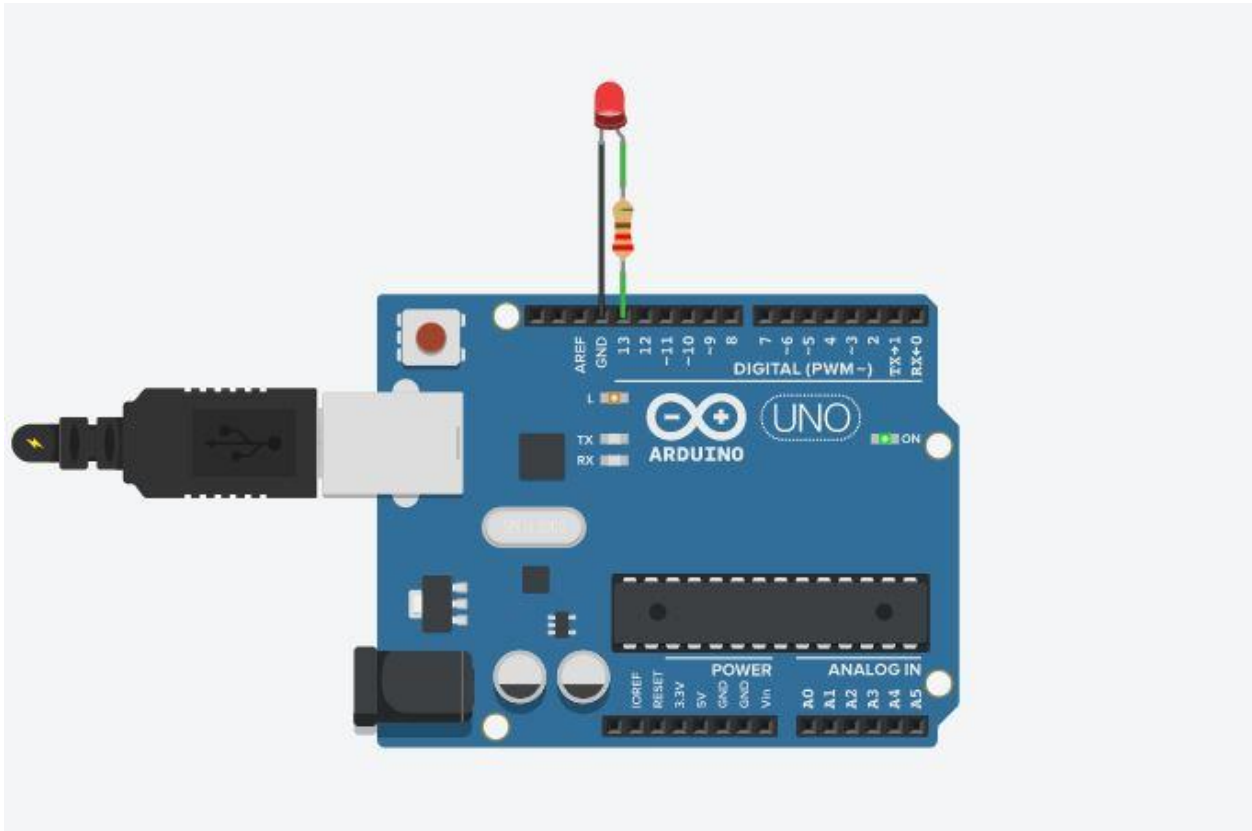Exp1

Circuit Daigram

Theory

Concepts used:

Here, just a few basic concepts are used as listed:

1. The LED
2. Connection of Arduino uno circuit board
3. The code used to program the micro-controller

The 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." LEDs are like tiny lightbulbs. However, LEDs require a lot less power. LEDs have two terminals. 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.

Connection of Arduino uno circuit board

Positive terminal of the LED is connect to digital pin 13 which is programmed to give the output or current which lights up the LED. The negative terminal of the LED is connected to the ground pin of Arduino uno, so as to provide a return path way for current.

The code used to program the micro-controller

LED flasher the code provides instructions which results in lighting up of LED for 1 second and then dimming down of the LED for 1 second. This process is repeated to give the effects of flashing, until the power supply to Arduino stops.

Learnings and Observations

In the above experiments we learnt the following:

1. Basic circuit building with Arduino uno.
2. Interfacing an LED with Arduino uno.

Few observations are noticeable after modifying the code a little bit:

1. When the delay was changed from 1000ms to 200ms, the blinking of LED became faster but still observable that it turns on and off
2. When the delay was changed from 200ms to 60ms, then the LED does not blink further, it appears as it stays on because the changes at that speed can't be detected by our eye.

Precaution

1. The LED should not be connected in reversed direction because it will block the whole circuit.

Learning Outcomes

Via this activity we learnt and acquire skills about:

1. The application and usage of digital input/output pins of Arduino uno.
2. The working of LEDs and their interfacing with Arduino Uno.
3. Understanding and writing the basic code in Arduino IDE.