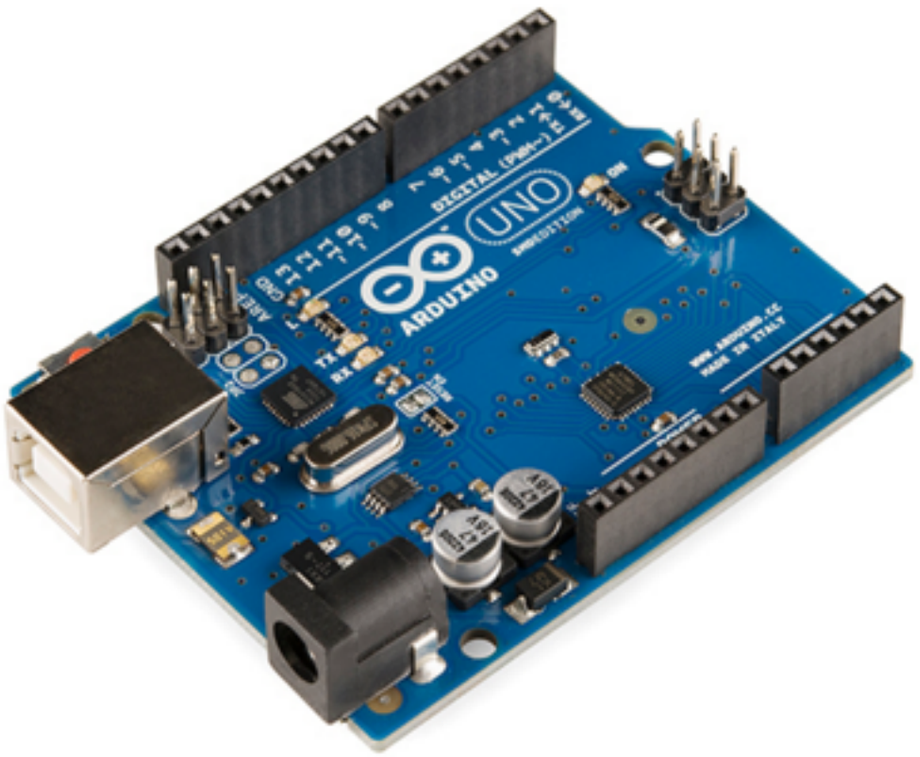
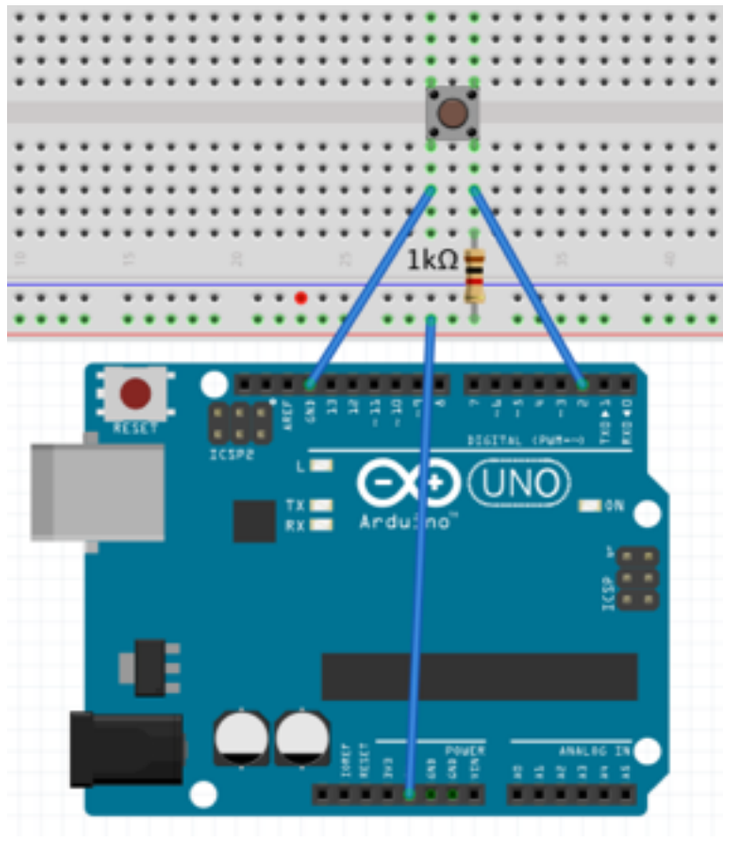




Arduino Bootcamp : From Novice to Professional - Learning Through Projects

LED Reaction Game - Interrupt Demo - Part 1

Project Objectives

- In this project you will learn:
  - What are interrupts
  - How to set up an interrupt in Arduino using the attachInterrupt() function
  - Reacting to interrupts

Parts

- Arduino Uno
- USB A-B cable
- Breadboard
- 1k Ω resistor
- Push button switch
- Connecting wires

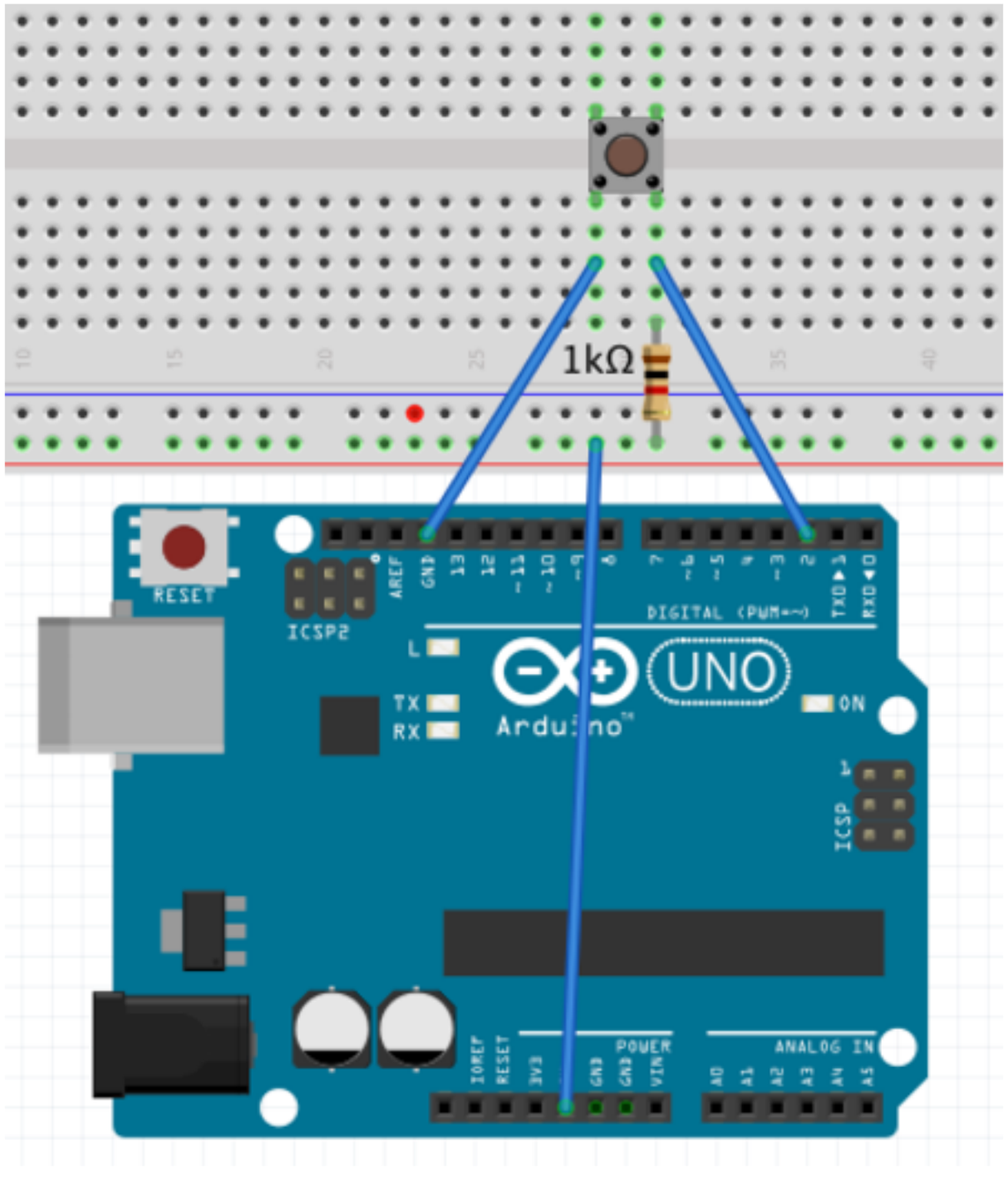
What are interrupts?

- Used to make things happen automatically in micro controller programs
- Can help solve timing problems
- Good uses for interrupts
  - Reacting to user inputs
  - Giving priority to important processes
  - Better use of resources instead of polling

Interrupts in Arduino

- ISRs (Interrupt service routines) cannot accept any parameters or return values
- Should be short and fast as possible
- Only one ISR can run at a time
    - Others will be executed once the current interrupt finishes
- time functions (millis() and delay()) will not work in an ISR since those rely on interrupts to function
- Global variables are used to pass information between ISRs and the main program
- Use *volatile* to ensure that variables are shared between the main program and ISR

Circuit Diagram



Summary

- In this project you learnt:
  - What are interrupts
  - How to configure and set up an interrupt in Arduino using attachInterrupt()