

/*

Fade

This example demonstrates how to use the Arduino to drive a range of loads (e.g. lamps, motors etc.) using pulse width modulation. It can be used to fade a lamp or vary the speed of a DC motor. The maximum current and voltage driven from the Arduino logic output becomes 12V 3A instead of just an LED . It uses pin 9 on the Arduino to drive any of the MOSFET switch circuit projects described in Semiconductors Module 6.4 downloadable from: www.learnabout-electronics.org/Semiconductors/fet_06a

The logic input terminals of any of the learnabout–electronics switch circuits can be connected between pin 9 and Gnd. The output of the switch circuit should be appropriately connected (for high side or low side switching) to a DC load, eg a 3A automotive lamp. The lamp and switch circuit board should have its own 12V 3A power supply as shown in the learnabout-electronics module 4.6 project sheets.

This Arduino sketch uses the analogWrite() function which uses PWM, so if you want to change the pin you're using, be sure to use another PWM capable pin. On most Arduino, the PWM pins are identified with a "~" sign, like ~3, ~5, ~6, ~9, ~10 and ~11.

This example code is in the public domain.

<http://www.arduino.cc/en/Tutorial/Fade>

*/

```
int led = 9;          // the PWM pin the LED is attached to
int brightness = 0; // how bright the LED is
int fadeAmount = 5;  // how many points to fade the LED by

// the setup routine runs once when you press reset:
void setup() {
  // declare pin 9 to be an output:
  pinMode(led, OUTPUT);
}

// the loop routine runs over and over again forever:
void loop() {
  // set the brightness of pin 9:
  analogWrite(led, brightness);

  // change the brightness for next time through the loop:
  brightness = brightness + fadeAmount;

  // reverse the direction of the fading at the ends of the fade:
  if (brightness <= 0 || brightness >= 255) {
    fadeAmount = -fadeAmount;
  }
  // wait for 30 milliseconds to see the dimming effect
  delay(30);
}
```