DOP: /   /2023   DOS: / /2023

Experiment No: 02
Arduino Blink Example

Aim: To get familiar with Arduino IDE by blinking LED using Arduino Uno R3.

Hardware Components & Services Required:
- Arduino IDE
- Arduino UNO R3
- Jumper Wire
- 1 LED
- 1 x 1kΩ Resistor
- Breadboard

Theory:

The Arduino Software (IDE) allows you to write programs and upload them to your board. Download the Arduino IDE from https://www.arduino.cc/en/Main/Software and install it. Following is how Arduino IDE looks like.

Follow these steps to upload your sketch:

1. Connect your Arduino using the USB cable. The square end of the USB cable connects to your Arduino and the flat end connects to a USB port on your computer.

2. Choose Tools→Board→Arduino Uno to find your board in the Arduino menu. You can also find all boards through this menu, such as the Arduino MEGA 2560 and Arduino Leonardo.

3. Choose the correct serial port for your board. You find a list of all the available serial ports by choosing

Tools→Serial Port→ comX or /dev/tty.usbmodemXXXXX. X marks a sequentially or randomly assigned

number. In Windows, if you have just connected your Arduino, the COM port will normally be the highest number, such as com 3 or com 15.Many devices can be listed on the COM port list, and if you plug in multiple Arduinos, each one will be assigned a new number. On Mac OS X, the /dev/tty.usb modem number will be randomly assigned and can vary in length, such as/dev/tty.usbmodem1421 or /dev/tty.usbmodem262471. Unless you have another Arduino connected, it should be the only one visible.
4. Click the Upload button.This is the button that points to the right in the Arduino environment. You can also
use the keyboard shortcut Ctrl+U for Windows or Cmd+U for Mac OS X.

Note: The verify button only compiles the code but the upload button compiles and uploads
the code on Arduino.

LED

LEDs (that's "ell-ee-dees") are a particular type of diode that convert electrical energy into light. In fact, LED stands for "Light Emitting Diode."
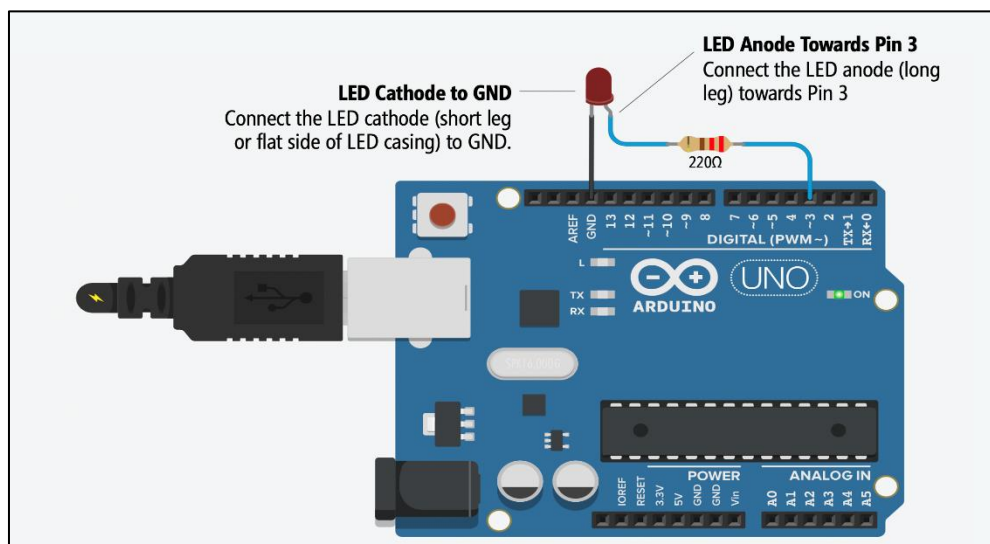
The positive side of the LED is called the "anode" and is marked by having a longer "lead,"or leg. The other, negative side of the LED is called the "cathode." Current flows from the anode to the cathode and never the

opposite direction. A reversed LED can keep an entire circuit from operating properly by blocking current flow.

Breadboard:
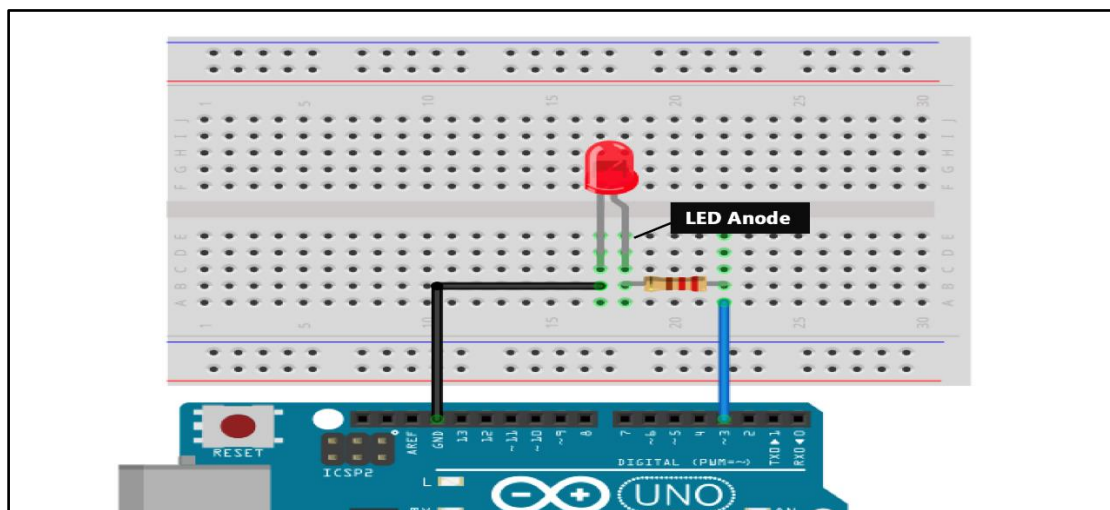
Circuit Connection:

Code:
```
// the setup function runs once when you press reset or power the board
void setup() {
// initialize digital pin 13 as an output.
pinMode(13, OUTPUT);
}
// the loop function runs over and over again forever
void loop() {
digitalWrite(13, HIGH); // turn the LED on (HIGH is the voltage level)
delay(1000); // wait for a second
digitalWrite(13, LOW); // turn the LED off by making the voltage LOW
delay(1000); // wait for a second
}
```

Result:
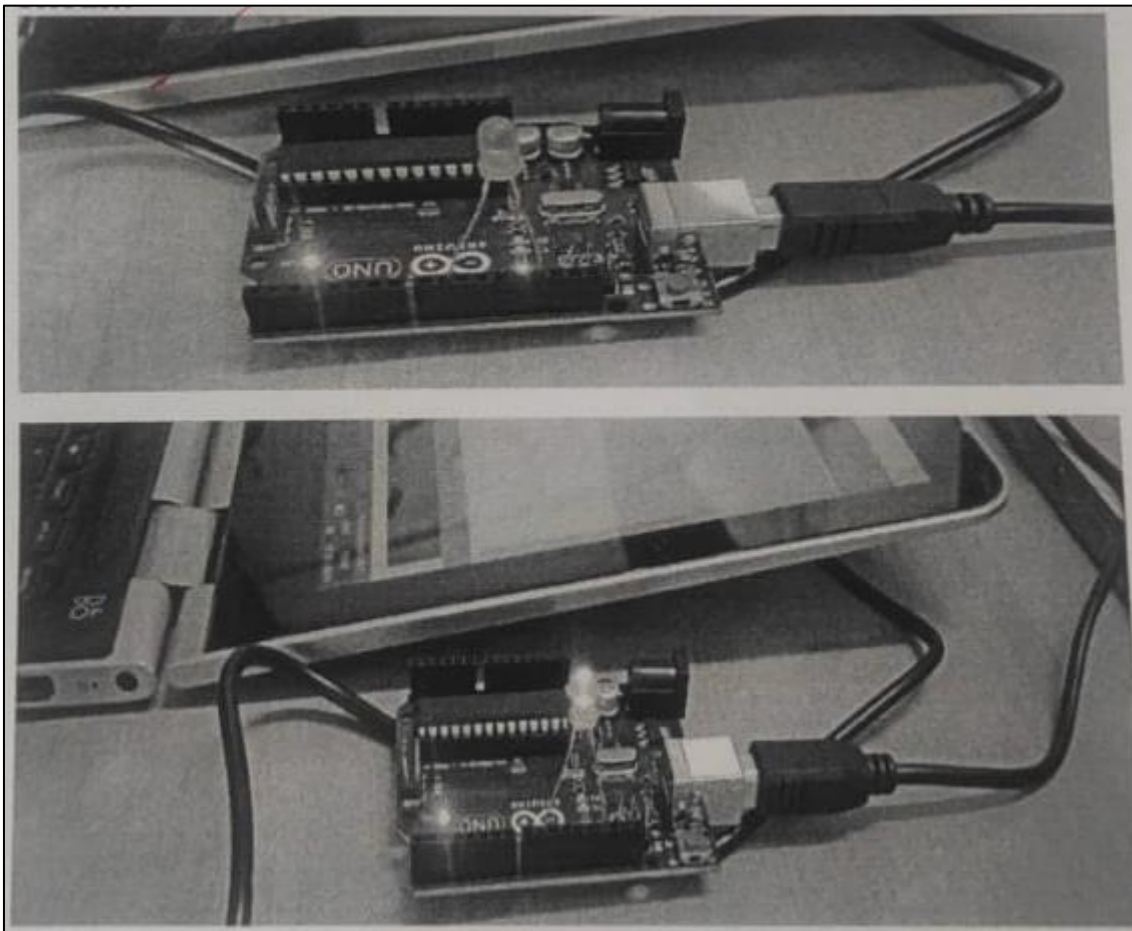
Conclusion:

Thus, we to get familiar with Arduino IDE by blinking LED using Arduino Uno R3.