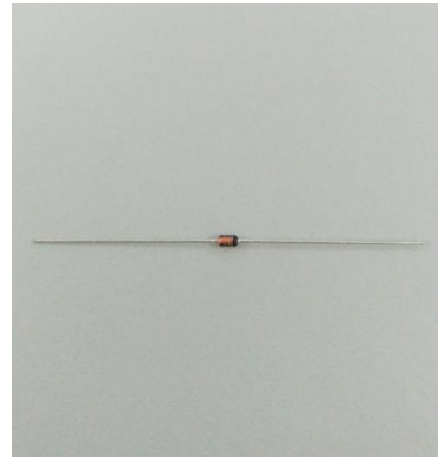
Modul GSM
SIM900A



Arduino Uno



Kabel Jepit



Dioda Germanium Glass 1N4148



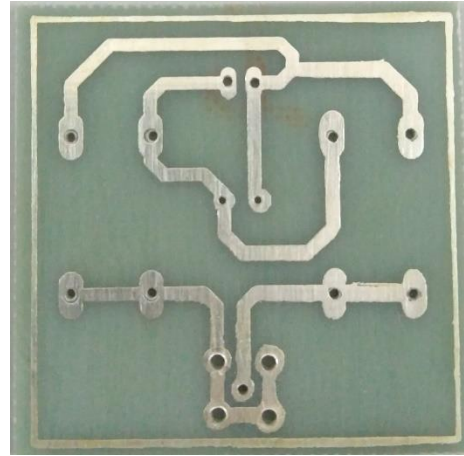
Kapasitor 5nF



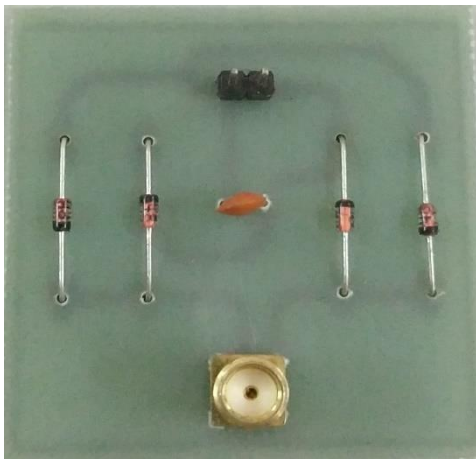
Antena GSM



Pin Header Male



Print Out PCB



Rectenna

Lampiran 2. Listing Program Modul GSM SIM900A

```
#include <SoftwareSerial.h>
SoftwareSerial mySerial(9, 10);
char msg;
char call;

void setup()
{
  mySerial.begin(9600); // Setting the baud rate of GSM Module
  Serial.begin(9600); // Setting the baud rate of Serial Monitor (Arduino)
  Serial.println("GSM SIM900A BEGIN");
  Serial.println("Enter character for control option:");
  Serial.println("h : to disconnect a call");
  Serial.println("i : to receive a call");
  Serial.println("s : to send message");
  Serial.println("c : to make a call");
  Serial.println("e : to redial");
  Serial.println();
  delay(100);
}

void loop()
{
  if (Serial.available()>0)
  switch(Serial.read())
  {
  case 's':
    SendMessage();
    break;
  case 'c':
    MakeCall();
    break;
```

```
case 'h':
    HangupCall();
    break;
case 'e':
    RedialCall();
    break;
case 'i':
    ReceiveCall();
    break;
}
if (mySerial.available()>0)
    Serial.write(mySerial.read());
}

void SendMessage()
{
    mySerial.println("AT+CMGF=1"); //Sets the GSM Module in Text Mode
    delay(1000); // Delay of 1000 milliseconds or 1 second
    mySerial.println("AT+CMGS=\"+628xxxxxxxxxxx\"\\r"); // Replace x with mobile number
    delay(1000);
    mySerial.println("sim900a sms");// The SMS text that you want to send
    delay(100);
    mySerial.println((char)26);// ASCII code of CTRL+Z
    delay(1000);
}

void ReceiveMessage()
{
    mySerial.println("AT+CNMI=2,2,0,0,0"); // AT Command to recieve a live SMS
    delay(1000);
    if (mySerial.available()>0)
    {
```

```
    msg=mySerial.read();
    Serial.print(msg);
  }
}

void MakeCall()
{
  mySerial.println("ATD+628xxxxxxxxxx;"); // Replace x with mobile number
  Serial.println("Calling "); // print response over serial port
  delay(1000);
}

void HangupCall()
{
  mySerial.println("ATH");
  Serial.println("Hangup Call");
  delay(1000);
}

void ReceiveCall()
{
  mySerial.println("ATA");
  delay(1000);
  {
    call=mySerial.read();
    Serial.print(call);
  }
}

void RedialCall()
{
  mySerial.println("ATDL");
```

```
Serial.println("Redialing");  
delay(1000);  
}
```

Lampiran 3. Datasheet Komponen Dioda

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage		–	100	V
V_R	continuous reverse voltage		–	100	V
I_F	continuous forward current	see Fig.2; note 1	–	200	mA
I_{FRM}	repetitive peak forward current		–	450	mA
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25\text{ °C}$ prior to surge; see Fig.4			
		$t = 1\ \mu\text{s}$	–	4	A
		$t = 1\ \text{ms}$	–	1	A
		$t = 1\ \text{s}$	–	0.5	A
P_{tot}	total power dissipation	$T_{amb} = 25\text{ °C}$; note 1	–	500	mW
T_{stg}	storage temperature		–65	+200	°C
T_j	junction temperature		–	200	°C

Note

1. Device mounted on an FR4 printed-circuit board; lead length 10 mm.

ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_F	forward voltage 1N4148 1N4448	see Fig.3			
		$I_F = 10\ \text{mA}$	–	1	V
		$I_F = 5\ \text{mA}$	0.62	0.72	V
		$I_F = 100\ \text{mA}$	–	1	V
I_R	reverse current	$V_R = 20\ \text{V}$; see Fig.5		25	nA
		$V_R = 20\ \text{V}$; $T_j = 150\text{ °C}$; see Fig.5	–	50	μA
I_R	reverse current; 1N4448	$V_R = 20\ \text{V}$; $T_j = 100\text{ °C}$; see Fig.5	–	3	μA
C_d	diode capacitance	$f = 1\ \text{MHz}$; $V_R = 0\ \text{V}$; see Fig.6	–	4	pF
t_{rr}	reverse recovery time	when switched from $I_F = 10\ \text{mA}$ to $I_R = 60\ \text{mA}$; $R_L = 100\ \Omega$; measured at $I_R = 1\ \text{mA}$; see Fig.7	–	4	ns
V_{fr}	forward recovery voltage	when switched from $I_F = 50\ \text{mA}$; $t_r = 20\ \text{ns}$; see Fig.8	–	2.5	V

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-tp)}$	thermal resistance from junction to tie-point	lead length 10 mm	240	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient	lead length 10 mm; note 1	350	K/W

Note

1. Device mounted on a printed-circuit board without metallization pad.