Aberystwyth Robotics Club - Arduino Tutorials - Blink Tutorial

Introduction

This example shows the simplest thing you can do with an Arduino or Genuino to see physical output: it blinks the on-board LED.

Hardware Required

- Arduino or Genuino Board optional
- LED
- 220 ohm resistor

Circuit

To build the circuit:

1. **Connect one end of the resistor to Arduino pin13.**

2. **Connect the long leg of teh LED (the positive leg, called the anode) to the other end of the resistor.**

3. **Connect the short leg of the LED (the negative leg, called the cathode) to the Arduino GND, as shown in the diagram and schematic below.**

Circuit and Schematic `https://www.arduino.cc/en/tutorial/blink`
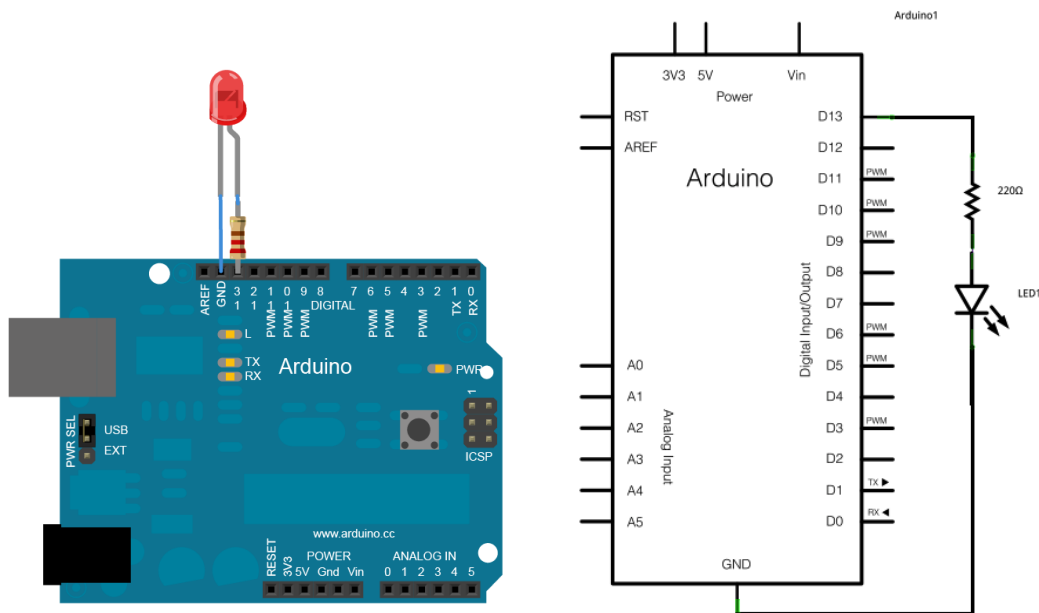
Most Arduino boards already have an LED attached to pin 13 on the board itself. If you run this example with no hardware attached, you should see that LED blink.

The value of the resistor in series with the LED may be of a different value than 220 ohm; the LED will light up also with resistor values up to 1k ohm.

Code

After you build the circuit plug your Arduino or Genuino board into your computer, start the Arduino Software (IDE) and enter the code below (`https://www.arduino.cc/en/tutorial/blink`). You may also load it from the menu File/Examples/01.Basics/Blink .

1. **Initialize pin 13 as an output pin with the line:**

```
pinMode(13, OUTPUT);
```

2. **In the main loop, turn the LED on with the line:**

```
digitalWrite(13, HIGH);
```

   This supplies 5 volts to the LED anode. That creates a voltage difference across the pins of the LED, and lights it up.

3. **Turn it off with the line:**

```
digitalWrite(13, LOW);
```

That takes pin 13 back to 0 volts, and turns the LED off. In between the on and the off, you want enough time for a person to see the change, so the delay() commands tell the board to do nothing for 1000 milliseconds, or one second. When you use the delay() command, nothing else happens for that amount of time.

Once you've understood the basic examples, check out the BlinkWithoutDelay example to learn how to create a delay while doing other things.

```
void setup () {
    pinMode(13, OUTPUT); // initialize digital pin 13 as an output .
}

void loop () { // the loop function runs over and over again forever
    digitalWrite(13, HIGH); // turn the LED on
    delay(1000); // wait for a second
    digitalWrite(13, LOW); // turn the LED off
    delay(1000); // wait for a second
}
```

Ver. 0.2