International Centre for Free and Open Source Software

Arduino LED Blinking

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1 INTRODUCTION

This project aims to demonstrate the basic functionality of an Arduino Uno by blinking an LED connected to it. By controlling the LED to turn on and off at regular intervals, we can create a simple yet effective visual indication.

2 COMPONENTS USED

2.1 Hardware Components:

2.1.1 Arduino Uno:

- Includes 14 digital pins and 6 analog pins.
- Operates at a voltage of 5V.
- Microcontroller: ATmega328P
- Uses the ATmega328P microcontroller.
- Runs at a clock speed of 16MHz.

2.1.2 LEDs

- Light-emitting diodes.
- Typically operate at a voltage of around 2-3 volts.
- Require a current-limiting resistor to prevent damage.

2.1.3 Resistor:

- 330 Ohm resistors.
- Used for current limiting with LEDs.

2.2 Software Components:

2.2.1 Arduino IDE:

- Integrated Development Environment (IDE) for Arduino boards.
- Provides a user-friendly interface for writing, compiling, and uploading code to the Arduino Uno.
- Offers a wide range of built-in functions and libraries for interfacing with hardware components.

3 HARDWARE CONNECTIONS SETUP

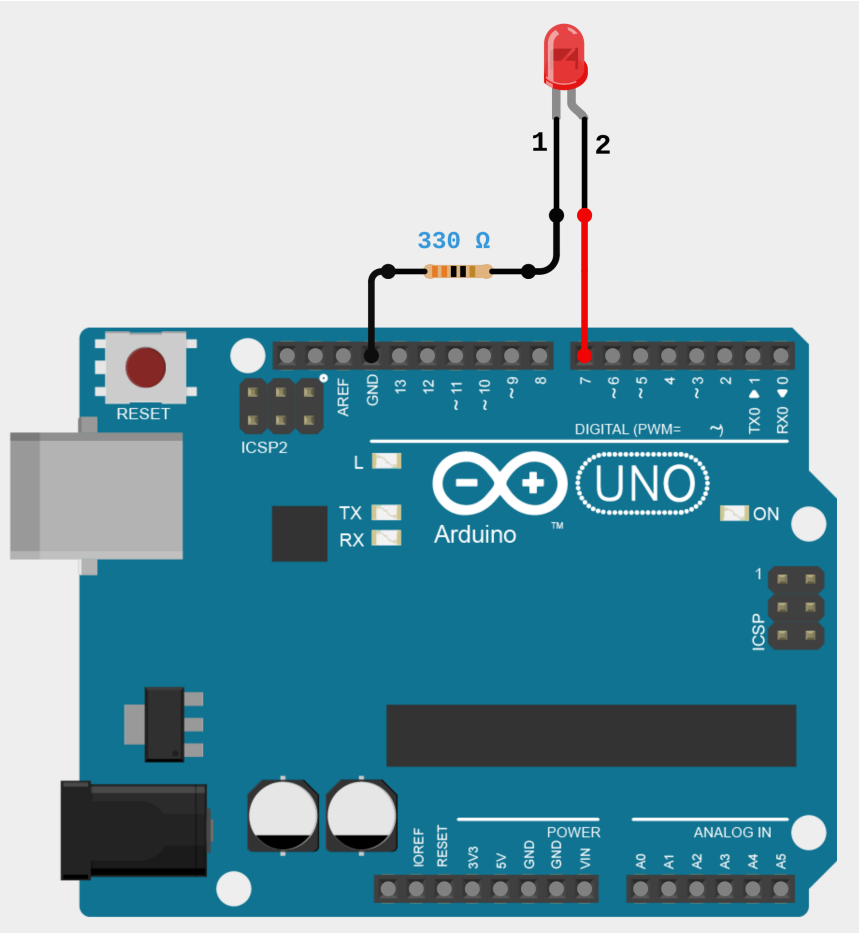

Figure 2: Hardware Connections Setup Circuit Diagram

1. Connect the negative (-) leg of the LED to the ground (GND) of the Arduino Uno through a 330 Ohm resistor.

2. Connect the positive (+) leg of the LED to digital pin 7 of the Arduino Uno.

4 RESULT

The Arduino Uno successfully controlled the LED connected to digital pin 7, causing it to blink on and off at regular intervals of 2 seconds. The blinking pattern followed the Arduino sketch provided, with the LED turning on for 2 seconds and then turning off for 2 seconds in a continuous loop. This behavior demonstrated the basic functionality of the Arduino Uno in controlling external components with precise timing.