VELAMMAL ENGINEERING COLLEGE

ELECTRONICS AND COMMUNICATION ENGINEERING

SMART FARMERS - IOT ENABLED FARMING APPLICATION

ASSIGNMENT – 1
HOME AUTOMATION SYSTEM

BY:

Swetha P

(113219041122)

Code for Home Automation System:

```
#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 serialcommunication
pinMode(A0, INPUT); //LDR
pinMode(A1, INPUT); //gas sensor
pinMode(13, OUTPUT); //connected to relay
servo_7.attach(7, 500, 2500); //servomotor
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);
 }
```

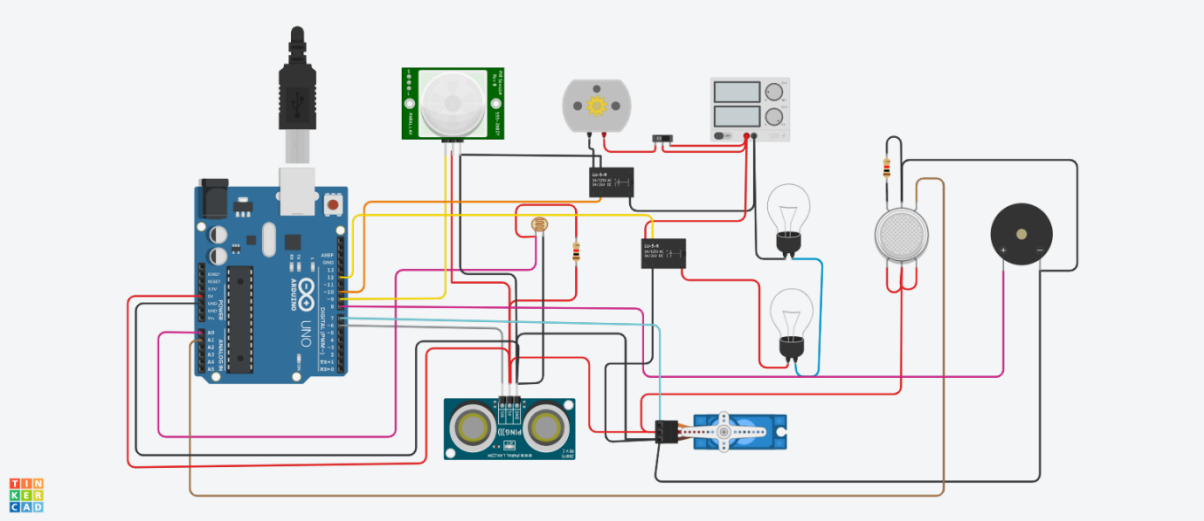
```
else
 {
digitalWrite(13, HIGH);
Serial.print("Bulb OFF = ");
Serial.print(val1);
 }
//------ light & fan control //
sen2Value =
digitalRead(9); if
(sen2Value == 0)
 {
digitalWrite(10, LOW); //npn as switch OFF
digitalWrite(4, HIGH); // Red LED ON,indicating no motion
digitalWrite(3, LOW); //Green 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
```

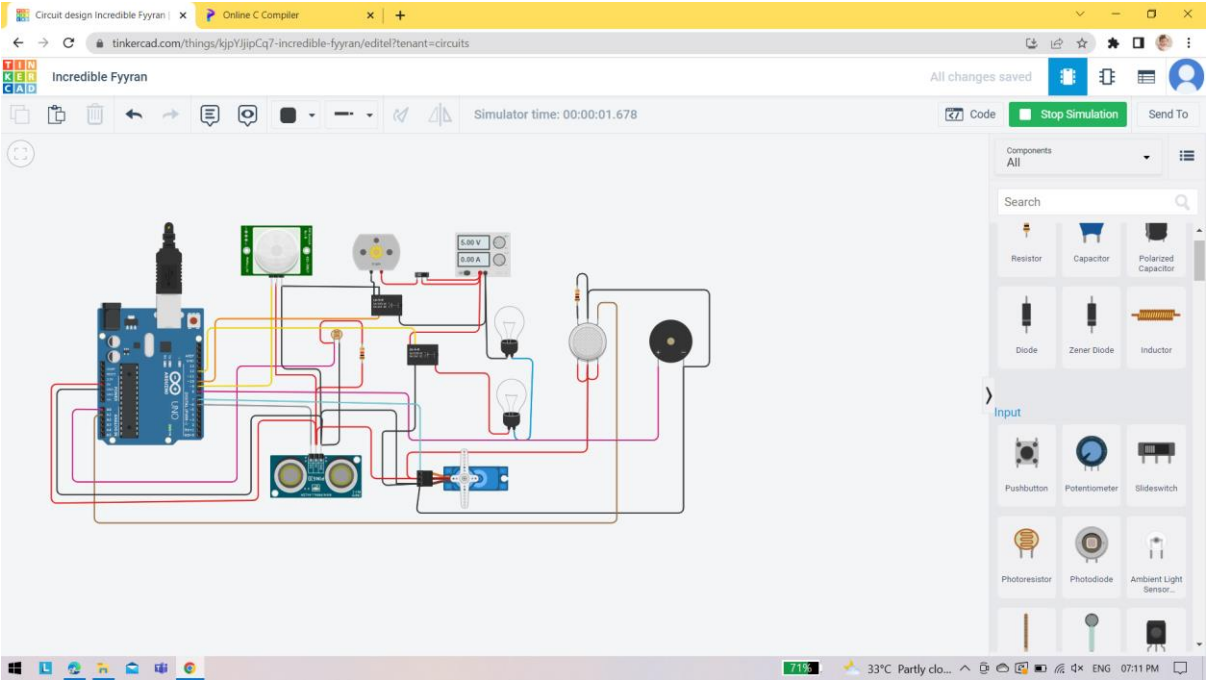
```
digitalWrite(3, HIGH);//GREEN LED ON , indicating motion detected
Serial.print("|| Motion Detected!" );
// ------- Gas Sensor //
 int val = analogRead(gas_sensor);
//read sensor value
Serial.print("|| Gas Sensor Value = ");
Serial.print(val); //Printing in serial monitor
//val = map(val, 300,750, 0, 100);
if (val > limit)
{
tone(8, 650);
}
delay(300);
noTone(8
);
//------- servo motor //
//- -
sen1Value = 0.01723 *
readUltrasonicDistance(6, 6);
if (sen1Value < 100)
{
servo_7.write(90);
```

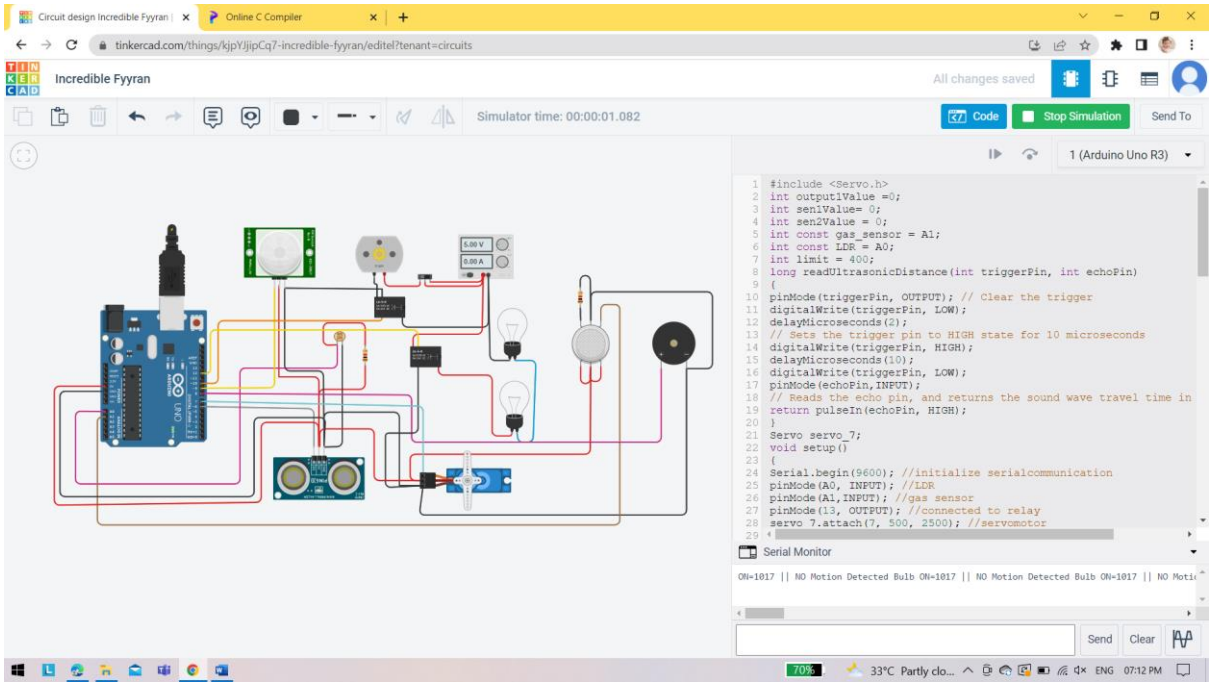
```
Serial.print(" || Door Open!;Distance = ");
Serial.print(sen1Value);
Serial.print("\n");
}
else
 {
servo_7.write(0);
 Serial.print(" || Door Closed! ; Distance = ");

Serial.print(sen1Value);
 Serial.print("\n");
}
  delay(10); // Delay a little bit to improve simulation
performance
}
}
```

OUTPUT:




Circuit design Incredible Fyyran
Online C Compiler
tinkercad.com/things/kjpYJjipCq7-incredible-fyyran/editel?tenant=circuits
Incredible Fyyran
All changes saved
Simulator time: 00:00:01.678
Code
Stop Simulation
Send To
Components
All
Search
Resistor
Capacitor
Polarized Capacitor
Diode
Zener Diode
Inductor
Input
Pushbutton
Potentiometer
Slideswitch
Photoresistor
Photodiode
Ambient Light Sensor
71%
33°C Partly clo...
ENG
07:11 PM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Online C Compiler
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Incredible Fyyran
All changes saved
Simulator time: 00:00:01.082
Code
Stop Simulation
Send To
1 (Arduino Uno R3)
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int sen1Value= 0;
int sen2Value = 0;
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return pulseIn(echoPin, HIGH);
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pinMode(13, OUTPUT); //connected to relay
servo_7.attach(7, 500, 2500); //servomotor
Serial Monitor
ON=1017 || NO Motion Detected Bulb ON=1017 || NO Motion Detected Bulb ON=1017 || NO Moti
Send
Clear
70%
33°C Partly clo...
ENG
07:12 PM