

D. CARA PENGOPERASIAN ALAT

Cara memindahkan Aplikasi APK ke Android dan cara menginstallnya :

1. Copy aplikasi yang telah dibuat, kemudian simpan pada folder Handphone Android baik di memori internal maupun Eksternal.
2. Setelah di copy pada memori, buka folder tempat penyimpanan aplikasi tersebut pada Handphone.
3. Lakukan penginstallan aplikasi tersebut, dan
4. Setelah selesai lihat menu pada Handphone Android, apabila pada menu terdapat icon aplikasi berarti penginstallan berhasil.

Cara Menjalankan Alat :

1. Pastikan alat terhubung dengan Supply AC 220 V.
2. Pada alat terdapat 7 buah MCB, pastikan dalam keadaan ON.
3. Kemudian Hidupkan Switch Power Pada alat, dan periksa pada HC – 06 (dalam keadaan Aktif).
4. Aktifkan perangkat Bluetooth pada Handphone Android.
5. Setelah Bluetooth Aktif, mulailah melakukan pencarian perangkat HC – 06 pada Handphone Android.
6. Setelah pencarian selesai dan jaringan pada bluetooth HC – 06 telah ditemukan oleh perangkat bluetooth handphone android, selanjutnya lakukan koneksi pada kedua perangkat dengan memasukan PIN (1234 atau 0000 yang sudah ada pada HC – 06 agar dapat terkoneksi, dan
7. Setelah terjadinya koneksi antara android dan bluetooth HC - 06 buka menu pada Handphone. Kemudian buka aplikasi yang telah terinstall pada hp untuk mengendalikan beban pada alat tersebut.

E. LISTING PROGRAM MIKROKONTROLER

```
#include <SoftwareSerial.h>

const int rxPin = 4; //SoftwareSerial RX pin, connect to JY-MCY TX pin
const int txPin = 2; //SoftwareSerial TX pin, connect to JY-MCU RX pin
        // level shifting to 3.3 volts may be needed

SoftwareSerial mySerial(rxPin, txPin); // RX, TX

const int LAMPU1 = 13;
const int LAMPU2 = 12;
const int LAMPU3 = 11;
const int LAMPU4 = 10;
const int LAMPU5 = 9;
const int LAMPU6 = 8;
const int LAMPU7 = 7;

int state = 0;    // if state is 1, the LAMPU will turn on and
                  // if state is 0, the LAMPU will turn off
int flag = 0;     // a flag to prevent duplicate messages

void setup() {
    // sets the pins as outputs:
    pinMode(LAMPU1, OUTPUT);
    pinMode(LAMPU2, OUTPUT);
    pinMode(LAMPU3, OUTPUT);
    pinMode(LAMPU4, OUTPUT);
    pinMode(LAMPU5, OUTPUT);
    pinMode(LAMPU6, OUTPUT);
    pinMode(LAMPU7, OUTPUT);
    mySerial.begin(9600);
}

void loop() {
```

```

//reads serial input and saves it in the state variable
if(mySerial.available() > 0){
    state = mySerial.read();
    flag=0; //clear the flag so we can print the state
}
// if the state is '1' the LAMPU 1 will turn off
if (state == 'a') {
    digitalWrite(LAMPU1, LOW);
    if(flag == 0){
        mySerial.println("LAMPU 1: off");
        flag = 1;
    }
}
// if the state is '2' the LAMPU 1 will turn on
else if (state == 'b') {
    digitalWrite(LAMPU1, HIGH);
    if(flag == 0){
        mySerial.println("LAMPU 1: on");
        flag = 1;
    }
}
// if the state is '3' the LAMPU 2 will turn off
if (state == '8') {
    digitalWrite(LAMPU2, LOW);
    if(flag == 0){
        mySerial.println("LAMPU 2: off");
        flag = 1;
    }
}
// if the state is '4' the LAMPU 2 will turn on
else if (state == '9') {
    digitalWrite(LAMPU2, HIGH);
    if(flag == 0){
        mySerial.println("LAMPU 2: on");
    }
}

```

```

        flag = 1;
    }
}

    // if the state is '5' the LAMPU 3 will turn off
if (state == '6') {
    digitalWrite(LAMPU3, LOW);
    if(flag == 0){
        mySerial.println("LAMPU 3: off");
        flag = 1;
    }
}

// if the state is '6' the LAMPU 3 will turn on
else if (state == '7') {
    digitalWrite(LAMPU3, HIGH);
    if(flag == 0){
        mySerial.println("LAMPU 3: on");
        flag = 1;
    }
}

    // if the state is '7' the LAMPU 4 will turn off
if (state == '4') {
    digitalWrite(LAMPU4, LOW);
    if(flag == 0){
        mySerial.println("LAMPU 4: off");
        flag = 1;
    }
}

// if the state is '8' the LAMPU 4 will turn on
else if (state == '5') {
    digitalWrite(LAMPU4, HIGH);
    if(flag == 0){
        mySerial.println("LAMPU 4: on");
        flag = 1;
    }
}

```

```

}

// if the state is '9' the LAMPU 5 will turn off
if (state == '2') {
    digitalWrite(LAMPU5, LOW);
    if(flag == 0){
        mySerial.println("LAMPU 5: off");
        flag = 1;
    }
}

// if the state is '0' the LAMPU 5 will turn on
else if (state == '3') {
    digitalWrite(LAMPU5, HIGH);
    if(flag == 0){
        mySerial.println("LAMPU 5: on");
        flag = 1;
    }
}

// if the state is 'a' the LAMPU 6 will turn off
if (state == '0') {
    digitalWrite(LAMPU6, LOW);
    if(flag == 0){
        mySerial.println("LAMPU 6: off");
        flag = 1;
    }
}

// if the state is 'b' the LAMPU 6 will turn on
else if (state == '1') {
    digitalWrite(LAMPU6, HIGH);
    if(flag == 0){
        mySerial.println("LAMPU 6: on");
        flag = 1;
    }
}

// if the state is 'c' the LAMPU 7 will turn off

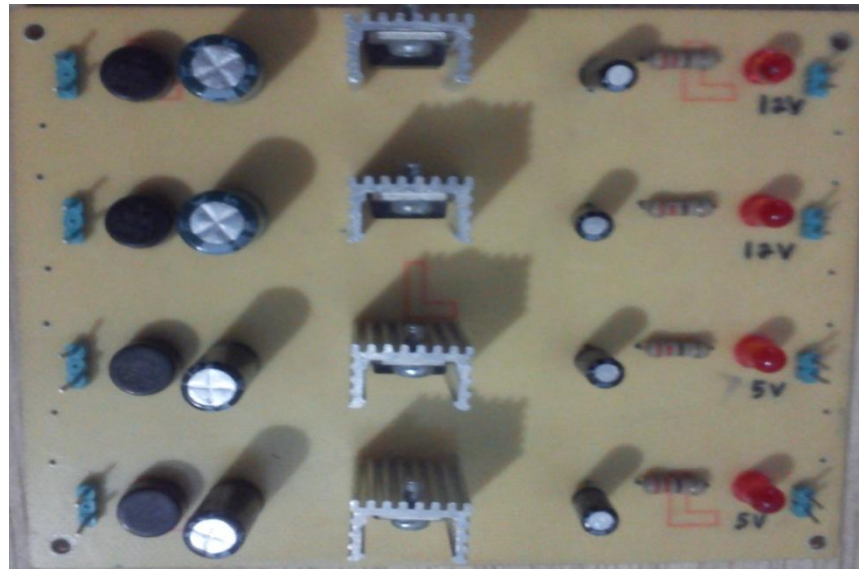
```

```
if (state == 'c') {
    digitalWrite(LAMP1, LOW);
    digitalWrite(LAMP2, LOW);
    digitalWrite(LAMP3, LOW);
    digitalWrite(LAMP4, LOW);
    digitalWrite(LAMP5, LOW);
    digitalWrite(LAMP6, LOW);
    if(flag == 0){
        mySerial.println("LAMP7: off");
        flag = 1;
    }
}

// if the state is 'd' the LAMP 7 will turn on
else if (state == 'd') {
    digitalWrite(LAMP1, HIGH);
    digitalWrite(LAMP2, HIGH);
    digitalWrite(LAMP3, HIGH);
    digitalWrite(LAMP4, HIGH);
    digitalWrite(LAMP5, HIGH);
    digitalWrite(LAMP6, HIGH);
    if(flag == 0){
        mySerial.println("All Lampu: on");
        flag = 1;
    }
}
}
```

G. Foto Rangkaian Lengkap dan Mekanik

- Catu Daya

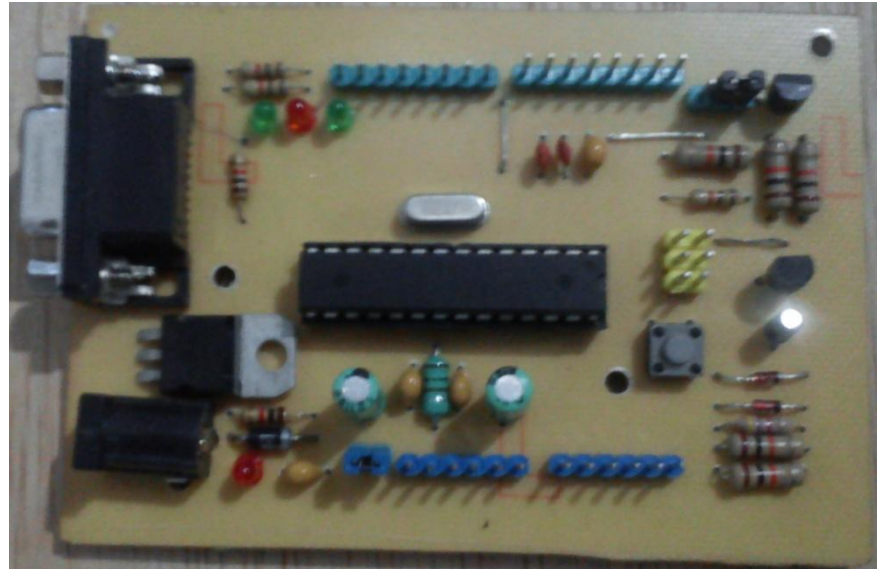


Gambar 1. Tata Letak Komponen Catu Daya

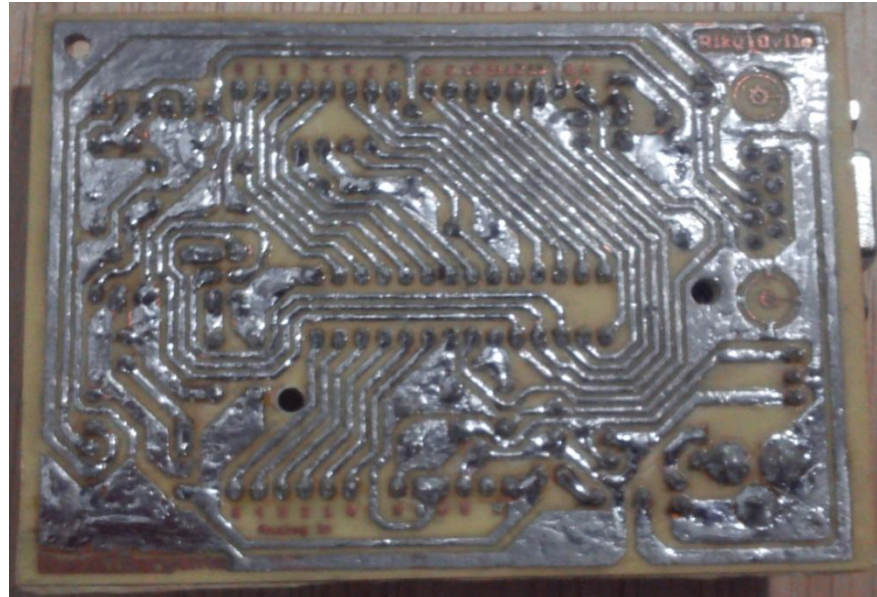


Gambar 2. Layout Catu Daya

- **Sismin ATmega328**



Gambar 3. Tata Letak Komponen Sismin ATmega328



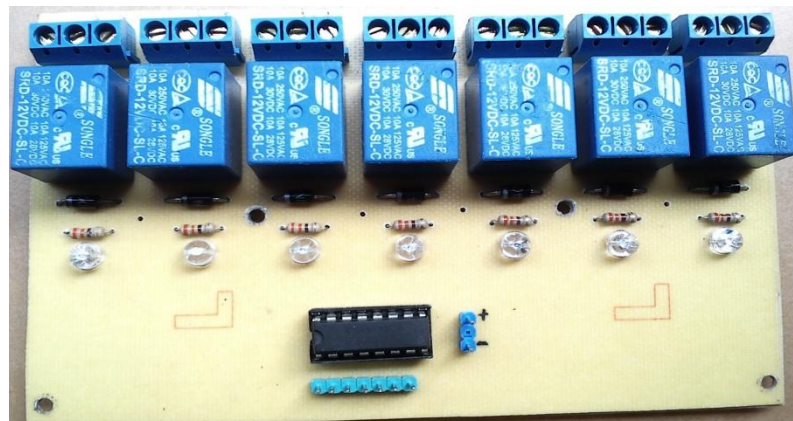
Gambar 4. Layout Sismin ATmega 328

- Modul HC -06

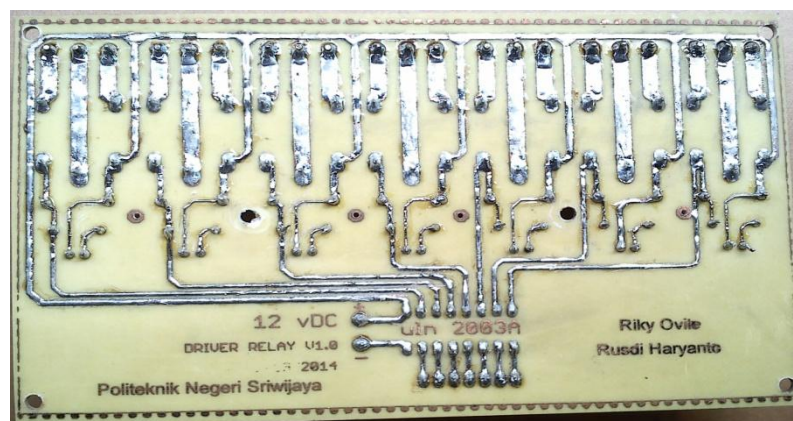


Gambar 5. HC – 06

- Driver Relay



Gambar 6. Tata Letak Driver Relay



Gambar 7. Tata Letak Driver Relay

- **Mekanik**



Gambar 8. Mekanik