
Digital Dice using ATtiny85

Objective:
Simulate a 6-sided dice using LEDs and a button, with ATtiny85 acting as the controller.

Components Required:

- ATtiny85 microcontroller
- 7 LEDs (to represent numbers 1–6 in dice dot patterns)
- 7 Resistors (220Ω for LEDs)
- Push button (to roll the dice)
- Breadboard & jumper wires
- Power source (battery or USB)
- Programmer (e.g., USBasp or Arduino as ISP)

Circuit Overview:

- LEDs are arranged like a dice face layout (similar to a 7-segment display).
- The button is connected to a digital input pin with a pull-down or pull-up resistor.
- Pressing the button generates a **random number from 1 to 6**, and the corresponding LED pattern lights up.

Working Principle:

- When the button is pressed, ATtiny85 generates a **pseudo-random number** using a random function.
- Based on the number, it turns on a specific pattern of LEDs resembling the face of a dice.
- Optional: Add a short animation before the result to simulate the “rolling” effect.

Use Cases:

- Mini game projects
- Pocket-size electronic dice
- Learn about random number generation and output control
