ASSIGNMENT 1 : HOME AUTOMATION SYSTEM

TOPIC : IOT ENABLED SMART FARMING APPLICATION

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CODING :

```
#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(triggerPi
 n, 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!
             " );

   // ------- 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);
```

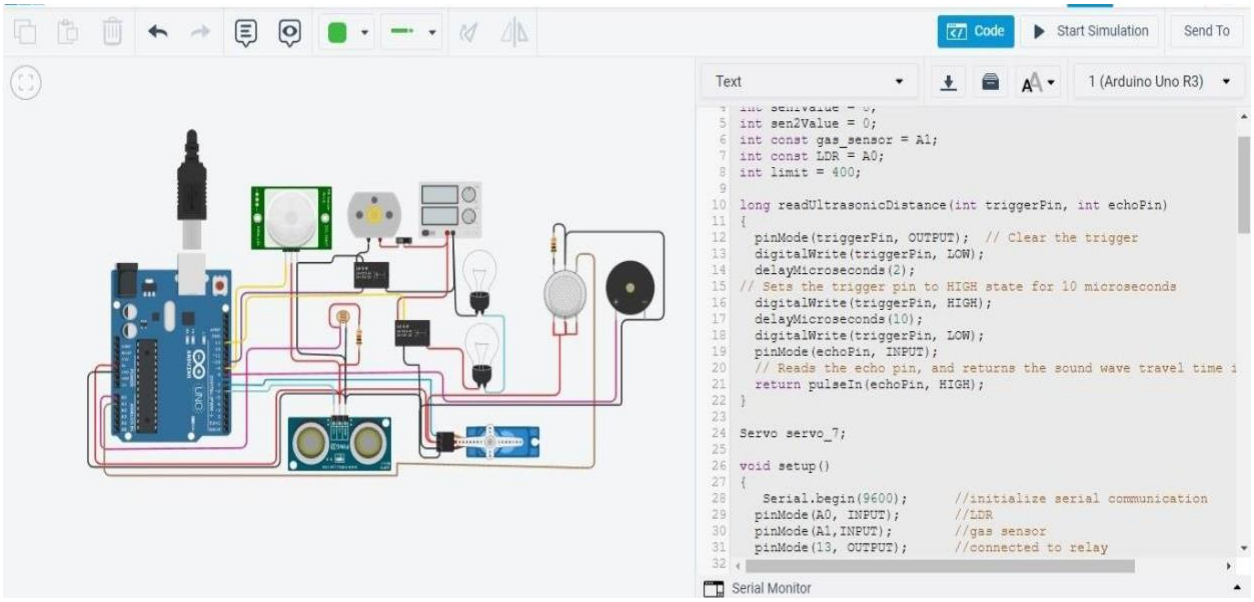
```
if (val > limit)
      {
      tone(8, 650);
      }
      delay(30
      0);
      noTone(8
      );

  //-------  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
}
```

IMAGE :


Code
Start Simulation
Send To
Text
1 (Arduino Uno R3)
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 i
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
Serial Monitor