



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

IV YEAR / VII SEMESTER (ODD)

BATCH: 2019-2023

ACADEMIC YEAR 2022-2023

ASSIGNMENT - I

TEAM ID : PNT2022TMID48721

TITLE OF THE PROJECT : SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

DOMIN : INTERNET OF THINGS (IOT)

TEAM LEAD : AYYAPPAN S

TEAM MEMBER : VIGNESH K

TEAM MEMBER : PARTHIBAN M

TEAM MEMBER : JABAR SATHIK S

INDUSTRY MENTOR : MENTOR 11

FACULTY MENTOR(S) NAME : M GEETHAPRIYA

The screenshot displays the IBM Career Education Smart Internz portal. The browser address bar shows the URL: careereducation.smartinternz.com/Student/guided_project_workspace/43614. The page features a sidebar with navigation options: Profile, Dashboard, Projects (selected), Change Password, Support, Orientation Sessions, and Training Calendar. The main content area is titled 'Guided Project' and includes tabs for 'Project Workspace' and 'Chat with Mentor'. It displays project details: Project Title (Signs with Smart Connectivity for Better Road Safety), Team (A, V, P, JS), Industry Mentor(s) Name (Mentor 11), and Faculty Mentor(s) Name (M GEETHAPRIYA). Progress indicators show 'Overall Project Progress' and 'Assigned Tasks Progress' both at 50%. A 'GENERAL INSTRUCTION' section provides links for 'Git Repo', 'Project Doc', 'Demo Link', 'View Mentor Comments', 'View Industry Mentor Comments', and 'Assign Task'. A note specifies the password 'SsPuOgK' for the project doc. The bottom section is divided into 'PROJECT DETAILS', 'TASK & PROGRESS', and 'MENTOR REVIEW', with the current task 'Signs With Smart Connectivity For Better Road Safety' marked as 'INTERMEDIATE'. The Windows taskbar at the bottom shows the date and time as 02:40 PM on 26-10-2022.

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```
#include <Servo.h>

int output1Value = 0;
int sen1Value = 0;
int sen2Value = 0;
int const gas_sensor = A1;
int const LDR = A0;
int limit = 400;

long readUltrasonicDistance(int triggerPin, int echoPin)
{
    pinMode(triggerPin, OUTPUT); // Clear the trigger
    digitalWrite(triggerPin, LOW);
    delayMicroseconds(2);
    // Sets the trigger pin to HIGH state for 10 microseconds
    digitalWrite(triggerPin, HIGH);
    delayMicroseconds(10);
    digitalWrite(triggerPin, LOW);
    pinMode(echoPin, INPUT);
    // Reads the echo pin, and returns the sound wave travel time in microseconds
    return pulseIn(echoPin, HIGH);
}

Servo servo_7;

void setup()
{
    Serial.begin(9600); //initialize serial communication
    pinMode(A0, INPUT); //LDR
    pinMode(A1, INPUT); //gas sensor
    pinMode(13, OUTPUT); //connected to relay
    servo_7.attach(7, 500, 2500); //servo motor

    pinMode(8, OUTPUT); //signal to piezo buzzer
    pinMode(9, INPUT); //signal to PIR
    pinMode(10, OUTPUT); //signal to npn as switch
    pinMode(4, OUTPUT); //Red LED
    pinMode(3, OUTPUT); //Green LED
}

void loop()
{
    //-----light intensity control-----//
    //-----light intensity control-----//
    int val1 = analogRead(LDR);
    if (val1 > 500)
    {
        digitalWrite(13, LOW);
        Serial.print("Bulb ON = ");
        Serial.print(val1);
    }
    else
    {
        digitalWrite(13, HIGH);
        Serial.print("Bulb OFF = ");
        Serial.print(val1);
    }

    //-----light & fan control -----//
    //-----light & fan control -----//
    sen2Value = digitalRead(9);
    if (sen2Value == 0)
    {
        digitalWrite(10, LOW); //npn as switch OFF
        digitalWrite(4, HIGH); // Red LED ON, indicating no motion
        digitalWrite(3, LOW); //Green LED OFF, since no Motion detected
        Serial.print("    || NO Motion Detected    ");
    }
}
```

```

if (sen2Value == 1)
{
    digitalWrite(10, HIGH); //npn as switch ON
    delay(5000);
    digitalWrite(4, LOW); // RED LED OFF
    digitalWrite(3, HIGH); //GREEN LED ON , indicating motion detected
    Serial.print("        || Motion Detected!        ");
}

//-----
// ----- Gas Sensor -----//
//-----
int val = analogRead(gas_sensor); //read sensor value
    Serial.print("|| Gas Sensor Value = ");
    Serial.print(val); //Printing in serial monitor
//val = map(val, 300, 750, 0, 100);
    if (val > limit)
    {
        tone(8, 650);
    }
    delay(300);
    noTone(8);

//-----
//----- servo motor -----//
//-----
sen1Value = 0.01723 * readUltrasonicDistance(6, 6);

if (sen1Value < 100)
{
    servo_7.write(90);
    Serial.print("        || Door Open! ; Distance = ");
    Serial.print(sen1Value);
    Serial.print("\n");
}
else
{
    servo_7.write(0);
    Serial.print("        || Door Closed! ; Distance = ");
    Serial.print(sen1Value);
    Serial.print("\n");
}
delay(10); // Delay a little bit to improve simulation performance
}

```