

Lab 6 : Program 13

Date : 28/10/20

Experiment : Servo and IR

Aim: Control a Servo Motor using an IR Remote and Sensor.

Hardware:

- Servo motor
- Arduino Uno
- LEDs
- Resistors
- IR sensor and remote

Source Code:

```
#include<IRremote.h>
#include<Servo.h>

int pos = 0 , irsensor = 9 , val = 1 , flag = 0 ;
IRrecv irinput (irsensor);
Decode_results results;
Servo smotor;

void setup(){
    Serial.begin(9600);
    pinMode(irsensor, INPUT);
    irinput.enableIRIn();
    Serial.println("Power is off");
}
void pwr ()
{
    if (flag == 0)
    {
        smotor.attach(11);
        Serial.println("Power on");
        flag = 1 ;
    }
}
```

```

    else if (flag == 1)
    {
        smotor.detach();
        Serial.println("Power off");
        flag = 0 ;
    }
}

void loop()
{
    if (irinput.decode(&results))
    {
        Serial.println(results.value, HEX);
        irinput.resume();
    }

    switch(results.value)
    {
        case 0xFD00FF :
        {
            pwr();
            break ;
        }
        case 0xFD807F :
        {
            if (abs(val) >= 10)
            {
                Serial.println("Maximum speed");
            }
            else
            {
                val = val > 0 ? val + 1 : val - 1 ;
                Serial.println("Speed increased");
            }
            break ;
        }
        case 0xFD906F :

```

```

{
    if (abs(val) <= 1)
    {
        Serial.println("Minimum speed");
    }
    else
    {
        val = val > 0 ? val - 1 : val + 1 ;
        Serial.println("Speed decreased");
    }
    break;
}
case 0xFD20DF :
{
    val = -abs(val) ;
    Serial.println("Anti-clockwise");
    break;
}
case 0xFD609F :
{
    val = abs(val) ;
    Serial.println("Clockwise");
    break;
}
default: Serial.println("No Function");
}

if (flag == 1)
{
    if(pos >= 180 )
    {
        val = -val ;
    }
    else if ( pos <= 0)
    {
        val = abs(val);
    }
}

```

```

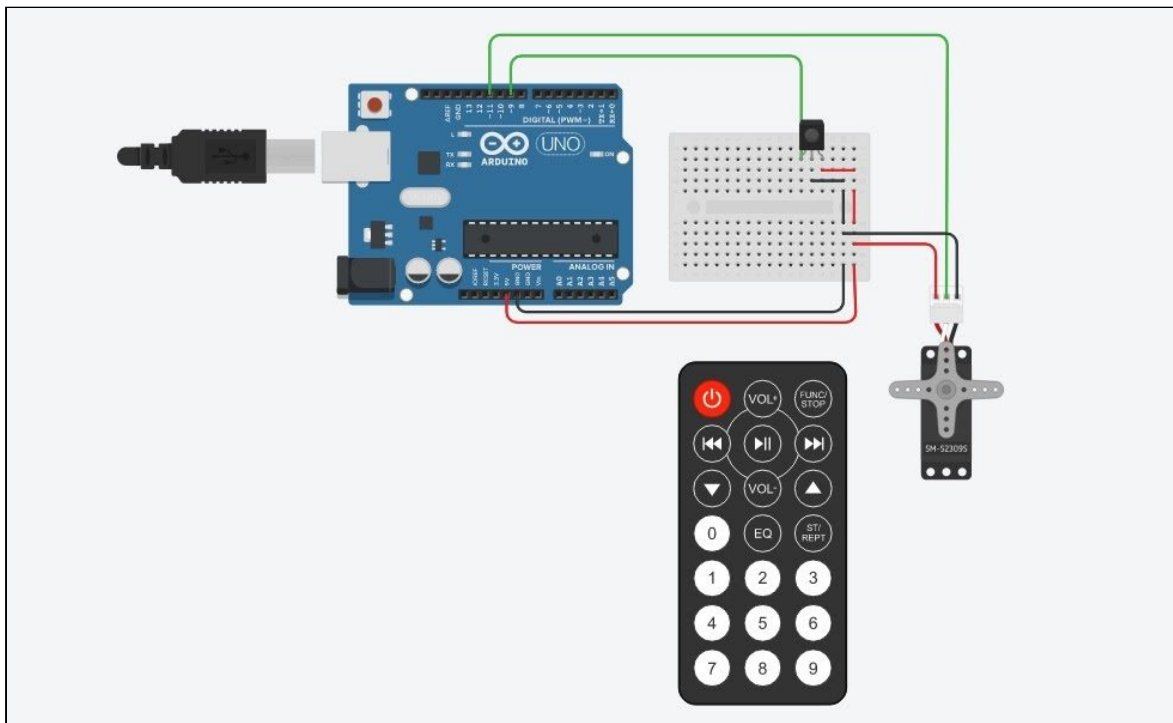
    pos += val ;
    smotor.write(pos);
    Serial.println(pos);
    delay(25);
}

results.value = NULL ;
delay(50);
}

```

Observation: The servo motor rotates as the IR input is received.

Circuit :



Write Up :

Source Code

```
#include <IRremote.h>
#include <Servo.h>

int pos = 0;
int irsensor = 9;
IRrecv irinput (irsensor);
decode_results results;
Servo smotor;
int val = 1;
int flag = 0;

void setup()
{
    Serial.begin(9600);
    pinMode(irsensor, INPUT);
    irinput.enableIRIn();
    Serial.println("Power is off");
}

void pwr()
{
    if (flag == 0)
    {
        smotor.attach(11);
        Serial.println("Power On");
        flag = 1;
    }
    else if (flag == 1)
    {
        smotor.detach();
        Serial.println("Power Off");
        flag = 0;
    }
}
```

```
void loop()
```

```
{ if ( irinput.decode (&results))
```

```
{ Serial.println (results.value, HEX);
```

```
  irinput.resume();
```

```
}
```

```
Switch (results.value)
```

```
{ case 0xFD00FF: { pwr();
```

```
  break;
```

```
}
```

```
case 0xFD807F: { if (abs(val) >= 10)
```

```
{ Serial.println ("Maximum speed");
```

```
}
```

```
else
```

```
{ val = val > 0 ? val + 1 : val - 1;
```

```
  Serial.println ("Speed increased");
```

```
}
```

```
}
```

```
case 0xFD906F: { if (abs(val) <= 1)
```

```
{ Serial.println ("Minimum speed");
```

```
}
```

```
else
```

```
{ val = val > 0 ? val - 1 : val + 1;
```

```
  Serial.println ("Speed decreased");
```

```
}
```

```
}
```

```
case 0xFD20DF: { val = -abs(val);
```

```
  Serial.println ("Anti clockwise");
```

```
  break;
```

```
}
```

```
case 0xFD609F: { val = abs(val);
```

```
  Serial.println ("Clockwise");
```

```
  break;
```

```
}
```

```
default: Serial.println ("No function");
```

```
}
```

```
if (flag == 1)
```

```
{  
  if (pos == 180)  
  {  
    val = -val;  
  }
```

```
  else if (pos <= 0)
```

```
  {  
    val = abs(val);  
  }
```

```
  pos += val;
```

```
  motor.write(pos);
```

```
  delay(25);
```

```
}
```

```
results value = volt;
```

```
delay(50);
```

```
}
```