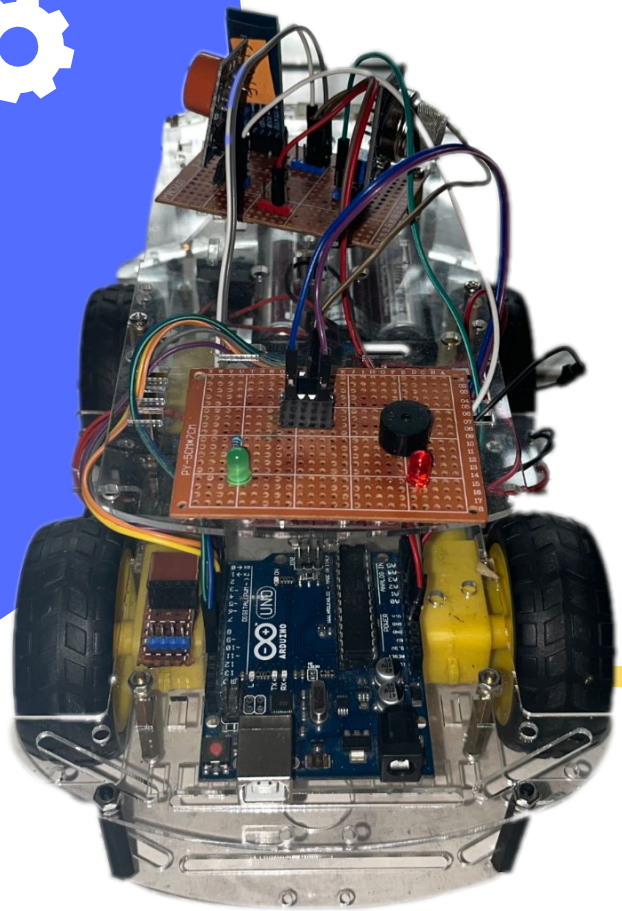
ROBOT

Pendeteksi Kebocoran Gas

Kelompok 10
EL-45-07



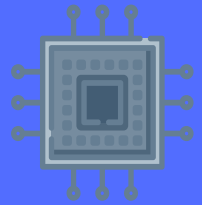
OUR TEAM

FAUZAN ADRIYANTO

11022...

M. SYAUQI AZMI

1102213074



AHMAD FADHIL GHIFARI E.

1102210053

BRIEF INTRO

Dengan menggabungkan teknologi Arduino dan sensor pendeteksi gas (MQ-2 & MQ-3), diharapkan dalam penerapannya industri dapat meningkatkan keselamatan karyawan, melindungi lingkungan, meningkatkan efisiensi operasional, dan menghemat biaya.

01 TUJUAN

02 KOMPONEN

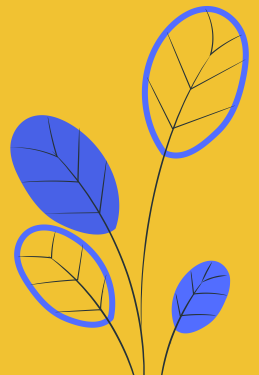
03 DESAIN

Skematik & Foto Alat

04 DEMONSTRASI ALAT

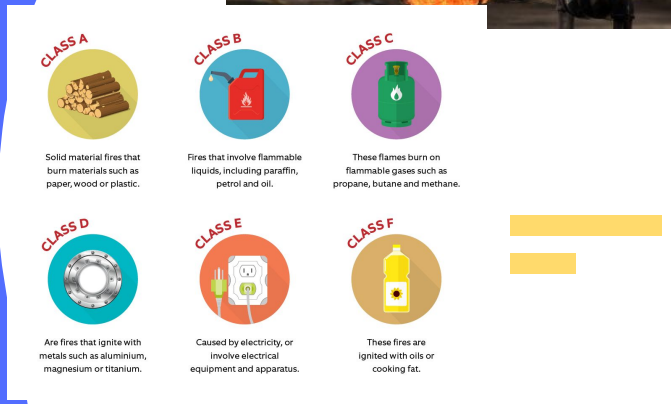
01

TUJUAN



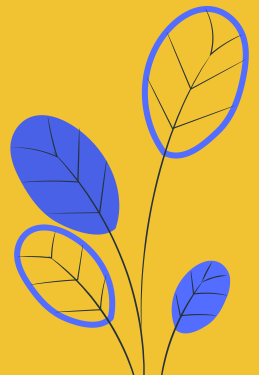
ALAT KAMI

Kami merancang robot yang dilengkapi dengan sensor MQ-2 untuk mendeteksi keberadaan alkohol dan sensor MQ-7 untuk mendeteksi adanya berbagai jenis gas berbahaya seperti LPG dan Butane Gas. Selain itu, robot ini dilengkapi dengan indikator berupa buzzer yang akan berbunyi saat objek ditemukan di lingkungan sekitar. Desain ini kami kembangkan guna memberi solusi untuk mendeteksi dan juga menyelidiki penyebab kebakaran yang umumnya terjadi pada bangunan



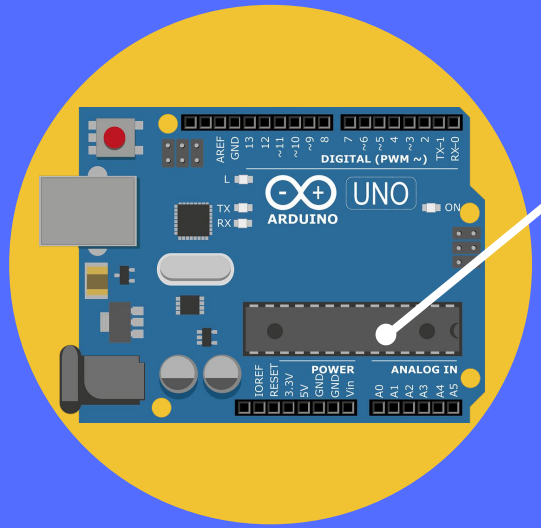
02

KOMPONEN



MIKROKONTROLER

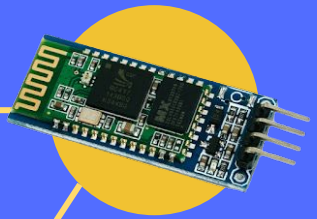
ARDUINO UNO



ATMEGA328

INPUT

JOYSTICK



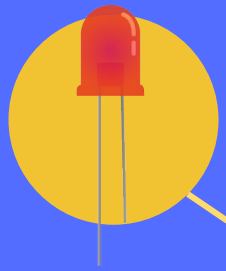
HC-05 (BLUETOOTH)

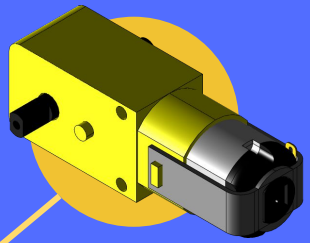
SENSOR MQ-2

SENSOR MQ-7

OUTPUT

BUZZER





LED

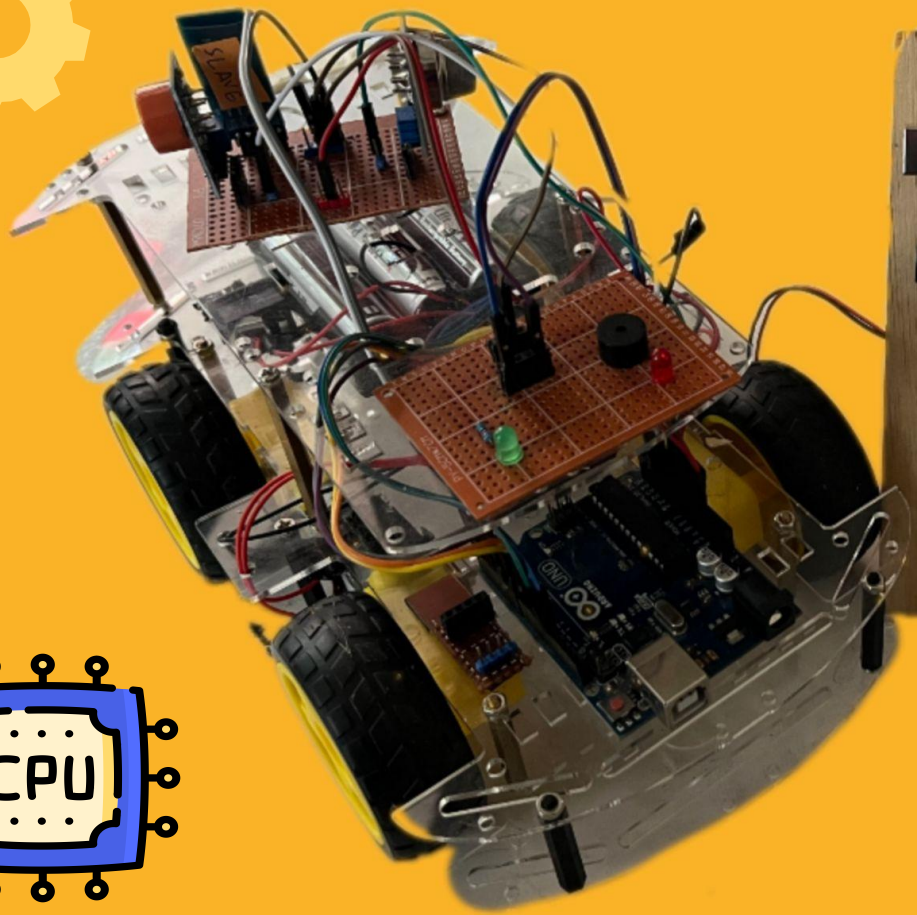
MOTOR DC

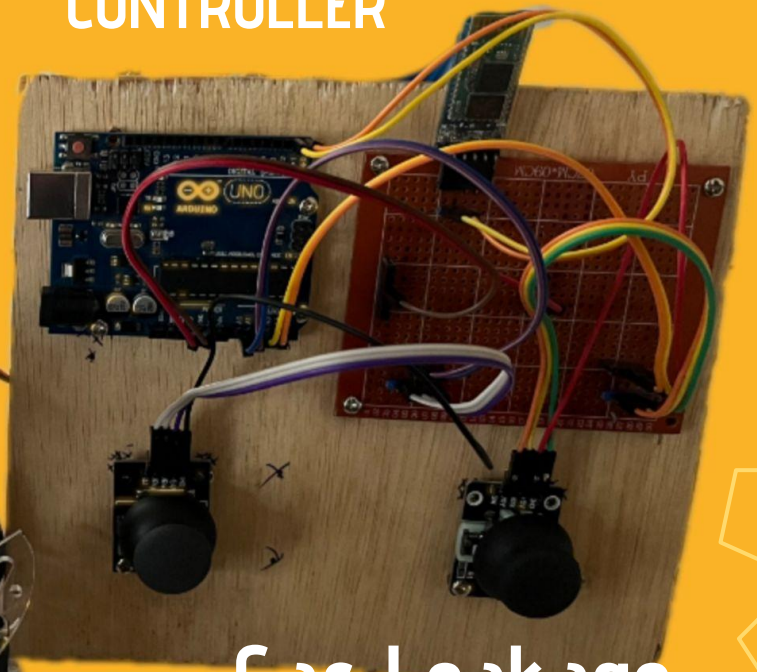
03

DESAIN

ROBOT

CONTROLLER

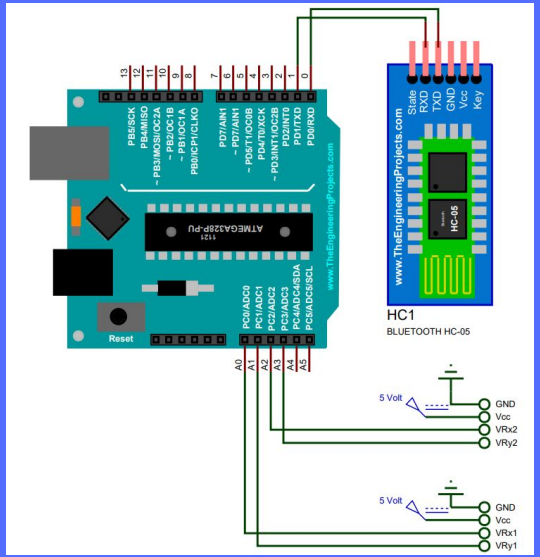


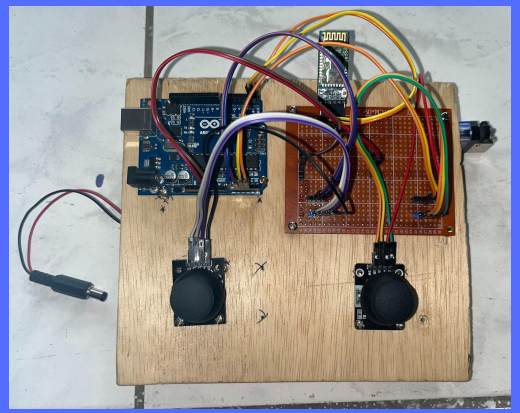


Gas Leakage detectiOn proBE (GLOBE)

SKEMATIK

CONTROLLER





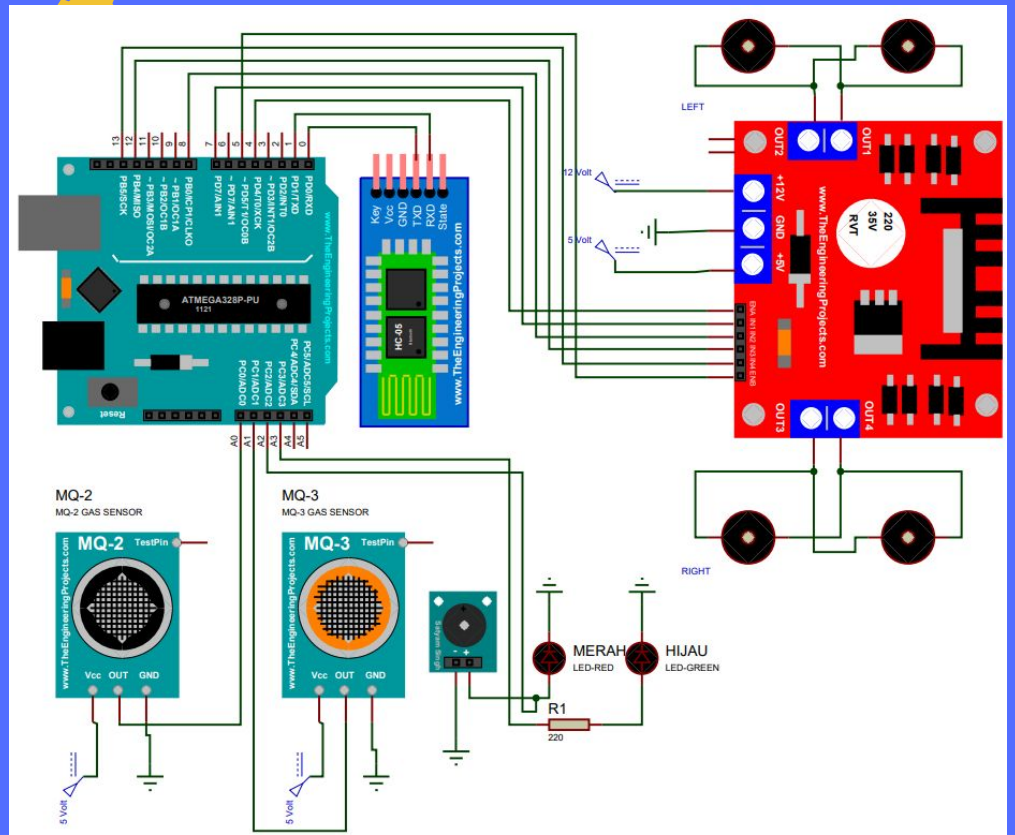
SOURCE CODE

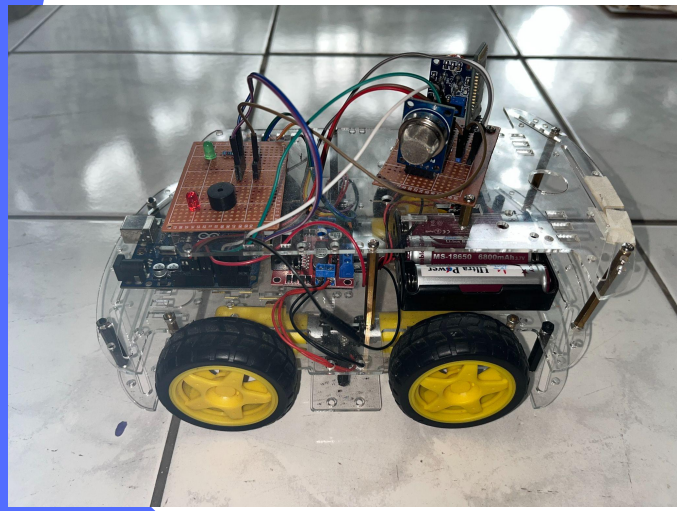
CONTROLLER

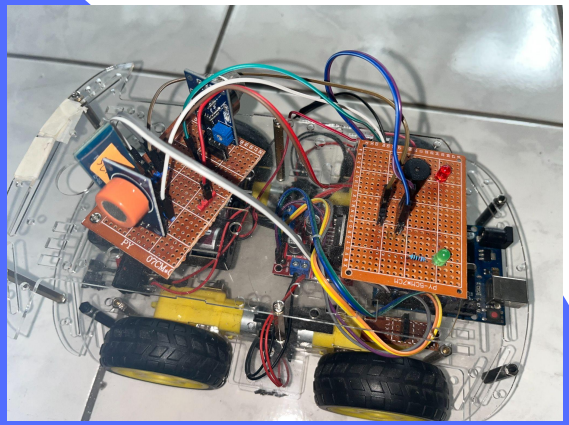
```
const int X1 = A0; // analog pin connected to X output
const int Y1 = A1; // analog pin connected to Y output
const int X2 = A2;
const int Y2 = A3;
void setup() {
  // put your setup code here, to run once:
  pinMode(X1, INPUT);
  pinMode(Y1, INPUT);
  pinMode(X2, INPUT);
  pinMode(Y2, INPUT);
  Serial.begin(38400);
}

void loop() {
  // put your main code here, to run repeatedly:
  int x1 = analogRead(X1);
  int y1 = analogRead(Y1);
  int x2 = analogRead(X2);
  int y2 = analogRead(Y2);S

  if(x1 < 50  &&  505 < y2 < 515)
  {
    //FORWARD
    Serial.write('F');
    delay(5);
  }

  else if (x1 >= 900  &&  505 < y2 < 515)
  {
    //REVERSE
    Serial.write('B');
    delay(10);
  }
  else if (y2 > 900  &&   0 <= x1 <= 1023)
  {
    //LEFT
    Serial.write('L');
    delay(10);
  }
  else if (y2 < 384  &&   0 <= x1 <= 1023)
  {
    //RIGHT
    Serial.write('R');
  }
  else if (y2 < 384  &&   0 <= x1 <= 1023)
  {
    //RIGHT
    Serial.write('R');
    delay(10);
  }
  else
  {
    //STOP
    Serial.write('S');
    delay(10);
  }


}
```

SKEMATIK

ROBOT







SOURCE CODE

ROBOT

```
int sensorMQ2 = A0; //Buat sensor MQ-2
int sensorMQ135 = A1; //Buat sensor MQ-135
int ledR = A2;
int ledG = A3;

//MOTOR SPEED
int enA = 3;
int enB = 5;
//LEFT MOTOR
int in1 = 7;
int in2 = 8;
//RIGHT MOTOR
int in3 = 12;
int in4 = 13;

char val = 0;

void maju()
{
      //MOTOR KIRI
     digitalWrite(in1, HIGH);
     digitalWrite(in2, LOW);
      analogWrite(enA, 255);
     //MOTOR KANAN
     digitalWrite(in3, HIGH);
     digitalWrite(in4, LOW);
     analogWrite(enB,255);
}
void kiri()
{
       //MOTOR KIRI
     digitalWrite(in1, LOW);
     digitalWrite(in2, HIGH);
     analogWrite(enB, 198);
     //MOTOR KANAN
     digitalWrite(in3, HIGH);
     digitalWrite(in4, LOW);
     analogWrite(enB,200);
}
void kanan()
{
     //MOTOR KIRI
     digitalWrite(in1, HIGH);
```

```
void kanan()
{
      //MOTOR KIRI
     digitalWrite(in1, HIGH);
     digitalWrite(in2, LOW);
     analogWrite(enA, 198);
     //MOTOR KANAN
     digitalWrite(in3, LOW);
     digitalWrite(in4, HIGH);
     analogWrite(enB, 200);
}
void berhenti()
{
      //MOTOR KIRI
     digitalWrite(in1, LOW);
     digitalWrite(in2, LOW);
     //MOTOR KANAN
     digitalWrite(in3, LOW);
     digitalWrite(in4, LOW);
}
void mundur()
{
       //MOTOR KIRI
     digitalWrite(in1, LOW);
     digitalWrite(in2, HIGH);
     analogWrite(enA, 127);
     //MOTOR KANAN
     digitalWrite(in3, LOW);
     digitalWrite(in4, HIGH);
     analogWrite(enB, 180);
}
void majukiri()
{
         //MOTOR KIRI
     digitalWrite(in1, HIGH);
     digitalWrite(in2, LOW);
     analogWrite(enA, 0);
     //MOTOR KANAN
     digitalWrite(in3, HIGH);
     digitalWrite(in4, LOW);
     analogWrite(enB, 255);
}
void majukanan()
```

```
void majukanan()
{
      //MOTOR KIRI
     digitalWrite(in1, HIGH);
     digitalWrite(in2, LOW);
     analogWrite(enA, 255);
     //MOTOR KANAN
     digitalWrite(in3, HIGH);
     digitalWrite(in4, LOW);
     analogWrite(enB, 0);
}
void mundurkiri()
{
      //MOTOR KIRI
     digitalWrite(in1, LOW);
     digitalWrite(in2, HIGH);
     analogWrite(enA, 0);
     //MOTOR KANAN
     digitalWrite(in3, LOW);
     digitalWrite(in4, HIGH);
     analogWrite(enB, 180);
}
void mundurkanan()
{
      //MOTOR KIRI
     digitalWrite(in1, LOW);
     digitalWrite(in2, HIGH);
     analogWrite(enA, 127);
     //MOTOR KANAN
     digitalWrite(in3, LOW);
     digitalWrite(in4, HIGH);
     analogWrite(enB, 0);
}

void leakage ()
{
   analogWrite(ledG, 0);
   analogWrite(ledR, 1023);
   delay(100);
   analogWrite(ledR, 0);
   delay(100);
}
void setup() {
```

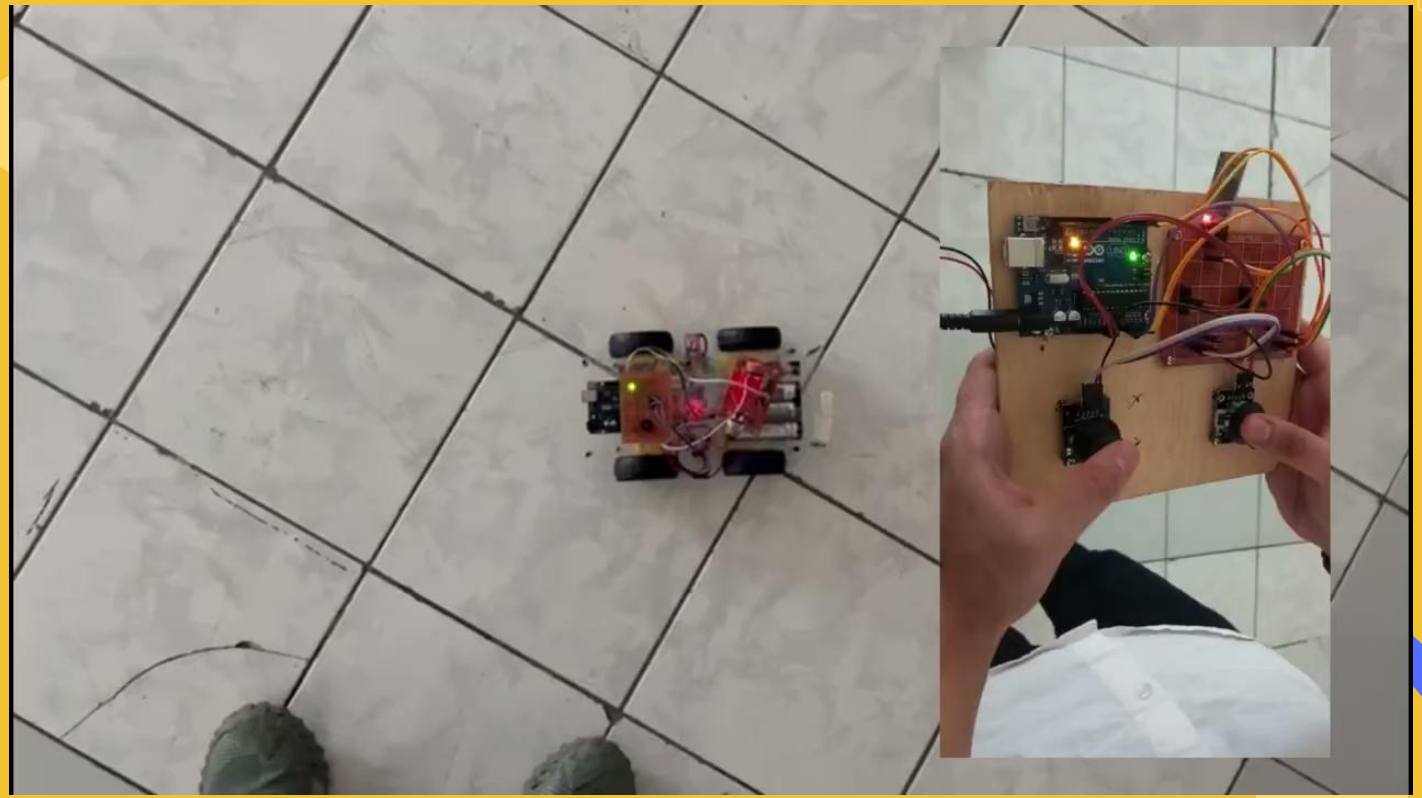
SOURCE CODE

ROBOT

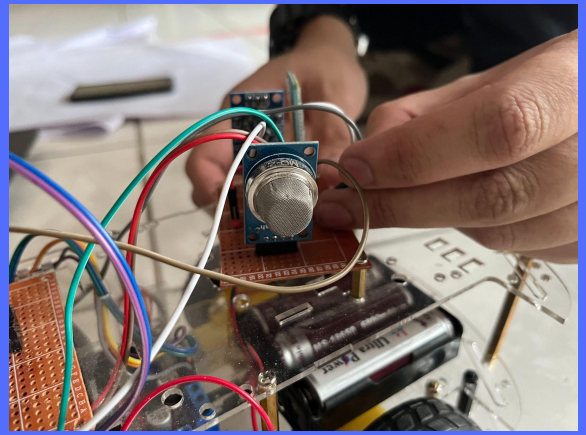
```
void setup() {
  // put your setup code here, to run once:
  //MOTOR DRIVER
  pinMode(enA, OUTPUT);
  pinMode(enB, OUTPUT);
  pinMode(in1, OUTPUT);
  pinMode(in2, OUTPUT);
  pinMode(in3, OUTPUT);
  pinMode(in4, OUTPUT);
  pinMode(sensorMQ2, INPUT);
  pinMode(sensorMQ135, INPUT);
  pinMode(ledR, OUTPUT);
  pinMode(ledG, OUTPUT);
  Serial.begin(38400);
}

void loop() {
  // put your main code here, to run repeatedly:
  int sensorValue1 = analogRead(sensorMQ2);
  int sensorValue2 = analogRead(sensorMQ135);
 /* Serial.println(sensorValue1);
  Serial.println(sensorValue2);
  Serial.println("\n"); */

  if (sensorValue1 > 400 || sensorValue2 > 500)
  {
    leakage();
  }
  else {
    analogWrite(ledG, 1023);
    analogWrite(ledR, 0);
  }

  while (Serial.available() > 0)
  {
    val = Serial.read();
    Serial.println(val);
  }
  if (val == 'F')
  {
    maju();
  }
  else if (val == 'L')
  {
    kiri();
  }
  else if (val == 'R')
  {
    kanan();
  }
  else if (val == 'B')
  {
    mundur();
  }
  else if (val == 'G')
  {
    majukiri();
  }
  else if (val == 'I')
  {
    majukanan();
  }
  else if (val == 'H')
  {
    mundurkiri();
  }
  else if (val == 'J')
  {
    mundurkanan();
  }
  else
  {
    berhenti();
  }
}
```

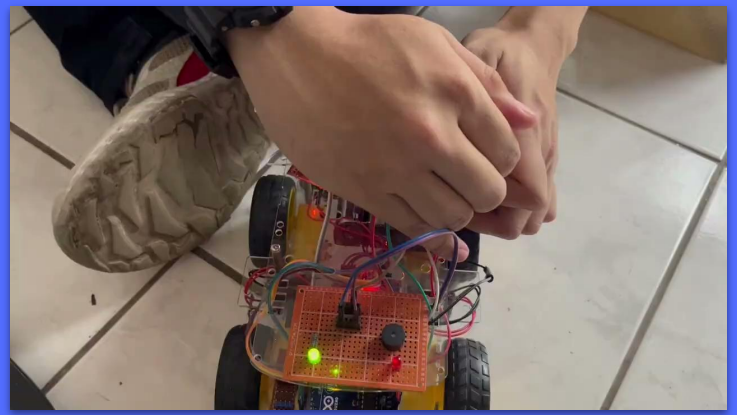
04

DEMONSTRASI ALAT



TEST SENSOR MQ-2





THANK YOU