Arduino Notes

Windows Drivers

Windows cannot find the Arduino Uno drivers automatically. You need to find the device in control panel and browse to find the drivers manually. These are in the drivers folder of the Arduino installation folder.

Blinking program

All Arduino programs must have these 2 methods:

```
void setup()

{  }

void loop()

{  }
```


Compile and transfer to the Arduino,

Ensure the correct COM port is selected (try COM10)

Connections

The short LED leg is ground

1% tolerance resistors have 5 bands. The 1st 2 bands are the value of the resistor. The 3rs is the multiplier

	Value	10^x
Black	0	0
Brown	1	1
Red	2	2
Orange	3	3
Yellow	4	4
Green	5	5
Blue	6	6
Violet	7	7
Grey	8	8
White	9	9
Gold		-1
Silver		-2

Connect the breadboard through the ground and power (5V) pins on the power part of the Arduino board.

Only Arduino digital output pins marked with a ~ support pulse width modulation. For example pin 11

Switch program

```
//turn switch on and off

int switchPin=8;

int ledPin=13;

void setup()

{

  pinMode(switchPin,INPUT);

  pinMode(ledPin,OUTPUT);

}

void loop()

{

  if(digitalRead(switchPin)==HIGH)

  {

    digitalWrite(ledPin, HIGH);

  }
```

```
    else

    {

        digitalWrite(ledPin, LOW);

    }

}
```

This code turns the led on or off based on its last setting:

```
//turn switch on and off

int switchPin=8;

int ledPin=13;

boolean lastButton = LOW;

boolean ledOn = false;

boolean currentButton = LOW;

//stop switch from reacting too quickly

boolean debounce(boolean last)

{

  boolean current = digitalRead(switchPin);

  if (last != current) //if switch cahged states - delay

  {

      delay(5);

    current = digitalRead(switchPin);

  }

  return current;

}

void setup()

{

  pinMode(switchPin,INPUT);
```

```
  pinMode(ledPin,OUTPUT);

}

void loop()

{ //change currentButton value with delay

  currentButton=debounce(lastButton);

  if(lastButton == LOW  && currentButton == HIGH)

  {

    ledOn = !ledOn; //switch from false to true or vice versa

  }

  lastButton = currentButton;

  digitalWrite(ledPin, ledOn);

}
```
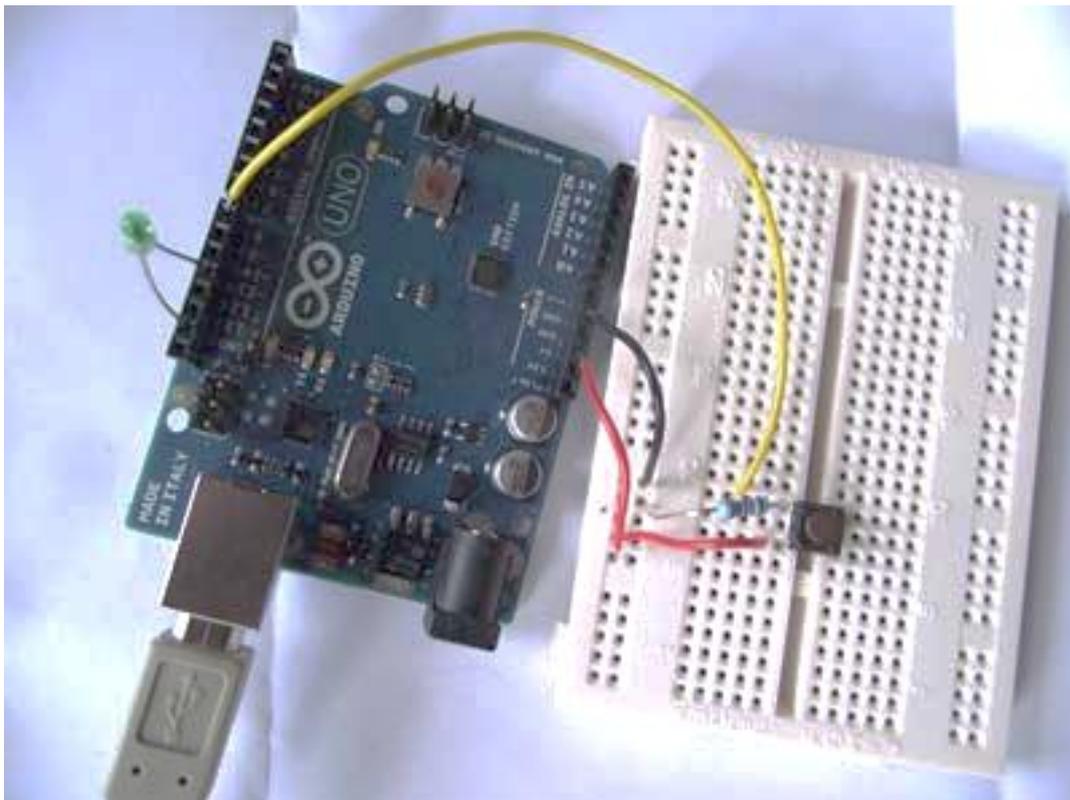

PWM example, note that the LED is on pin 11 as this supports PWM

```
//emulate PWN with switch

int switchPin=8;
```

```
int ledPin=11;

boolean lastButton = LOW;

int ledLevel = 0;

boolean currentButton = LOW;

//stop switch from reacting too quickly

boolean debounce(boolean last)

{

  boolean current = digitalRead(switchPin);

  if (last != current) //if switch cahged states - delay

  {

     delay(5);

    current = digitalRead(switchPin);

  }

  return current;

}

void setup()

{

  pinMode(switchPin,INPUT);

  pinMode(ledPin,OUTPUT);

}

void loop()

{ //change currentButton value with delay

  currentButton=debounce(lastButton);

  if(lastButton == LOW  && currentButton == HIGH)

  {

    ledLevel = ledLevel + 25; //increase in each clisk

  }
```

```
    if (ledLevel >255 ) ledLevel =0; //reset

    lastButton = currentButton;

    analogWrite(ledPin, ledLevel);

}
```

Word so far based on this tutorial:

http://www.youtube.com/watch?v=_LCCGFSMOr4&NR=1&feature=fvwp