SMART FARMER – IoT ENABLED SMART FARMER APPLICATION

ASSIGNMENT 1 – HOME AUTOMATION SYSTEM

NAME	ROLL NO
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Program:

```
#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()
{
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  //
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!" );
int val = analogRead(gas_sensor);
Serial.print("|| Gas Sensor Value = ");
Serial.print(val);
val = map(val, 300, 750, 0, 100);

if (val > limit)
{
tone(8, 650);
}
delay(30 0);
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
}
```

Tinker CAD Output: