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**Smart Hand Sanitizer Dispenser**

**Objective:**
Create a **touchless** hand sanitizing system using sensors and a pump, ideal for hygiene and automation.

**Components Required:**

- Arduino Uno or ATtiny85
- Ultrasonic sensor (HC-SR04) or IR proximity sensor
- Small DC pump or servo motor
- Relay module or transistor (to control the pump)
- Power supply (battery or adapter)
- Tubing and sanitizer container

**Working Principle:**

- The **sensor** detects when a hand is placed near the dispenser (typically within 10–15 cm).
- Arduino processes the sensor signal and **activates the pump** or servo for a short time.
- The pump dispenses a fixed amount of sanitizer automatically, with **no touch required**.
- A delay is used to prevent multiple triggers in quick succession.

**Use Cases:**

- Public places, schools, hospitals
- Home and office entrances
- DIY hygiene automation projects

**Benefits:**

- Promotes hygiene
- Reduces the spread of germs
- Saves sanitizer by controlling quantity

**Upgrade Ideas:**

- Add an LCD to show usage count
- Add a sound or LED indicator
- Make it solar-powered or rechargeable

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