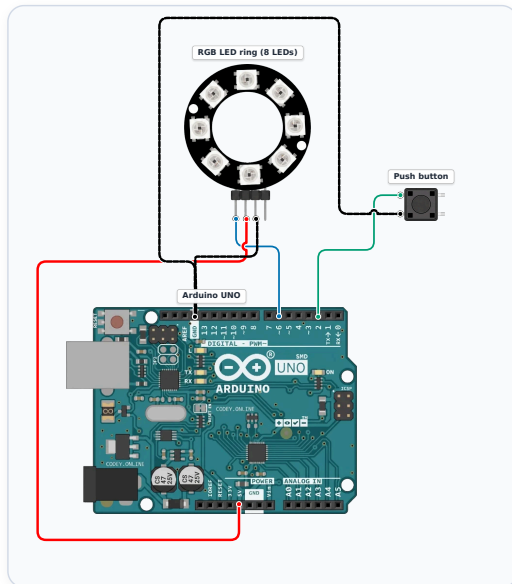


★★ Advanced beginner ⌚ 15 minutes

Electronic dice

You make a dice made of light. Press the button: the lights roll for a moment, and then you see what you rolled. 1 to 6 lights!

Wiring diagram



What do you need?



1× Arduino UNO



1× Push button



1× RGB LED ring (8 LEDs)



USB cable + Jumper wires

This is how you build it

1. Place the push button across the gap in the breadboard: one leg to pin 2, and a leg on the other side to GND.
2. Connect the LED ring: DI to pin 6, 5V to 5V, and GND to GND.

The code

```
// Electronic dice
// Press the button: the LED ring rolls for a moment and then lights
up 1 to 6 LEDs.

#include <Adafruit_NeoPixel.h>

const int BUTTON_PIN = 2; // Push button on pin 2 (other side to
GND)
const int RING_PIN = 6; // DI of the LED ring on pin 6
const int NUM_LEDS = 8;

Adafruit_NeoPixel ring(NUM_LEDS, RING_PIN, NEO_GRB + NEO_KHZ800);

// Light up a number of LEDs in one color
void showNumber(int number, uint32_t color) {
  ring.clear();
  for (int i = 0; i < number; i++) {
    ring.setPixelColor(i, color);
  }
  ring.show();
}

void setup() {
  pinMode(BUTTON_PIN, INPUT_PULLUP);
  randomSeed(analogRead(A0)); // Makes the dice truly random
  ring.begin();
  ring.setBrightness(50);
  ring.show();
}

void loop() {
  if (digitalRead(BUTTON_PIN) == LOW) {
    // A short "roll": quickly changing numbers, a bit slower each
    time
    for (int i = 0; i < 15; i++) {
      showNumber(random(1, 7), ring.Color(0, 80, 255));
      delay(40 + i * 10);
    }
    int roll = random(1, 7); // A number from 1
    to 6
    showNumber(roll, ring.Color(0, 255, 60)); // The real number
    in green
    delay(500);
  }
}
```

What does the code do?

- `random(1, 7)` chooses a random number from 1 to 6.
- First we show fast-changing numbers in blue. This makes it look like the dice is rolling.
- Then `showNumber()` shows the real number in green.

Try this...

- Give each number its own color
- Make a buzzer beep briefly when the dice stops
- Make it a dice from 1 to 8

🚀 Build this project with Codey: open codey.online/starter-kits/uno/projects/dice and click MAKE THIS. Then the code and the wiring diagram are ready right away.