PEMROGRAMAN ALAT BERBASIS ARDUINO UNO

```
#include <Servo.h>
#include <SoftwareSerial.h>
#include <DFPlayer_Mini_Mp3.h>

#define A digitalRead(2)
#define B digitalRead(3)
#define C digitalRead(4)
#define D digitalRead(5)

#define Lampu1_Merah  8
#define Lampu1_Kuning 9
#define Lampu1_Hijau  10
#define Lampu2_Merah  11
#define Lampu2_Kuning 12
#define Lampu2_Hijau  13

#define SensorKanan   digitalRead(A0)
#define SensorKiri    digitalRead(A1)
#define SensorTengah  digitalRead(7)

Servo servoBesar_Kiri;
Servo servoBesar_Kanan;
Servo servoKecil_Kiri;
```

```
Servo servoKecil_Kanan;

int tutup, buka, naik, turun;
int tutup_ref = 0, buka_ref = 135;
int naik_ref = 75, turun_ref = 180;
int jumlah_kapal = 0;

void setup() {
  Serial.begin (9600);
  mp3_set_serial (Serial);
  delay(1);
  mp3_set_volume (30);
  servoBesar_Kiri.attach(A5);
  servoBesar_Kanan.attach(A4);
  servoKecil_Kiri.attach(A3);
  servoKecil_Kanan.attach(A2);
  pinMode(A0, INPUT_PULLUP);
  pinMode(A1, INPUT_PULLUP);
  pinMode(7, INPUT_PULLUP);
  pinMode(2, INPUT);
  pinMode(3, INPUT);
  pinMode(4, INPUT);
  pinMode(5, INPUT);
  pinMode(8, OUTPUT);
  pinMode(9, OUTPUT);
```

```
  pinMode(10, OUTPUT);
  pinMode(11, OUTPUT);
  pinMode(12, OUTPUT);
  pinMode(13, OUTPUT);
  digitalWrite(2, LOW);
  digitalWrite(3, LOW);
  digitalWrite(4, LOW);
  digitalWrite(5, LOW);
  servoBesar_Kiri.write(turun_ref);
  servoBesar_Kanan.write(turun_ref);
  servoKecil_Kiri.write(buka_ref);
  servoKecil_Kanan.write(buka_ref);
  digitalWrite(Lampu1_Merah, LOW);
  digitalWrite(Lampu1_Kuning, LOW);
  digitalWrite(Lampu1_Hijau, HIGH);
  digitalWrite(Lampu2_Merah, LOW);
  digitalWrite(Lampu2_Kuning, LOW);
  digitalWrite(Lampu2_Hijau, HIGH);
}

void loop() {
  if (SensorKanan == LOW || SensorKiri == LOW) {
    jumlah_kapal += 1;
    Serial.println(jumlah_kapal);
    while (1) {
```

```
  if (SensorKanan == HIGH && SensorKiri == HIGH)break;
}
palang_tutup();
delay(50);
jembatan_naik();
delay(50);
while (1) {
  if (SensorKanan == LOW || SensorKiri == LOW) {
    while (1) {
      if (SensorKanan == HIGH && SensorKiri == HIGH)break;
    }
    jumlah_kapal += 1;
    Serial.println(jumlah_kapal);
  }
  //      if (SensorKiri == LOW) {
  //        while (1) {
  //          if (SensorKiri == HIGH)break;
  //        }
  //        jumlah_kapal +=1;
  //        Serial.println(jumlah_kapal);
  //      }
  if (SensorTengah == LOW) {
    while (1) {
      if (SensorTengah == HIGH)break;
    }
```

```
  jumlah_kapal -= 2;
  Serial.println(jumlah_kapal);
 }
 if (jumlah_kapal == 0) {
  break;
 }
 if (A == HIGH) {//A
  delay(100);
  palang_buka();
 }
 if (B == HIGH) {//B
  delay(100);
  palang_tutup();
 }
 if (C == HIGH) {//C
  delay(100);
  jembatan_naik();
 }
 if (D == HIGH) {//D
  delay(100);
  jembatan_turun();
 }
}
delay(50);
jembatan_turun();
```

```
    delay(50);
    palang_buka();
  }
  if (A == HIGH) {//A
    delay(100);
    palang_buka();
  }
  if (B == HIGH) {//B
    delay(100);
    palang_tutup();
  }
  if (C == HIGH) {//C
    delay(100);
    jembatan_naik();
  }
  if (D == HIGH) {//D
    delay(100);
    jembatan_turun();
  }
}
void palang_buka() {
  mp3_play (1);
  delay (4000);
  digitalWrite(Lampu1_Merah, LOW);
  digitalWrite(Lampu1_Kuning, HIGH);
```

```
  digitalWrite(Lampu1_Hijau, LOW);
  digitalWrite(Lampu2_Merah, LOW);
  digitalWrite(Lampu2_Kuning, HIGH);
  digitalWrite(Lampu2_Hijau, LOW);
  delay(50);
  for (buka = tutup_ref; buka < buka_ref; buka++) {
    servoKecil_Kanan.write(buka);
    servoKecil_Kiri.write(buka);
    delay(50);
  }
  digitalWrite(Lampu1_Merah, LOW);
  digitalWrite(Lampu1_Kuning, LOW);
  digitalWrite(Lampu1_Hijau, HIGH);
  digitalWrite(Lampu2_Merah, LOW);
  digitalWrite(Lampu2_Kuning, LOW);
  digitalWrite(Lampu2_Hijau, HIGH);
  mp3_play (3);
  delay (6000);
}
void palang_tutup() {
  mp3_play (2);
  delay (4000);
  digitalWrite(Lampu1_Merah, LOW);
  digitalWrite(Lampu1_Kuning, HIGH);
  digitalWrite(Lampu1_Hijau, LOW);
```

```
  digitalWrite(Lampu2_Merah, LOW);
  digitalWrite(Lampu2_Kuning, HIGH);
  digitalWrite(Lampu2_Hijau, LOW);
  delay(50);
  for (tutup = buka_ref; tutup > tutup_ref; tutup--) {
    servoKecil_Kiri.write(tutup);
    servoKecil_Kanan.write(tutup);
    delay(50);
  }
  digitalWrite(Lampu1_Merah, HIGH);
  digitalWrite(Lampu1_Kuning, LOW);
  digitalWrite(Lampu1_Hijau, LOW);
  digitalWrite(Lampu2_Merah, HIGH);
  digitalWrite(Lampu2_Kuning, LOW);
  digitalWrite(Lampu2_Hijau, LOW);
}
void jembatan_naik() {
  for (naik = turun_ref; naik > naik_ref; naik--) {
    servoBesar_Kanan.write(naik);
    servoBesar_Kiri.write(naik);
    delay(20);
  }
}
void jembatan_turun() {
  for (turun = naik_ref; turun < turun_ref; turun++) {
```

```
    servoBesar_Kiri.write(turun);
    servoBesar_Kanan.write(turun);
    delay(20);
  }
}
```