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Kelas : D3TK-43-02

Assessment 1 praktikum siken

Link : <https://www.tinkercad.com/things/7YZOjwj2eS3-start-simulating/editel?lessonid=EHD2303J3YPUS5Z&projectid=OIYJ88OJ3OPN3EA&collectionid=OIYJ88OJ3OPN3EA&tenant=circuits#/lesson-viewer>

Codes :

```
/******/
```

```
/******/
```

```
//deklarasi led
```

```
int led1=7;
```

```
int led2=8;
```

```
//deklarasi sensor
```

```
int sensor1 = A0;
```

```
int sensor2 = A1;
```

```
int sensor3 = A2;
```

```
int sensor4 = A3;
```

```
int sensor5 = A4;
```

```
int sensor6 = A5;
```

```
int baca_sensor[6];
```

```
//deklarasi pin output
```

```
int pinEnable = 4;
```

```
int pinEnable2 = 2;
```

```
//deklarasi motor kiri
```

```
int motor_in1 = 5;
```

```
int motor_in2 = 6;
```

```
//deklarasi motor kanan
```

```
int motor_on1 = 3;
```

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int motor_on2 = 11;

//deklarasi untuk memori deteksi error

int error = 0;

//setup pin

void setup()

{

pinMode(sensor1, INPUT);

pinMode(sensor2, INPUT);

pinMode(sensor3, INPUT);

pinMode(sensor4, INPUT);

pinMode(sensor5, INPUT);

pinMode(sensor6, INPUT);

pinMode(pinEnable, OUTPUT);

pinMode(pinEnable2, OUTPUT);

pinMode(motor_in1, OUTPUT);

pinMode(motor_in2, OUTPUT);

pinMode(motor_on1, OUTPUT);

pinMode(motor_on2, OUTPUT);

Serial.begin(9600);

}

//membaca sensor

void readsensor(){

baca_sensor[0] = analogRead(sensor1);

baca_sensor[1] = analogRead(sensor2);

baca_sensor[2] = analogRead(sensor3);

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```
    baca_sensor[3] = analogRead(sensor4);
```

```
    baca_sensor[4] = analogRead(sensor5);
```

```
    baca_sensor[5] = analogRead(sensor6);
```

```
    delay(100);
```

```
    for(int i=0; i<=5; i++){
```

```
        Serial.print("Sensor ");
```

```
        Serial.print(i+1);
```

```
        Serial.print(": ");
```

```
        Serial.print(baca_sensor[i]);
```

```
        Serial.print("\n");
```

```
    }
```

```
}
```

```
//program
```

```
void loop(){
```

```
    readsensor();
```

```
    Serial.print("Nilai Deteksi error : ");
```

```
    Serial.println(error);
```

```
//jika sensor 1 dan 2 mendeteksi gelap, Duty cycle 9% motor kiri, 67% motor kanan
```

```
if (baca_sensor[0] < 34 && baca_sensor[1] < 34 &&
```

```
    baca_sensor[2] > 34 && baca_sensor[3] > 34 &&
```

```
    baca_sensor[4] > 34 && baca_sensor[5] > 34){
```

```
    digitalWrite (pinEnable, HIGH);
```

```
    digitalWrite (pinEnable2, HIGH);
```

```
    analogWrite (motor_in1, 0.09*249);
```

```
    analogWrite (motor_in2, 0);
```

```
    analogWrite (motor_on1, 0.7*249);
```

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analogWrite (motor_on2, 0);

error=0;

}

//jika sensor 2 dan 3 mendeteksi gelap, Duty cycle 30% motor kiri, 60% motor kanan

if (baca_sensor[0] > 34 && baca_sensor[1] < 34 &&

baca_sensor[2] < 34 && baca_sensor[3] > 34 &&

baca_sensor[4] > 34 && baca_sensor[5] > 34){

digitalWrite (pinEnable, HIGH);

digitalWrite (pinEnable2, HIGH);

analogWrite (motor_in1, 0.3*249);

analogWrite (motor_in2, 0);

analogWrite (motor_on1, 0.6*249);

analogWrite (motor_on2, 0);

error=0;

}

//jika sensor 3 dan 4 mendeteksi gelap, Duty cycle 80% pada kedua motor

if (baca_sensor[0] > 34 && baca_sensor[1] > 34 &&

baca_sensor[2] < 34 && baca_sensor[3] < 34 &&

baca_sensor[4] > 34 && baca_sensor[5] > 34){

digitalWrite (pinEnable, HIGH);

digitalWrite (pinEnable2, HIGH);

analogWrite (motor_in1, 0.8*249);

analogWrite (motor_in2, 0);

analogWrite (motor_on1, 0.8*255);

analogWrite (motor_on2, 0);

error=0;

}

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//jika sensor 4 dan 5, Duty cycle 60% motor kiri, 30% motor kanan

```
if (baca_sensor[0] > 34 && baca_sensor[1] > 34 &&
    baca_sensor[2] > 34 && baca_sensor[3] < 34 &&
    baca_sensor[4] < 34 && baca_sensor[5] > 34){
digitalWrite (pinEnable, HIGH);
digitalWrite (pinEnable2, HIGH);
analogWrite (motor_in1, 0.6*249);
analogWrite (motor_in2, 0);
analogWrite (motor_on1, 0.3*249);
analogWrite (motor_on2, 0);
    error=0;
}
```

//jika sensor 5 dan 6, Duty cycle 9% Motor kiri, 9% motor kanan

```
if (baca_sensor[0] > 34 && baca_sensor[1] > 34 &&
    baca_sensor[2] > 34 && baca_sensor[3] > 34 &&
    baca_sensor[4] < 34 && baca_sensor[5] < 34){
digitalWrite (pinEnable, HIGH);
digitalWrite (pinEnable2, HIGH);
analogWrite (motor_in1, 0.09*249);
analogWrite (motor_in2, 0);
analogWrite (motor_on1, 0.09*249);
analogWrite (motor_on2, 0);
    error=0;
}
```

//jika semua sensor mendeteksi terang, Duty cycle kedua motor 69% (semua motor mati)

```
if (baca_sensor[0] > 34 && baca_sensor[1] > 34 &&
```

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```
    baca_sensor[2] > 34 && baca_sensor[3] > 34 &&
    baca_sensor[4] > 34 && baca_sensor[5] > 34){
digitalWrite (pinEnable, HIGH);
digitalWrite (pinEnable2, HIGH);
digitalWrite(led1, HIGH);
digitalWrite(led2, HIGH);
delay(1000);
digitalWrite(led1, LOW);
digitalWrite(led2, LOW);
delay(1000);
analogWrite (motor_in1, 0.7*255);
analogWrite (motor_in2, 0);
analogWrite (motor_on1, 0.7*255);
analogWrite (motor_on2, 0);
    error=0;
}

//jika hanya sensor 1 yang mendeteksi gelap, maka error terdeteksi
if (baca_sensor[0] < 34 && baca_sensor[1] > 34 &&
    baca_sensor[2] > 34 && baca_sensor[3] > 34 &&
    baca_sensor[4] > 34 && baca_sensor[5] > 34){
    error = 2;
}

//jika hanya sensor 2 yang mendeteksi gelap, maka error terdeteksi
if (baca_sensor[0] > 34 && baca_sensor[1] < 34 &&
    baca_sensor[2] > 34 && baca_sensor[3] > 34 &&
    baca_sensor[4] > 34 && baca_sensor[5] > 34){
    error = 1;
}
```

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//jika hanya sensor 3 yang mendeteksi gelap, maka error terdeteksi

```
if (baca_sensor[0] > 34 && baca_sensor[1] > 34 &&  
    baca_sensor[2] < 34 && baca_sensor[3] > 34 &&  
    baca_sensor[4] > 34 && baca_sensor[5] > 34){  
    error = 0;  
}
```

//jika hanya sensor 4 yang mendeteksi gelap, maka error terdeteksi

```
if (baca_sensor[0] > 34 && baca_sensor[1] > 34 &&  
    baca_sensor[2] > 34 && baca_sensor[3] < 34 &&  
    baca_sensor[4] > 34 && baca_sensor[5] > 34){  
    error = 0;  
}
```

//jika hanya sensor 5 yang mendeteksi gelap, maka error terdeteksi

```
if (baca_sensor[0] > 34 && baca_sensor[1] > 34 &&  
    baca_sensor[2] > 34 && baca_sensor[3] > 34 &&  
    baca_sensor[4] < 34 && baca_sensor[5] > 34){  
    error = 1;  
}
```

//jika hanya sensor 1 yang mendeteksi gelap, maka error terdeteksi

```
if (baca_sensor[0] > 34 && baca_sensor[1] > 34 &&  
    baca_sensor[2] > 34 && baca_sensor[3] > 34 &&  
    baca_sensor[4] > 34 && baca_sensor[5] < 34){  
    error = 1;  
}
```

//jika hanya sensor 6 yang mendeteksi gelap, maka error terdeteksi

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```
if (baca_sensor[0] > 34 && baca_sensor[1] < 34 &&
```

```
    baca_sensor[2] > 34 && baca_sensor[3] > 34 &&
```

```
    baca_sensor[4] > 34 && baca_sensor[5] > 34){
```

```
    error = 2;
```

```
}
```

```
}
```