Assessment 1 praktikum sisken

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

Codes :

/\*\*\*\*\*\*/

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//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;

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);

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);

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;

}

//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 &&

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;

}

//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

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;

}

}