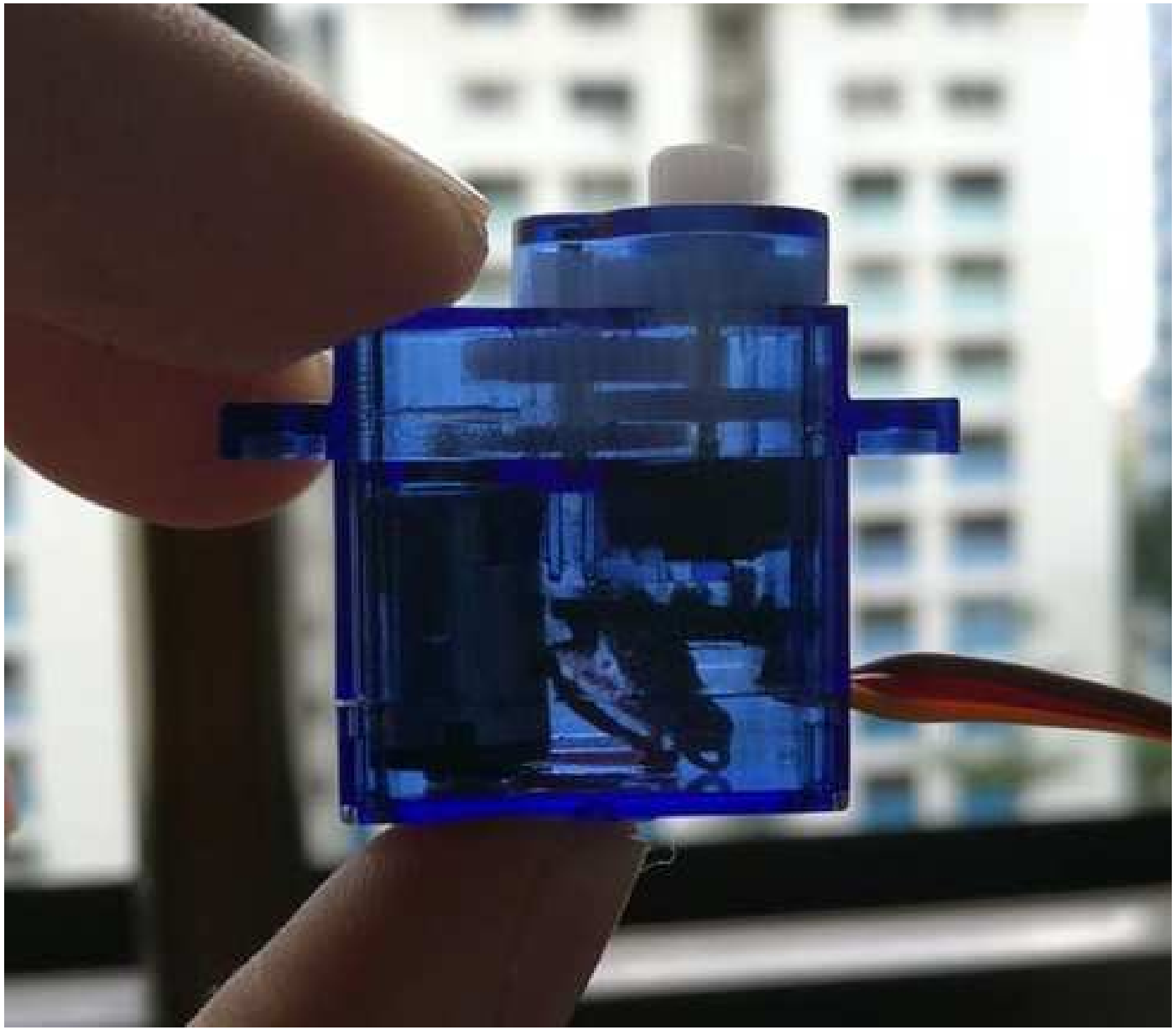
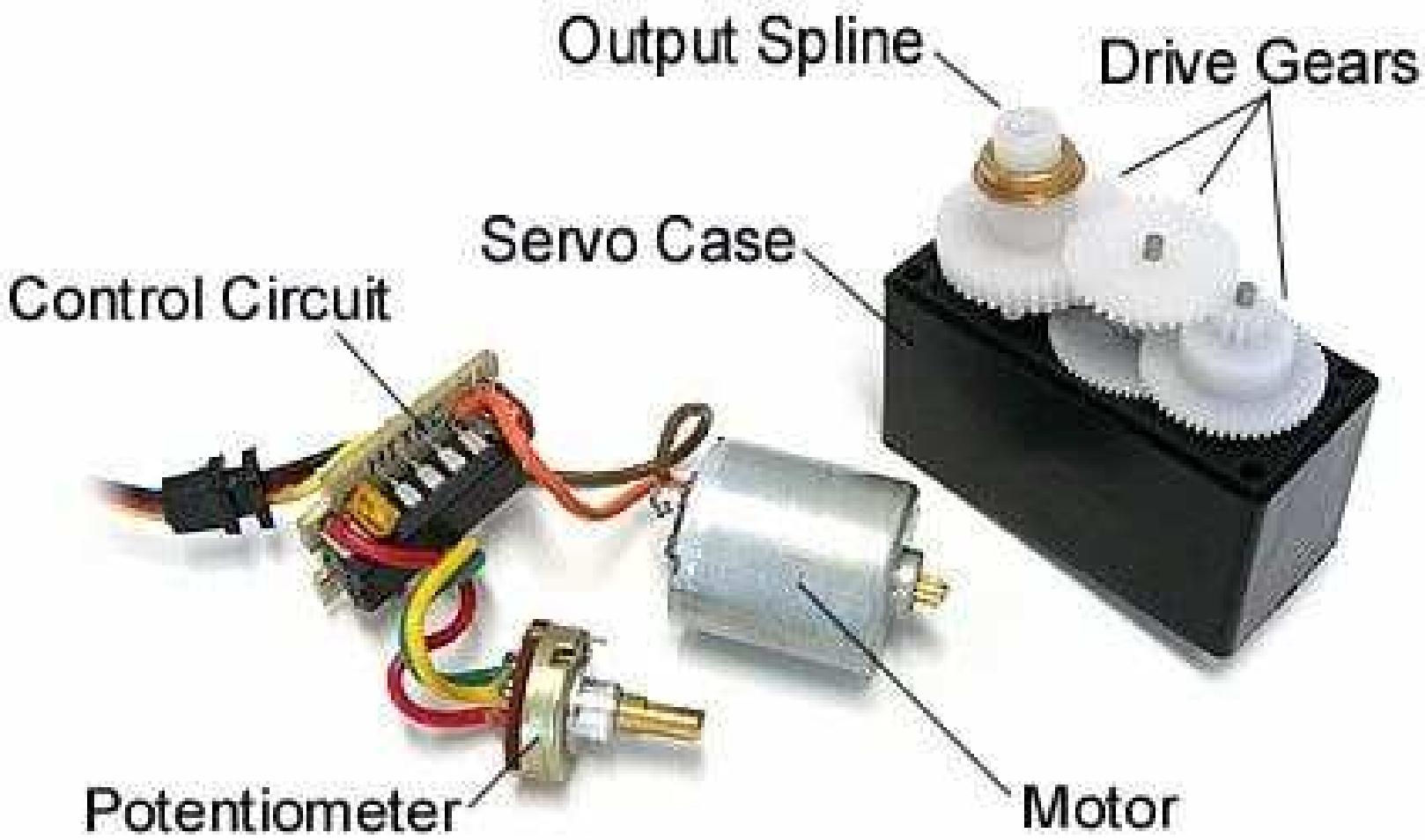
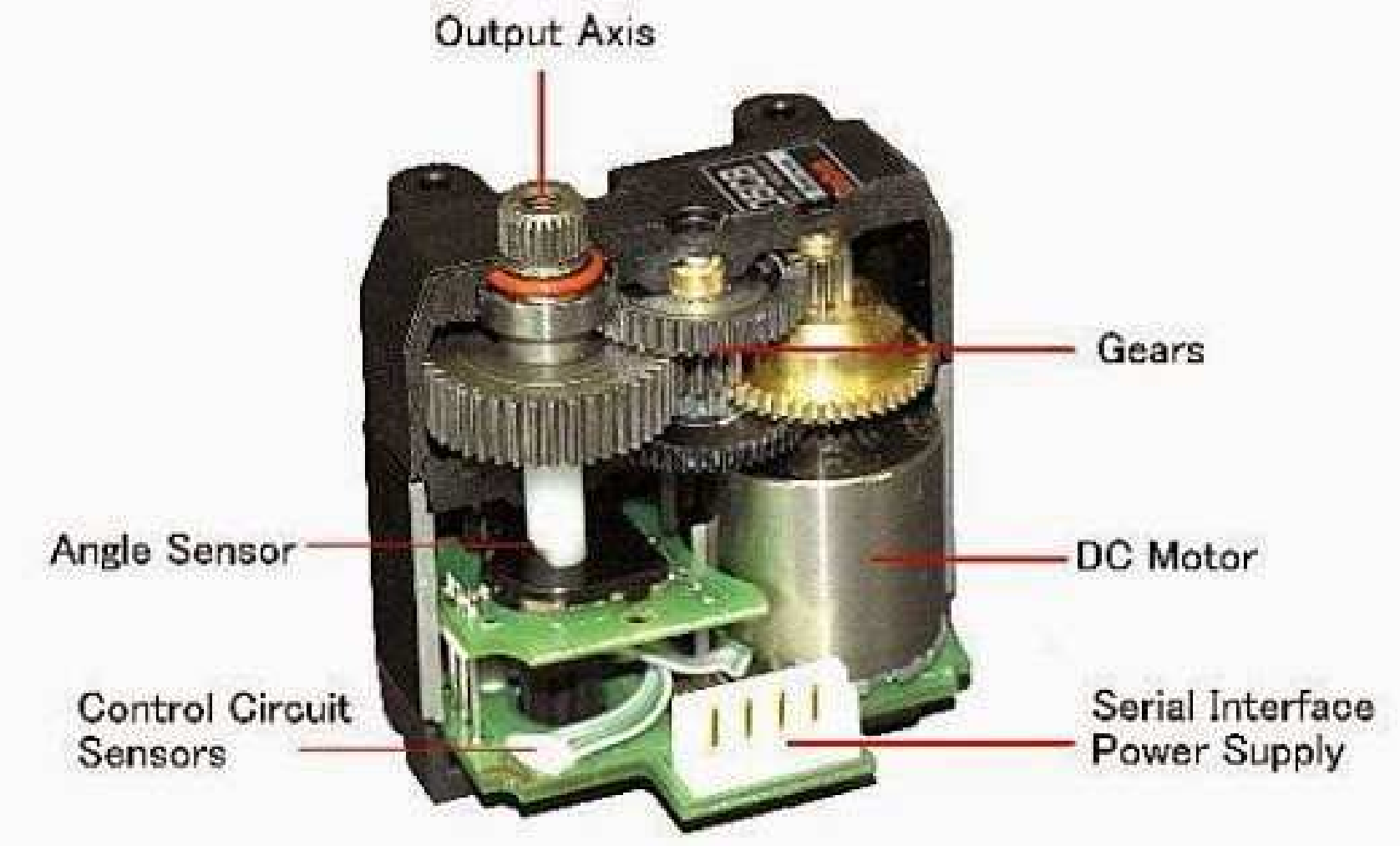
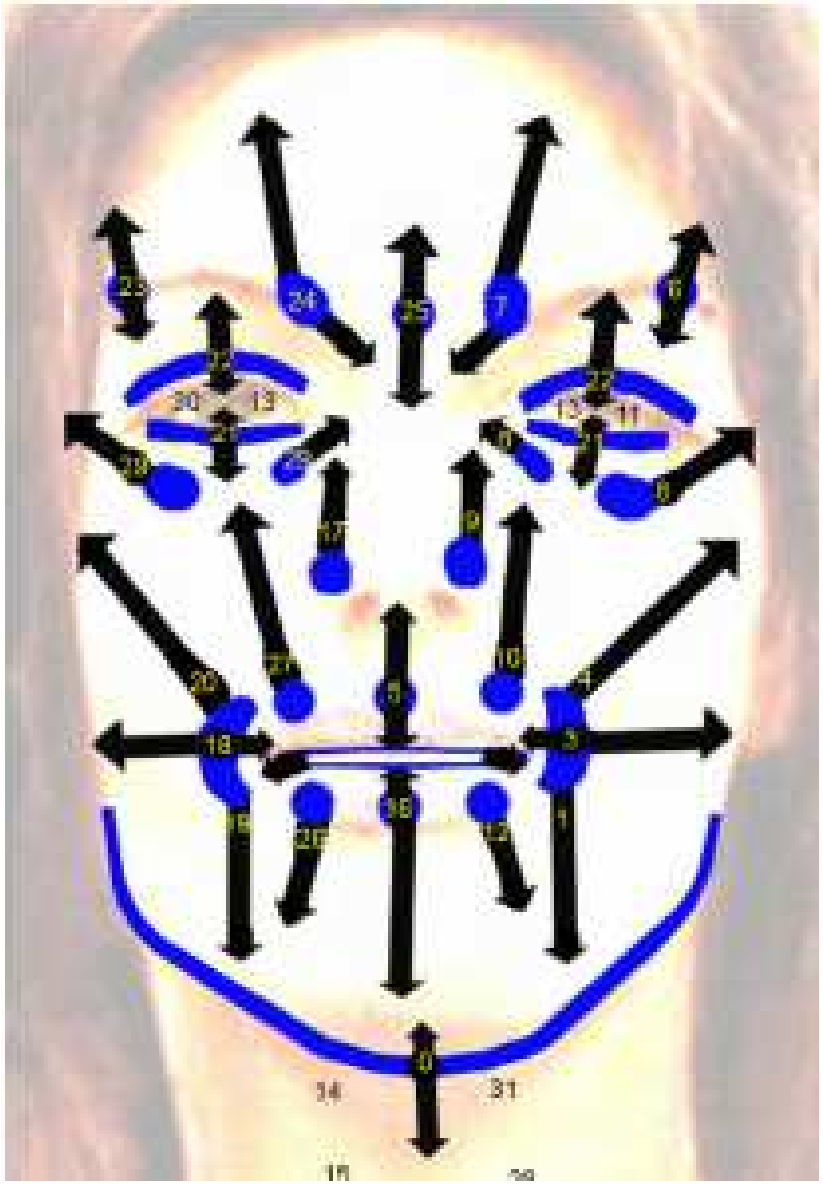
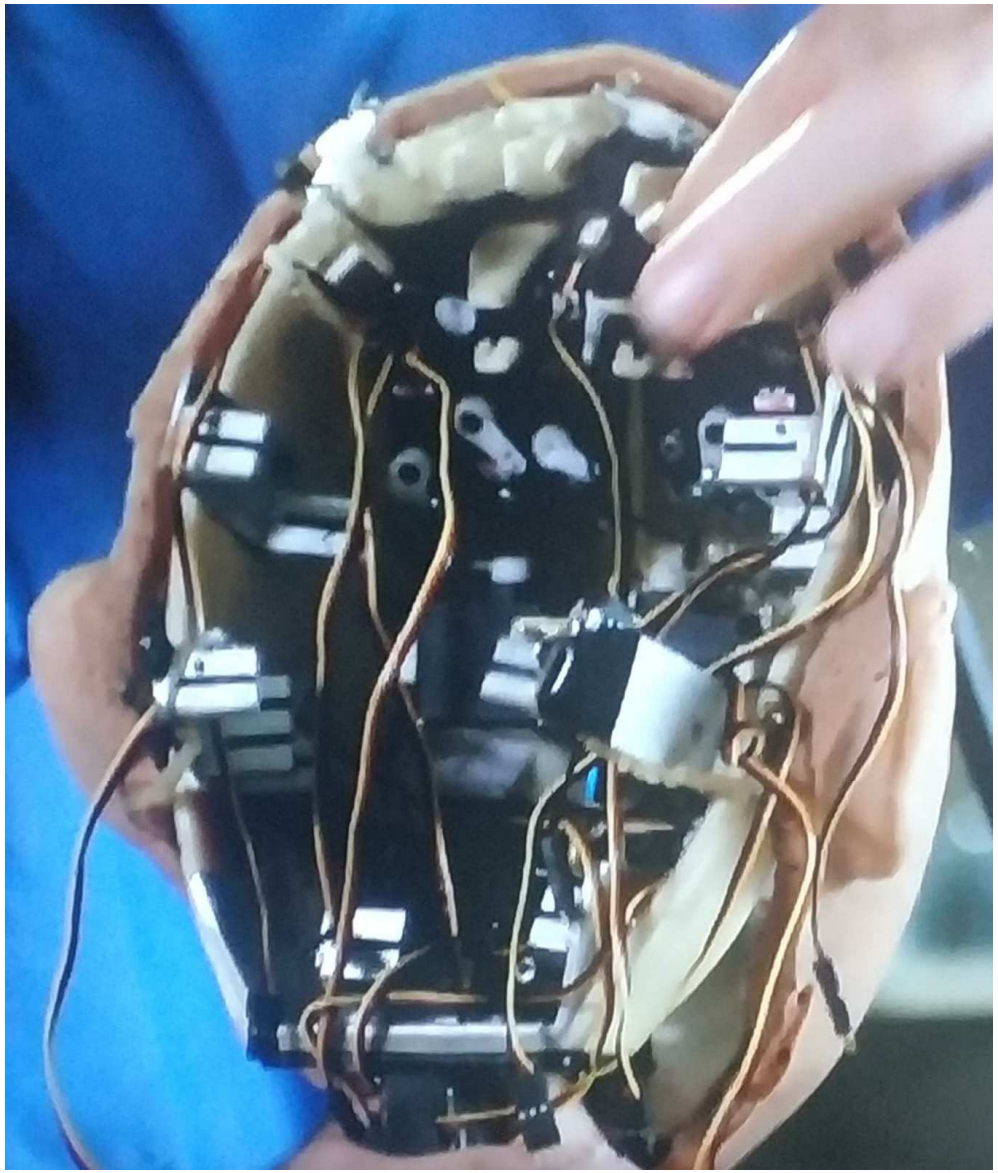
SERVOMOTOR

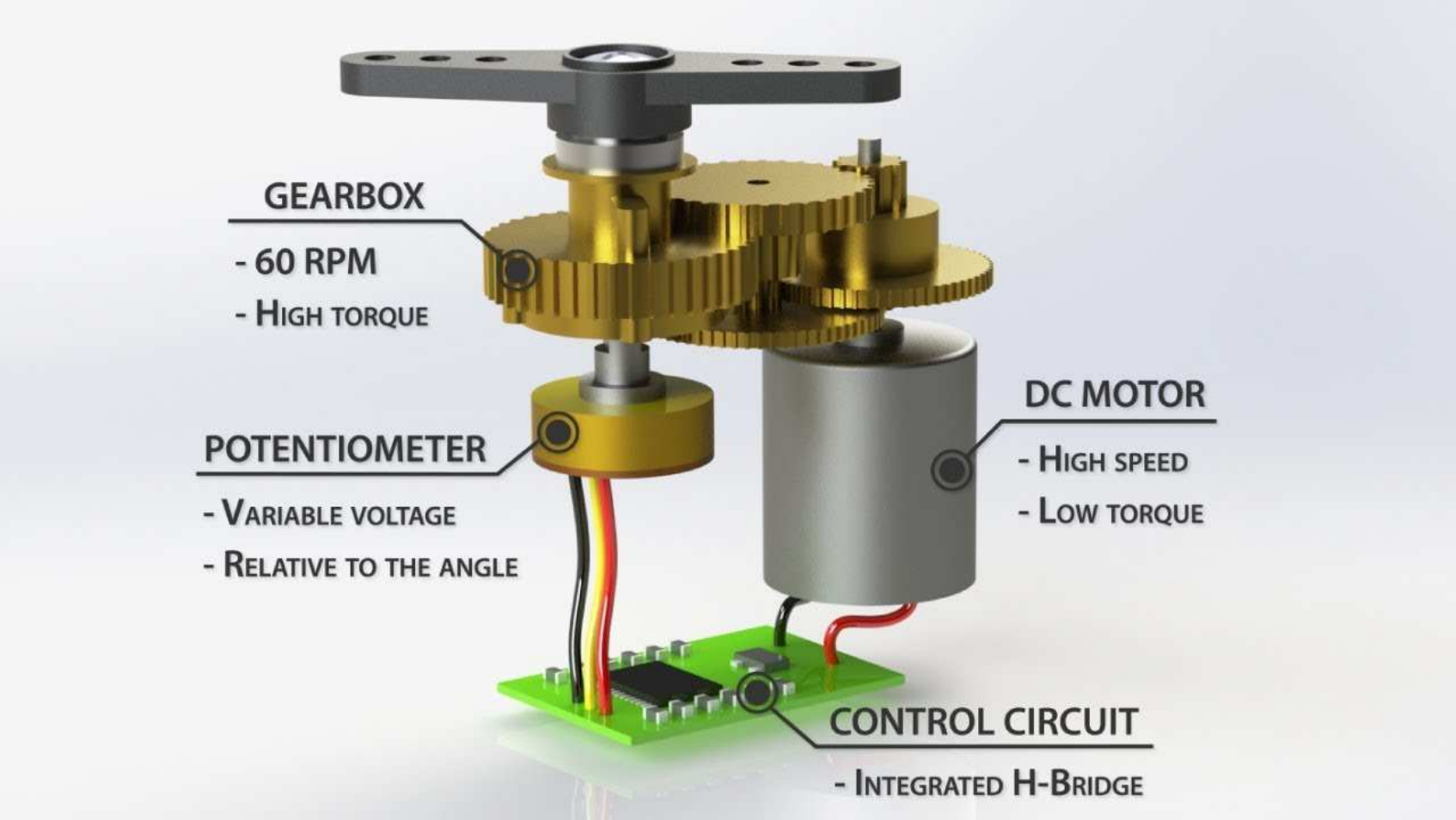


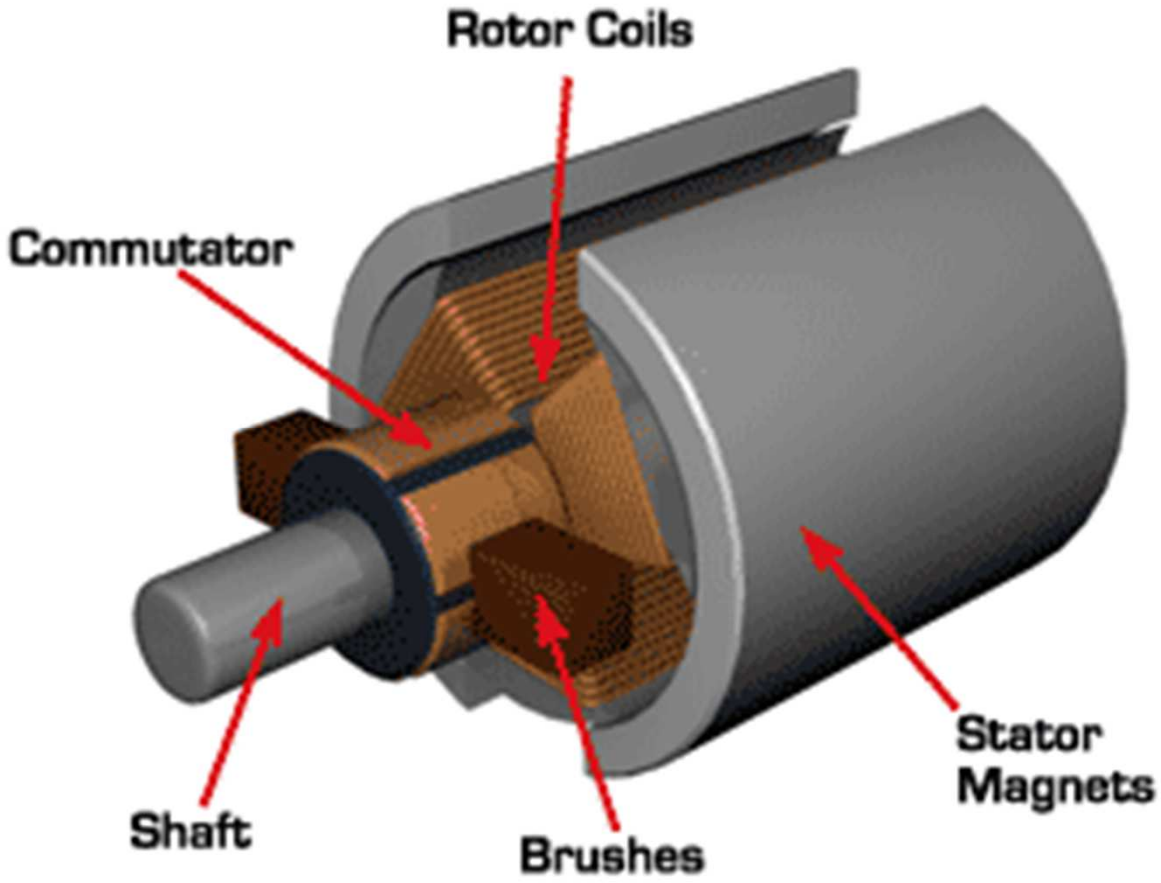

Output Spline
Drive Gears
Servo Case
Control Circuit
Potentiometer
Motor

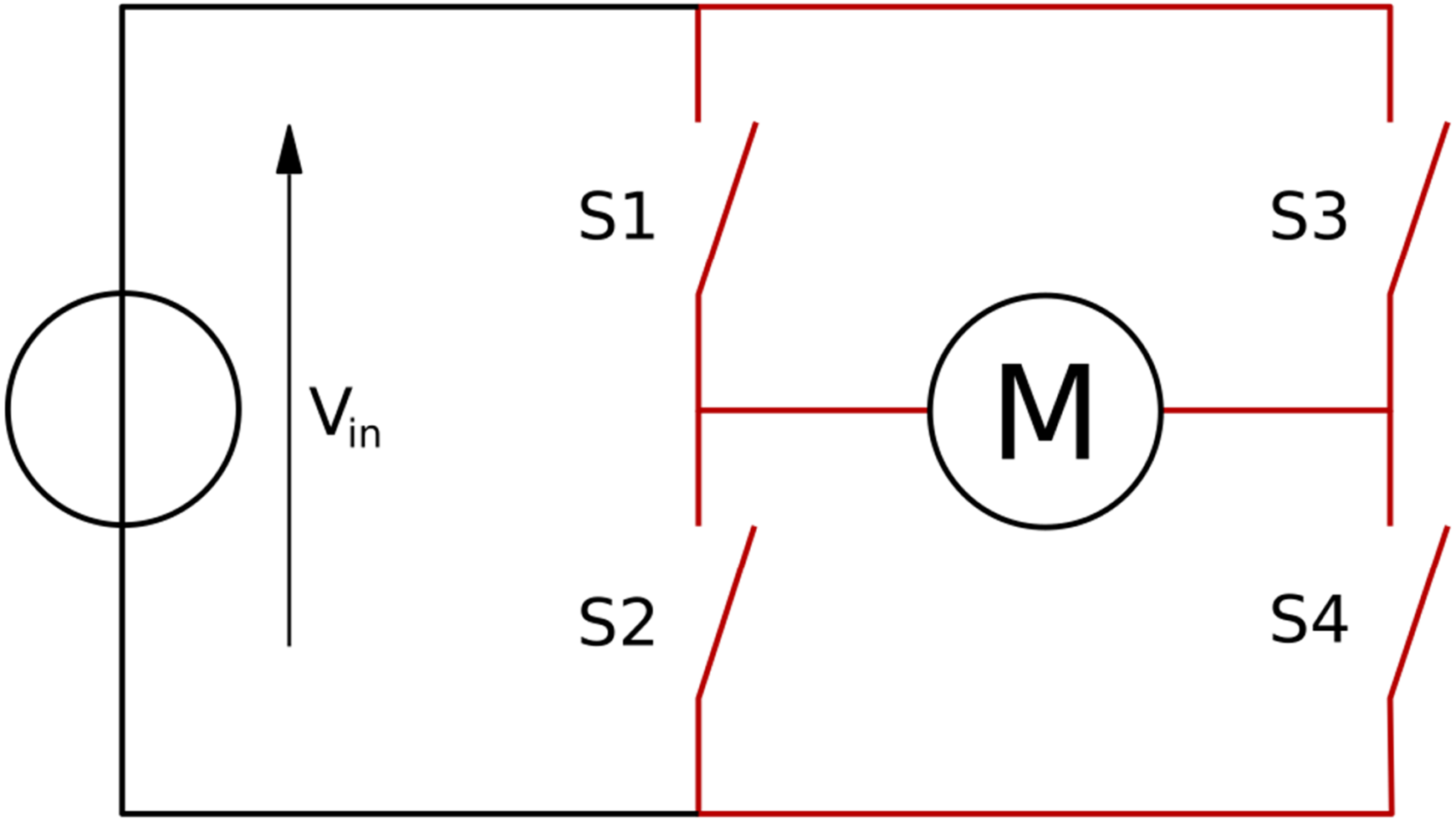

Output Axis
Gears
Angle Sensor
DC Motor
Control Circuit
Sensors
Serial Interface
Power Supply

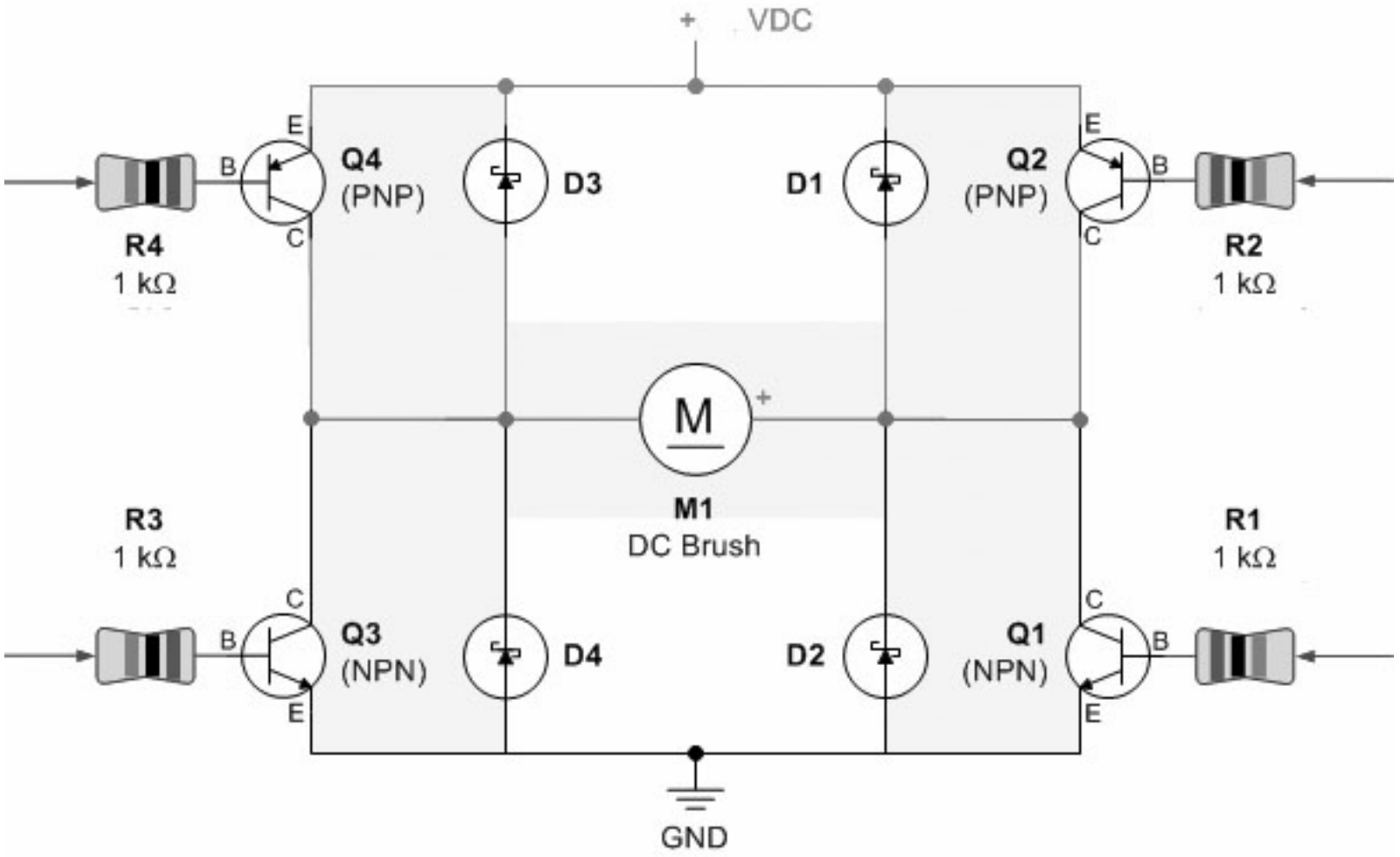


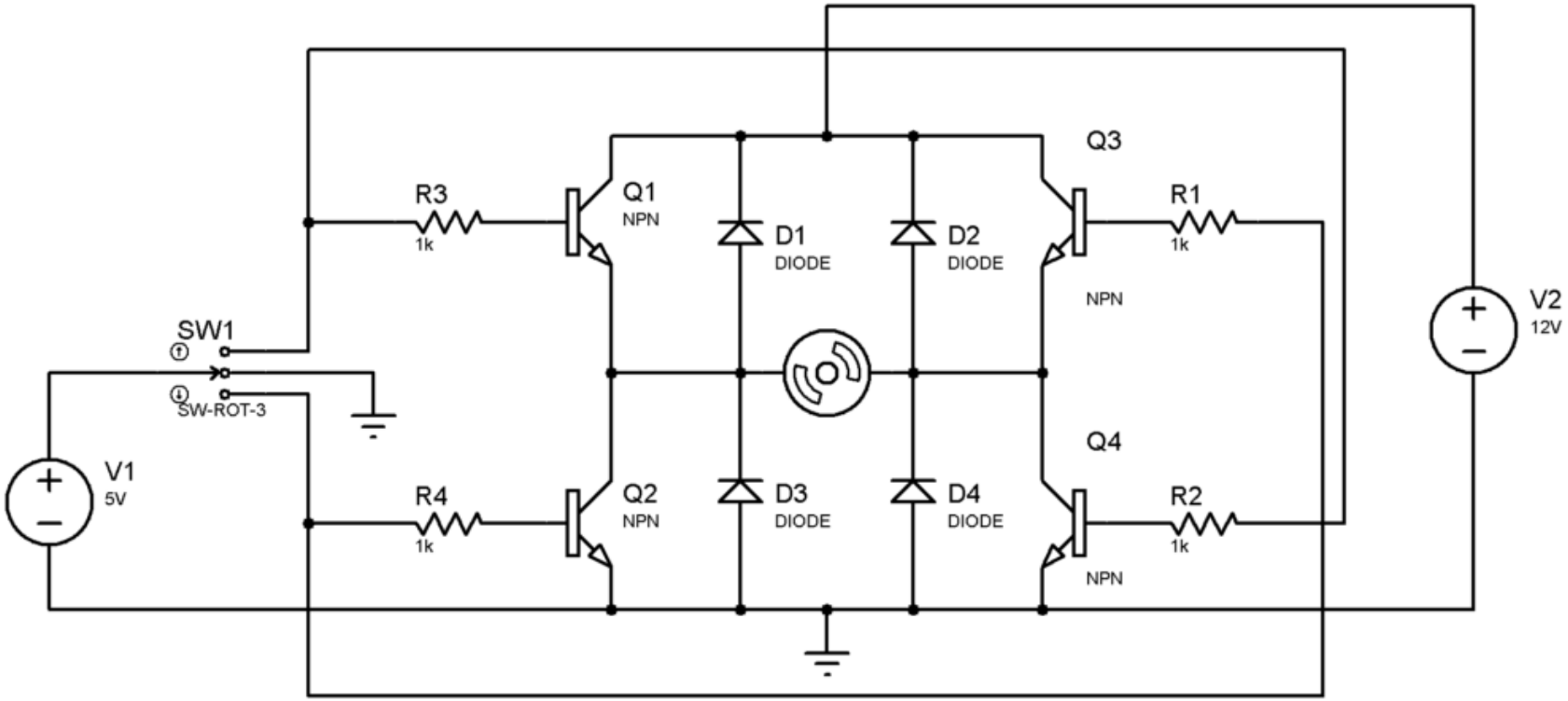


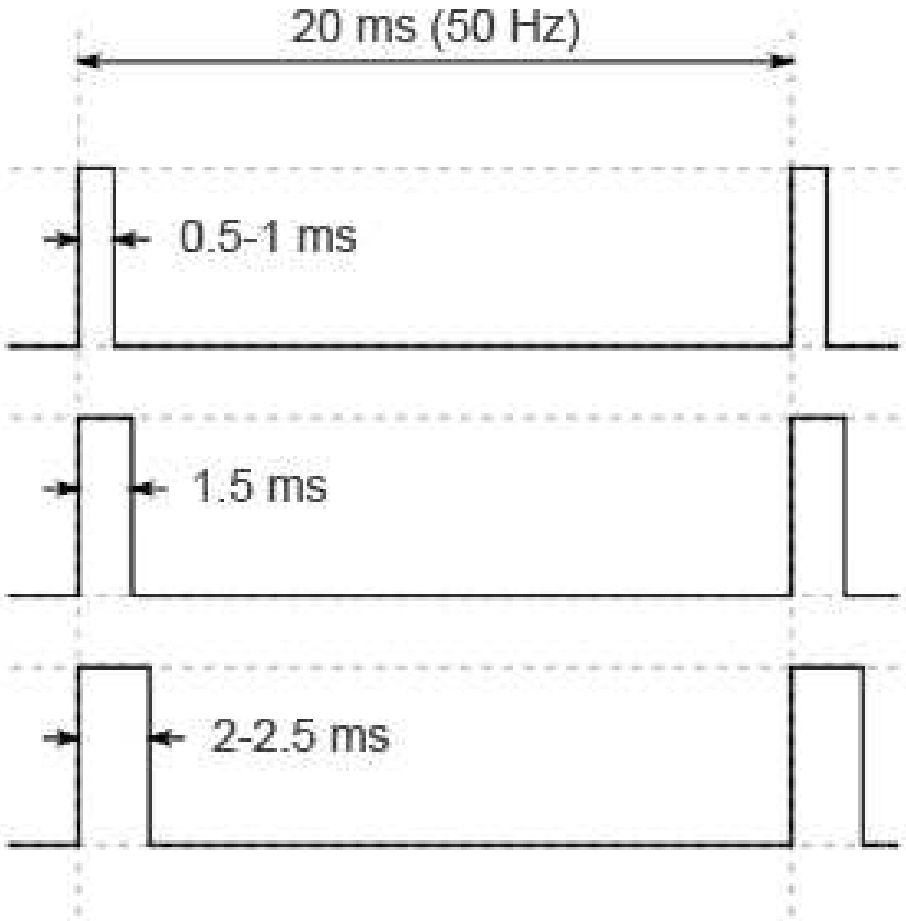

GEARBOX
- 60 RPM
- HIGH TORQUE
POTENTIOMETER
- VARIABLE VOLTAGE
- RELATIVE TO THE ANGLE
DC MOTOR
- HIGH SPEED
- LOW TORQUE
CONTROL CIRCUIT
- INTEGRATED H-BRIDGE


Rotor Coils
Commutator
Shaft
Brushes
Stator
Magnets

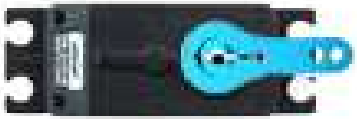

S1
S3
M
V_{in}
S2
S4


+ VDC
E
B
C
Q4
(PNP)
D3
D1
Q2
(PNP)
E
B
C
R4
1 kΩ
R2
1 kΩ
M
+
M1
DC Brush
R3
1 kΩ
R1
1 kΩ
C
B
E
Q3
(NPN)
D4
D2
Q1
(NPN)
C
B
E
GND


R3
1k
Q1
NPN
D1
DIODE
D2
DIODE
Q3
NPN
R1
1k
V2
12V
SW1
SW-ROT-3
V1
5V
R4
1k
Q2
NPN
D3
DIODE
D4
DIODE
Q4
NPN
R2
1k



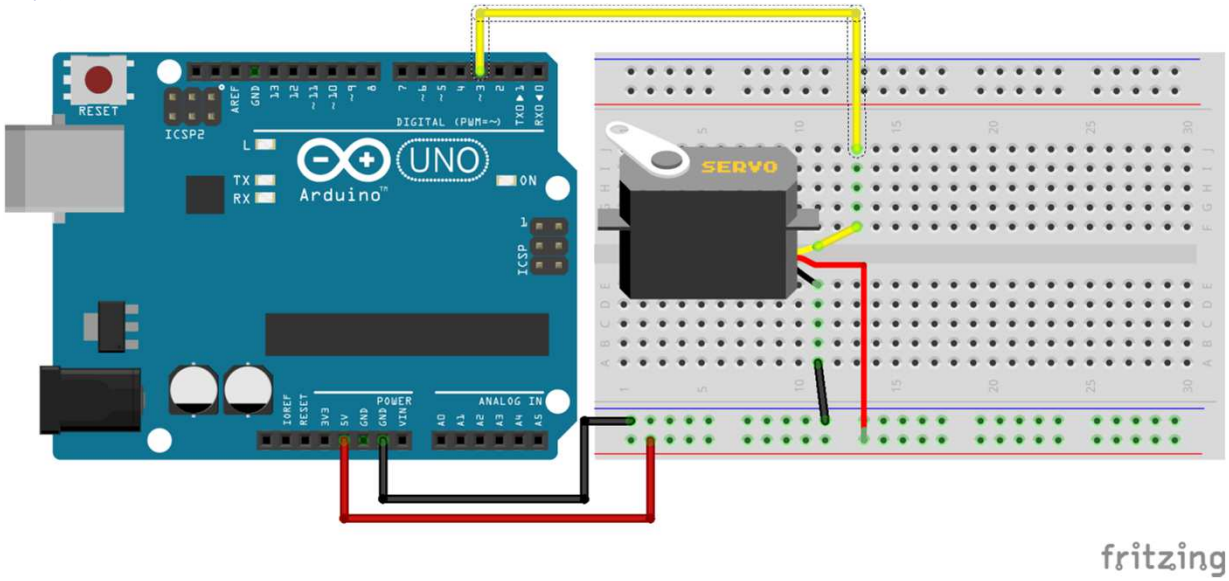
0°

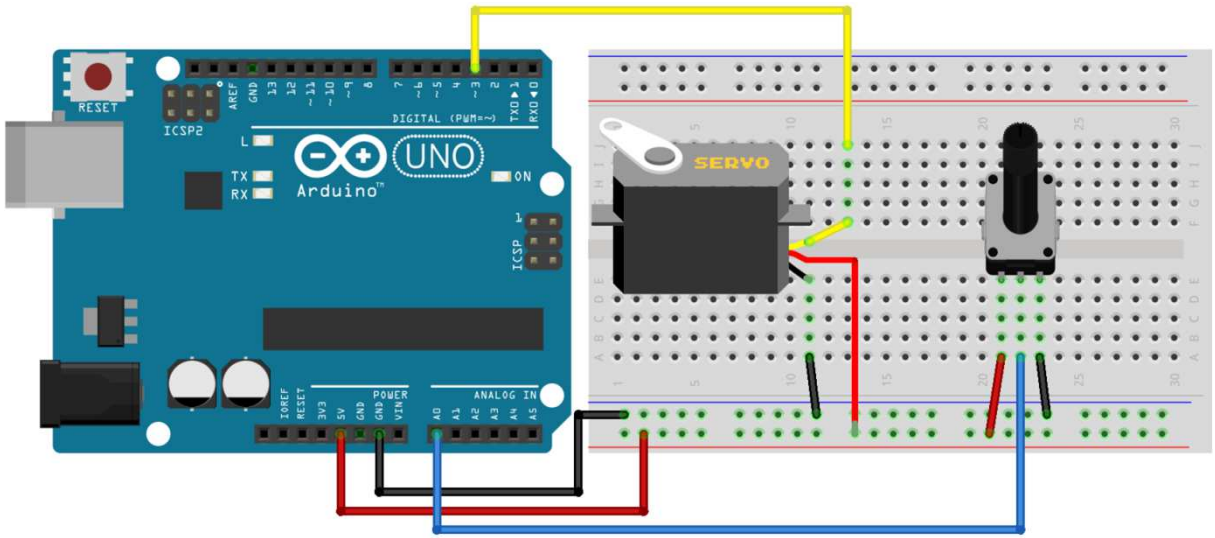


90°

180°

```
#include <Servo.h>
Servo servoInstance;
int ang = 0;
int increasing = 1;
void setup(){
  servoInstance.attach(3);
  Serial.begin(9600);
}
void loop(){
  if(increasing)
  ang ++;
  else
  ang --;
  Serial.println(ang);
  if(ang<=1){
    increasing=1;
    delay(20);
  }
  if(ang>=180){
    increasing=0;
    delay(20);
  }
  servoInstance.write(ang);
  delay(1);
}
```






```
#include <Servo.h>        //Incluimos la biblioteca
int pot = A0;             //Potenciómetro en PIN A0
int sg90_pin = 3;         //Servo en el PIN 3
int angle = 0;              //Variable para guardar ángulo de giro
Servo sg90;               //Variable para el servo
void setup(){
  sg90.attach(sg90_pin);  //Decimos a Arduino que controle el servo en
el PIN 3
}
void loop()
{
  int pot_value = analogRead(pot);            //Leemos valor de posición
del potenciómetro
  angle = map (pot_value,1023,0,180,0);       //Mapeamos valores de 0-
1023 a 0-180
  sg90.write(angle);                          //Posicionamos el servo en
el ángulo correspondiente
}
```