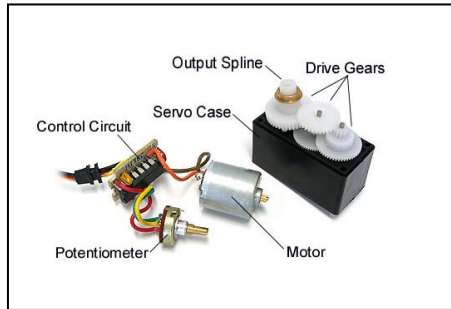# Projeto 15
Servo motores

Servo motors.
They are characterized by their momentum and their velocity.
The component parts of a servo motor are shown in the picture.

Servo-motors.

Servo motors work by applying control pulses to the control wire. They have tree wires with colors red (5V), yellow (pulses), brown or black (Ground). Servos have integrated gears and a shaft that can be precisely controlled.

Standard servos allow the shaft to be positioned at various angles, usually between 0 and 180 degrees. Continuous rotation servos allow the rotation of the shaft to be set to various speeds.

http://www.digitalnemesis.com/info/docs/rcservo/

Servos draw considerable power, so if you need to drive more than one or two, you will need to power them from a separate supply (i.e. not the +5V pin on your Arduino).
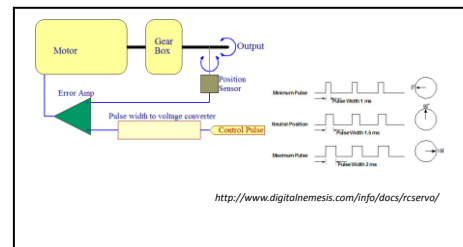
Project Servo
```
// Controlling a servo position using a potentiometer
// #include <Servo.h>
Servo myservo; // create servo object to control a
//servo
int potpin = 0; // analog pin used to connect the
//potentiometer
int val; // variable to read the value from the analog
//pin
void setup()
        { myservo.attach(9); // attaches the servo on
//pin 9 to the servo object
}
void loop()
        { val = analogRead(potpin);
// reads the value of the potentiometer (value between 0 and 1023)
val = map(val, 0, 1023, 0, 179);
// scale it to use it with the servo (value between 0 and 180)
myservo.write(val); // sets the servo position according to the scaled value
delay(15); // waits for the servo to get there
}
```
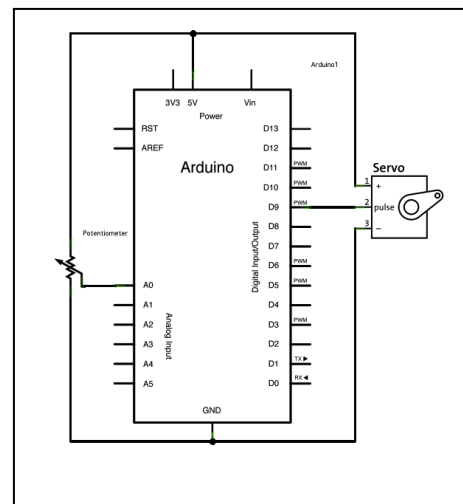----XX----XX

Projeto "varredura"

In this procedure the Arduino sweeps the shaft of a servo motor back and forth across 180 degrees.

```
// Sweep
// by BARRAGAN <http://barraganstudio.com>
// This example code is in the public domain.
#include <Servo.h>
Servo myservo; // create servo object to control a servo
int pos = 0; // variable to store the servo position
 void setup()
        {
myservo.attach(9); // attaches the servo on pin 9 to the servo object
}
void loop()
        {
        for(pos = 0; pos < 180; pos += 1)    // goes from 0 degrees to 180 degrees
                {// in steps of 1 degree
                myservo.write(pos); // tell servo to go to position in variable 'pos'
                delay(15); // waits 15ms for the servo to reach the position
        }
        for(pos = 180; pos>=1; pos-=1) // goes from 180 degrees to 0 degrees
                { myservo.write(pos); // tell servo to go to position in variable 'pos'
        delay(15); // waits 15ms for the servo to reach the position
        }
}
```