

Arduino 201

Nottinghack

Agenda

Recap

Shields

Libraries

Servos

Line Follower or your own project

Show and tell

Line follower speed test

Speed control

Pulse width modulation (PWM)

Drives motor at full voltage.

This gives high torque even at low speeds.

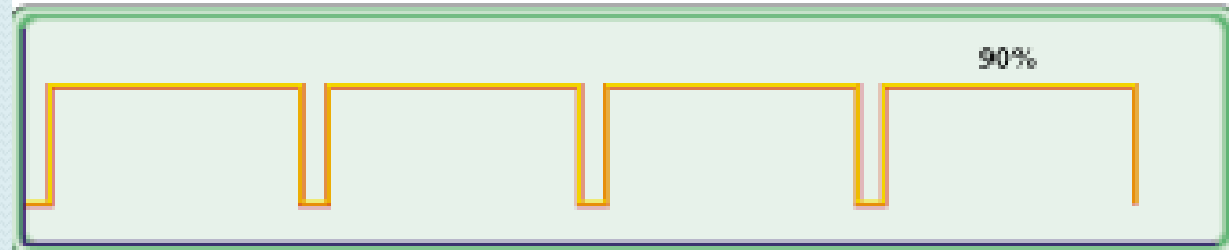
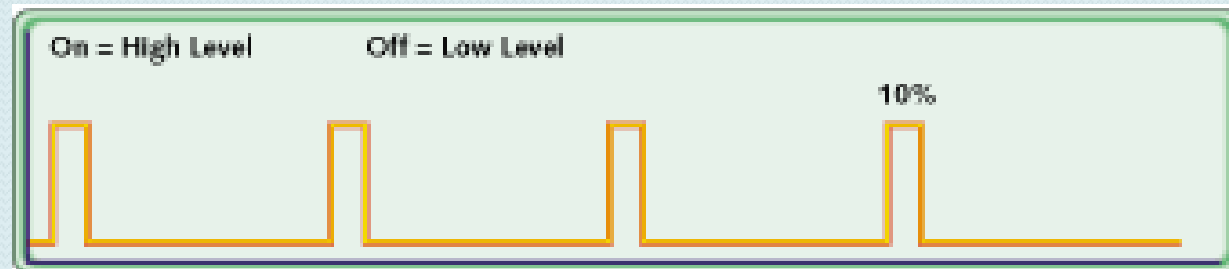
Used on Arduino pins

3, 5, 6, 9, 10, 11

Code:

```
analogWrite(pin,value);
```

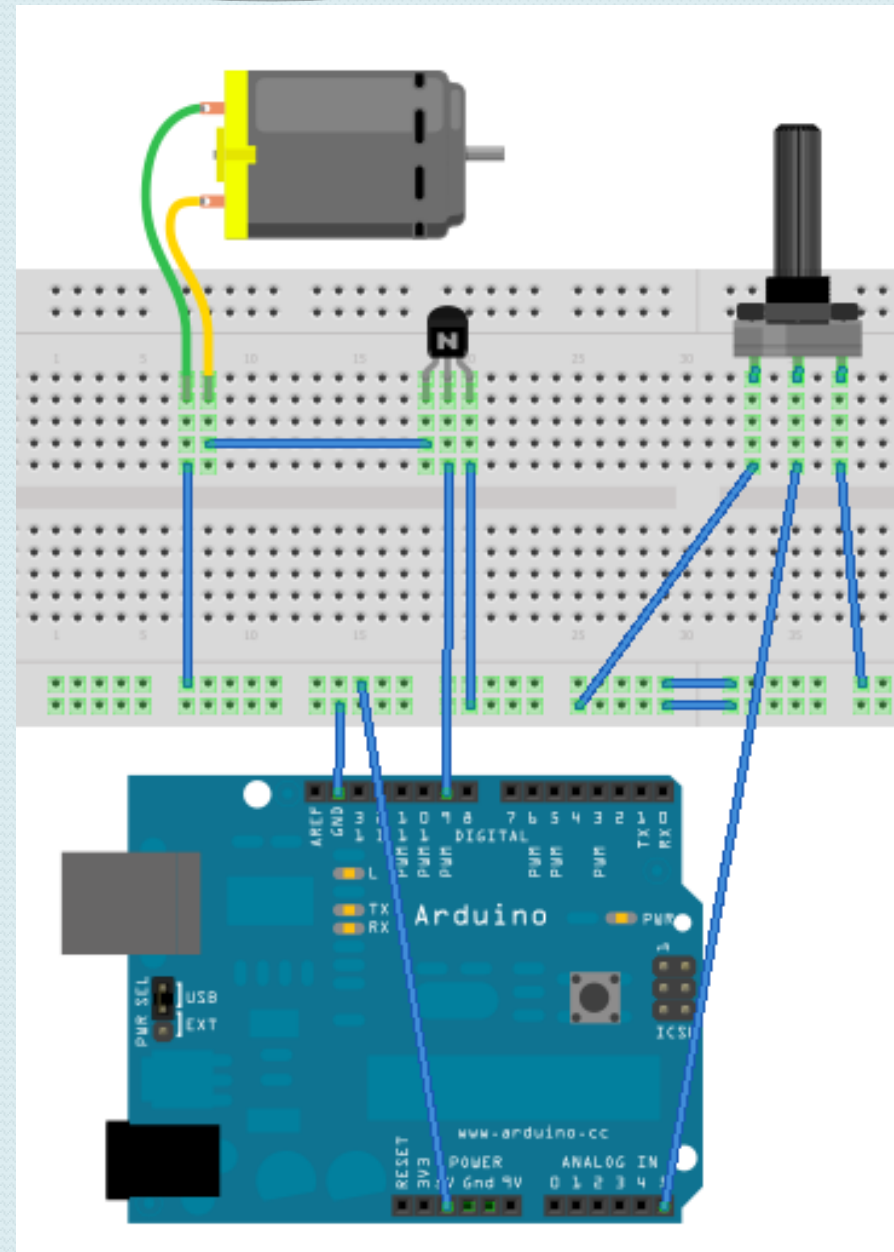
Value 0 - 255



Potentiometer

Speed control using potentiometer

```
void setup() {  
  pinMode(9,OUTPUT);  
}  
  
void loop() {  
  int light = analogRead(5);  
  analogWrite(9,light/4);  
}
```



Shields

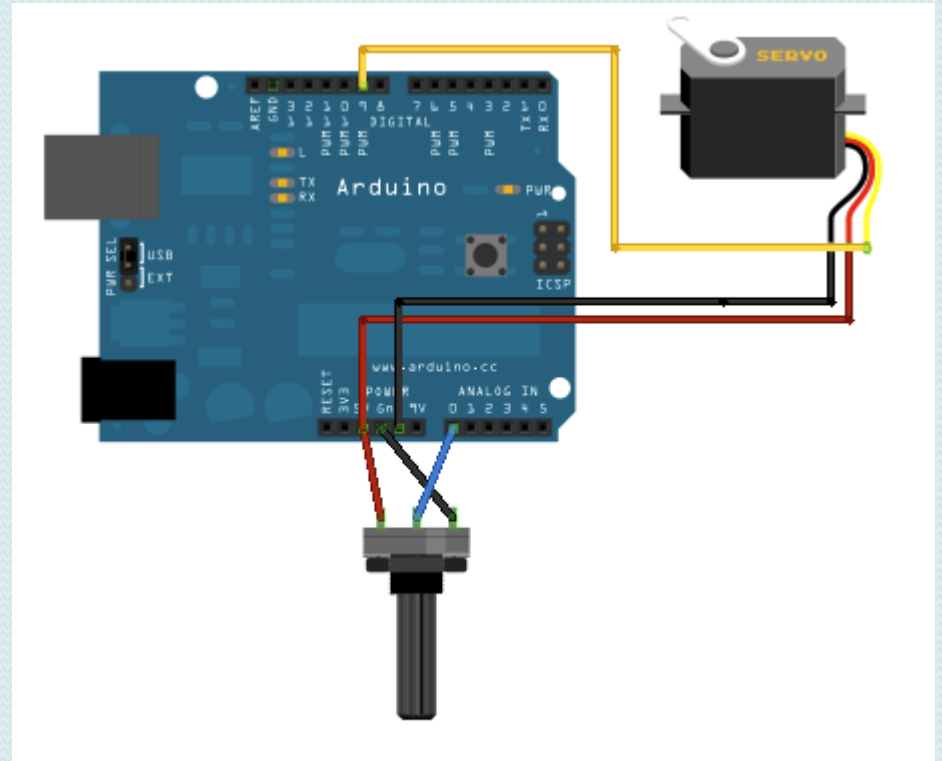
- Add on hardware for Arduino
- Many vendors
- Used for
 - Ethernet
 - Display
 - Motor control
 - Sound
 - ...
- Proto shield

Libraries

- Code written for you with an easy to use interface
- Usually (not always) associated with shields or other hardware.
- Examples:
 - Ethernet - for the Arduino Ethernet shield
 - SPI - Communications with SPI devices
 - Wire - Communications with I2C devices
 - Soft Serial - Communications with additional serial devices
 - Servo - control a servo motor

Library example – Servo

- Examples
 - Knob
- Including in a sketch



Project time

- Line follower, work in teams
 - Aim
 - SpurtBot project
 - Look at chassis design
 - Walk through the example code

