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LAMPIRAN A

Program Arduino IDE

```
#define EN2 3
#define EN3 5
#define EN4 6
#define EN5 9

#define IN1 2
#define IN2 4
#define IN3 7
#define IN4 8

void setup() {
  Serial.begin (9600); //baud rate
  pinMode(EN2, OUTPUT); //Pin as output
  pinMode(EN3, OUTPUT); //Pin as output
  pinMode(EN4, OUTPUT); //Pin as output
  pinMode(EN5, OUTPUT); //Pin as output

  pinMode(IN1, OUTPUT); //Pin as output
  pinMode(IN2, OUTPUT); //Pin as output
  pinMode(IN3, OUTPUT); //Pin as output
  pinMode(IN4, OUTPUT); //Pin as output

}

void loop() {
  if (Serial.available() == 1) {   // check if 1 byte is received
    byte ctrlPins = Serial.read(); //read 1 byte data
    switch (ctrlPins) {

    case 0: // Tombol stop
  analogWrite (EN2,0);
  digitalWrite(IN1,LOW);
  analogWrite (EN3,0);
  digitalWrite(IN2,LOW);
  analogWrite (EN4,0);
```

```
digitalWrite(IN3,LOW);
analogWrite (EN5, 0);
digitalWrite(IN4,LOW);
break;

 case 1: //MODE SLOW
analogWrite (EN2,60);
digitalWrite(IN1,HIGH);
analogWrite (EN3, 25);
digitalWrite(IN2,HIGH);
analogWrite (EN4,180);
digitalWrite(IN3,HIGH);
analogWrite (EN5, 90);
digitalWrite (IN4,HIGH);
break;

  case 2: //MODE MEDIUM
analogWrite (EN2,60);
digitalWrite(IN1,HIGH);
analogWrite (EN3, 30);
digitalWrite(IN2,HIGH);
analogWrite (EN4,200);
digitalWrite(IN3,HIGH);
analogWrite (EN5, 90);
digitalWrite (IN4,HIGH);
break;

case 3: //MODE FAST
analogWrite (EN2,60);
digitalWrite(IN1,HIGH);
analogWrite (EN3, 35);
digitalWrite(IN2,HIGH);
analogWrite (EN4,220);
digitalWrite(IN3,HIGH);
analogWrite (EN5, 90);
digitalWrite (IN4,HIGH);
break;
```

```
 case 4: //MODE VERY FAST
analogWrite (EN2,60);
digitalWrite(IN1,HIGH);
analogWrite (EN3, 40);
digitalWrite(IN2,HIGH);
analogWrite (EN4,250);
digitalWrite(IN3,HIGH);
analogWrite (EN5, 90);
digitalWrite (IN4,HIGH);
break;

case 5: //Mode One Direct 1
analogWrite (EN2,60);
digitalWrite(IN1,HIGH);
analogWrite (EN3, 25);
digitalWrite(IN2,HIGH);
analogWrite (EN4,180);
digitalWrite(IN3,HIGH);
analogWrite (EN5, 0);
digitalWrite (IN4,LOW);
break;

case 6: //Mode One direct 2
analogWrite (EN2,60);
digitalWrite(IN1,HIGH);
analogWrite (EN3, 30);
digitalWrite(IN2,HIGH);
analogWrite (EN4,200);
digitalWrite(IN3,HIGH);
analogWrite (EN5, 0);
digitalWrite (IN4,LOW);
break;

case 7: //Mode One Direct 3
analogWrite (EN2,60);
digitalWrite(IN1,HIGH);
analogWrite (EN3, 35);
digitalWrite(IN2,HIGH);
analogWrite (EN4,220);
```

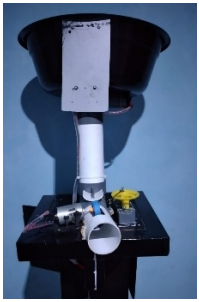
```
  digitalWrite(IN3,HIGH);
  analogWrite (EN5, 0);
  digitalWrite (IN4,LOW);
  break;

  case 8: //Mode One Direct 4
  analogWrite (EN2,60);
  digitalWrite(IN1,HIGH);
  analogWrite (EN3, 40);
  digitalWrite(IN2, HIGH);
  analogWrite (EN4,250);
  digitalWrite(IN3,HIGH);
  analogWrite (EN5, 0);
  digitalWrite (IN4,LOW);
  break;
    }
}
if (Serial.available() == 2) {  //check if 2bytes are received
  int lowerByte = Serial.read(); //read lower byte
  int higherByte = Serial.read(); //read higher byte
  int value = (higherByte = 256) + lowerByte; //calculate actual value
  byte pwmVal = map(value, 1000, 1255, 0, 255); //obtaing actual pwm
value
  analogWrite(EN2, pwmVal);  //write value to pwm pin
  analogWrite(EN3, pwmVal);  //write value to pwm pin

}
delay (50);
}
```

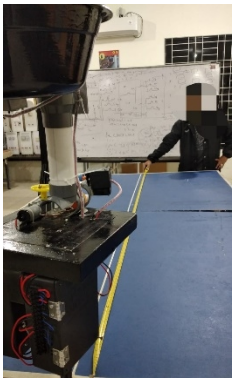
LAMPIRAN B

HASIL RANCANGAN ALAT

LAMPIRAN C

DOKUMENTASI PENGUJIAN ALAT

No	Dokumentasi Pengujian	Keterangan
1		Proses pengujian jarak lontaran 0˚
2		Proses pengujian jarak lontaran bola pingpong dengan sudut 30˚
3		Proses kegiatan pengukuran jarak untuk pengujian konektifitas Bluetooth

BIODATA PENULIS

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Tempat/Tanggal Lahir	: Kebumen, 19 April 2002
Agama	: Islam
Alamat	: Desa Ampelsari, RT05/RW02 Kec. Petanahan, Kab. Kebumen
Email	: gugun6777@gmail.com
Hobi	: Jogging, Instalasi listrik
Motto	: Berusaha sekuat tenaga diimbangi dengan doa, sisanya Allah SWT yang menentukan.

Riwayat Pendidikan

Sekolah/Institusi/ Universitas	Jurusan	Periode
SDN Ampelsari	-	2008-2014
SMP N 1 Petanahan	-	2014-2017
SMKN 2 Kebumen	Teknik Instalasi Tenaga Listrik	2017-2020
Politeknik Negeri Cilacap	D3 Teknik Elektronika	2021-2024

Penulis telah mengikuti Sidang Tugas Akhir pada tanggal 15 Agustus 2024 sebagai salah satu persyaratan untuk memperoleh gelar Ahli Madya (A.Md).