Program Arduino UNO Robot Pengikut Objek Dengan Aplikasi Sensor Cahaya Dan Ultrasonik

```
//inisialisasi sensor cahaya
int sensormid = A2;
int sensorright = A3;
int sensorleft = A4;

//inisialisasi sensor ultrasonik
const int pingpin3 = 7;
const int echopin3 = 8;
const int pingpin2 = 2;
const int echopin2 = 4;
const int pingpin1 = A0;
const int echopin1 = A1;

// inisialisasi pin driver motor
int kananA = 5;
int kananB = 6;
int kiriA = 9;
int kiriB = 10;

long nilaimid,nilairight,nilaileft,duration,cm,sensor1,sensor2,
sensor3;

void setup (){
  Serial.begin (9600);
  pinMode(kiriA,OUTPUT);
  pinMode(kiriB,OUTPUT);
  pinMode(kananA,OUTPUT);
  pinMode(kananB,OUTPUT);
  pinMode(pingpin3, OUTPUT);
  pinMode(echopin3, INPUT);
  pinMode(pingpin2, OUTPUT);
  pinMode(echopin2, INPUT);
  pinMode(pingpin1, OUTPUT);
  pinMode(echopin1, INPUT);
}

//program utama
void loop()
{
//program ultrasonik depan
SonarSensor(pingpin3,echopin3);
  sensor3 = cm;
  Serial.print("sn3=");
  Serial.print(sensor3);
  Serial.print("    ");
 Serial.print("sw3=");
  Serial.print(nilaimid);
    Serial.println();
```

```cpp
//program ultrasonik kanan
SonarSensor(pingpin2,echopin2);
  sensor2 = cm;
  Serial.print("sn2=");
  Serial.print(sensor2);
  Serial.print("     ");
   Serial.print("sw2=");
  Serial.print(nilairight);
    Serial.println();
//program ultrasonik kiri
SonarSensor(pingpin1,echopin1);
  sensor1 = cm;
  Serial.print("sn1=");
  Serial.print(sensor1);
    Serial.print("     ");
     Serial.print("sw1=");
  Serial.print(nilaileft);
  Serial.println();

//program sensor cahaya
nilaimid = analogRead(sensormid);
  delay(10);
nilairight = analogRead(sensorright);
  delay(10);
nilaileft = analogRead(sensorleft);
  delay(10);
  Serial.println();

//program menggerakkan motor
 if(nilaimid <80&&sensor3 <5)//lurus pelan
  {
  analogWrite(kiriA,0);
  analogWrite(kiriB,40);
  analogWrite(kananA,0);
  analogWrite(kananB,40);
  }
else if(nilairight <80&&sensor2 <5)//belok kanan pelan
  {
  analogWrite(kiriA,0);
  analogWrite(kiriB,40);
  analogWrite(kananA,0);
  analogWrite(kananB,0);
  }
else if(nilaileft <80&&sensor1 <5)//belok kiri pelan
  {
  analogWrite(kiriA,0);
  analogWrite(kiriB,0);
  analogWrite(kananA,0);
  analogWrite(kananB,40);
  }
```

```
else if (nilaimid <=80)//lurus cepat
  {
  analogWrite(kiriA,0);
  analogWrite(kiriB,80);
  analogWrite(kananA,0);
  analogWrite(kananB,80);
  }
else if(nilairight <=80)//belok kanan cepat
  {
  analogWrite(kiriA,0);
  analogWrite(kiriB,80);
  analogWrite(kananA,0);
  analogWrite(kananB,60);
  }
else if(nilaileft <=80)//belok kiri cepat
  {
  analogWrite(kiriA,0);
  analogWrite(kiriB,60);
  analogWrite(kananA,0);
  analogWrite(kananB,80);
  }
else//berhenti
{
  analogWrite(kiriA,0);
  analogWrite(kiriB,0);
  analogWrite(kananA,0);
  analogWrite(kananB,0);
  }
  }

//program dasar ultrasonic
  void SonarSensor(int pingpin, int echopin)
{
  digitalWrite(pingpin, LOW);
  delayMicroseconds(2);
  digitalWrite(pingpin, HIGH);
  delayMicroseconds(10);
  digitalWrite(pingpin, LOW);
//konversi pulsa frekuensi ke waktu
  duration = pulseIn(echopin, HIGH);
//konversi waktu ke jarak
  cm = (duration/2)*0.03448;
}
```