SMART HOME AUTOMATION

Pet feeder automation system

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PET FEEDER AUTOMATION SYSTEM

SMART HOME AUTOMATION PROJECT

OBJECTIVE

To create a system that automatically dispenses pet food at scheduled times or when triggered manually or via a mobile app.

The objective of the **Pet Feeder Automation System** is to:

Automate the Feeding Process

- Dispense pet food automatically at scheduled times without manual effort.

Ensure Proper Portion Control

- Deliver the right amount of food to avoid overfeeding or underfeeding.

Improve Convenience for Pet Owners

- Help busy or traveling owners manage pet feeding remotely or hands-free.

Enhance Pet Health and Routine

- Maintain consistent feeding times to support a healthy lifestyle for pets.

CIRCUIT OVERVIEW

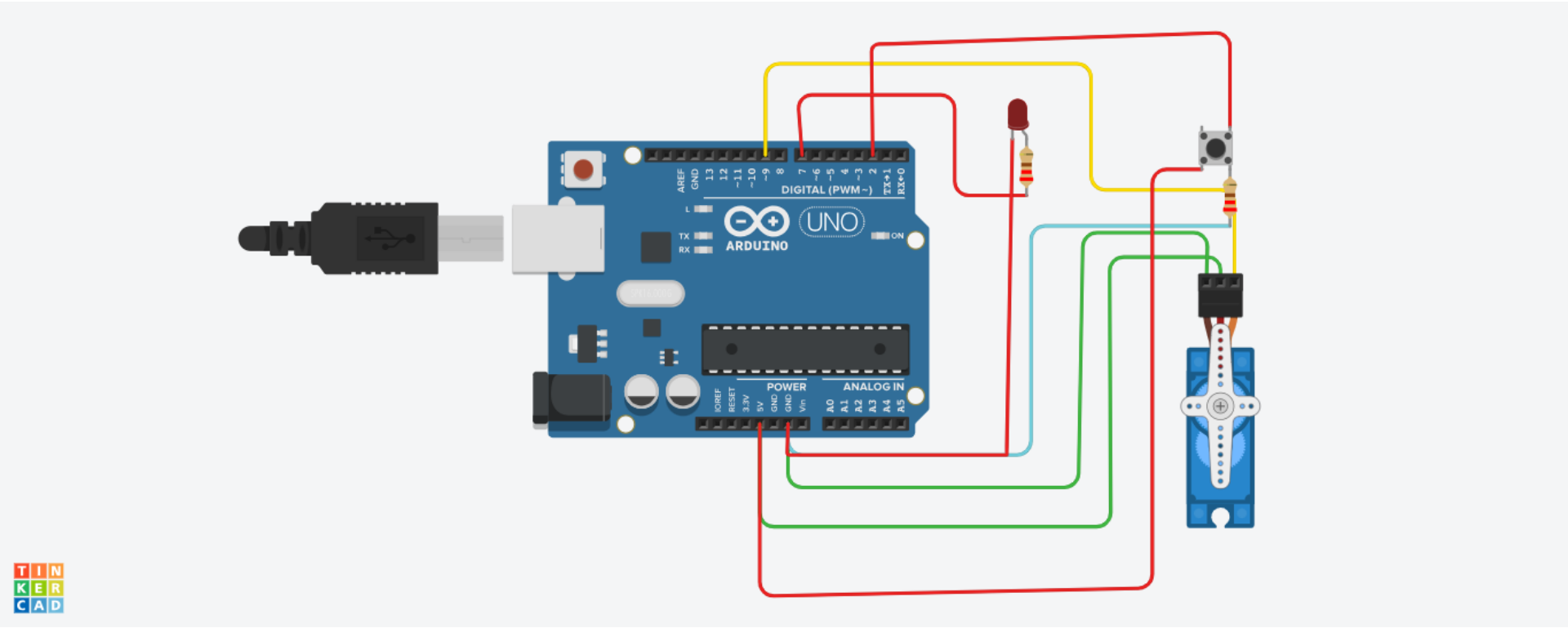
- Servo connected to pin D9 of Arduino
- Optional push button connected to digital pin with pull-up
- System runs on external adapter or 9V battery
- Can use ESP32 for IoT features (mobile control)

COMPONENTS USED

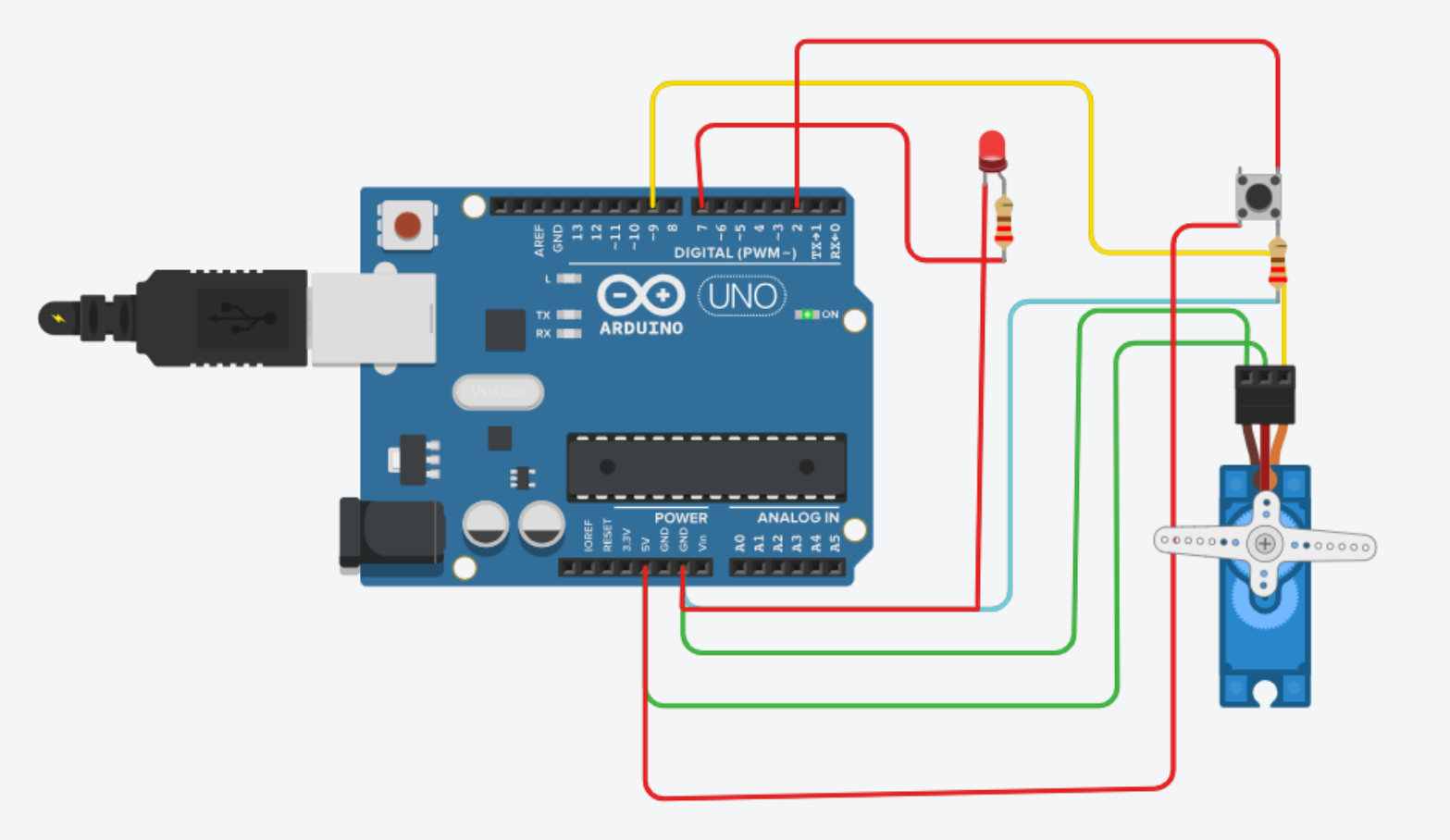
- Arduino Uno or ESP32
- Servo Motor (SG90 or MG995)
- Push Button
- LCD Display (optional)
- Buzzer or LED (optional)
- Power Supply
- Jumper Wires, Breadboard

CIRCUIT

(Before simulation)



(After simulation)



```
#include <Servo.h>
Servo feederServo;
const int buttonPin = 2;
const int ledPin = 7;
int buttonState = 0;
void setup() {
  feederServo.attach(9);       // Attach servo to pin 9
  pinMode(buttonPin, INPUT);
  pinMode(ledPin, OUTPUT);
  feederServo.write(0);        // Start at 0 degrees
}
void loop() {
  buttonState = digitalRead(buttonPin);
 if (buttonState == HIGH) {
    digitalWrite(ledPin, HIGH);    // Turn ON LED
    feederServo.write(90);         // Rotate to 90° (drop food)
    delay(1000);                   // Wait for servo to rotate
    feederServo.write(0);          // Return to start position
    digitalWrite(ledPin, LOW);     // Turn OFF LED
    delay(3000);                   // Delay to avoid multiple triggers
  }
}
```

WORKING PRINCIPLE

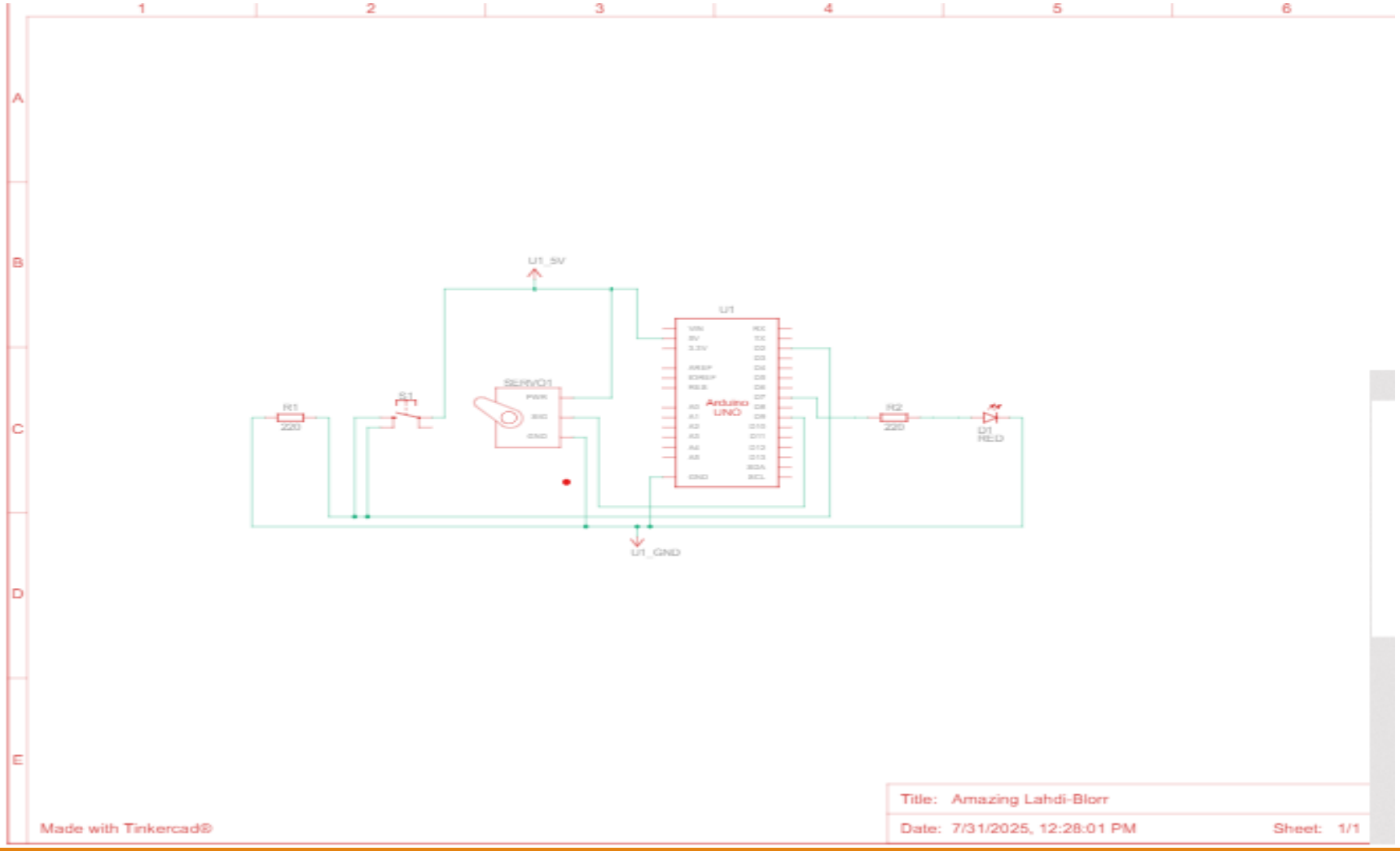
The pet feeder smart automation system works by using a microcontroller such as an Arduino or NodeMCU to control the feeding mechanism based on programmed time intervals.

When the predefined interval passes—such as every 6 or 8 hours —the microcontroller activates a motor (usually a servo or stepper) which rotates a container or gate to dispense a fixed amount of pet food. Once the food is dispensed, the motor resets to its original position, and the timer is restarted

. The system may also include a manual feed button that allows the user to trigger food dispensing on demand.

While this method is effective for simple automation, it lacks real-time accuracy and resets every time the power is turned of making it more suitable for short-term or demonstration purposes.

SCHEMATIC DIAGRAM



ADVANTAGES

- **Convenience**

Eliminates the need for manual feeding, saving time and effort.

- **Remote Access (in IoT-enabled versions)**

Allows users to monitor and control feeding schedules using a smartphone or web interface.

- **Timely Feeding**

Automatically feeds pets at regular intervals, even when the owner is busy or not at home

- **Consistent Routine for Pets**

Maintains a steady feeding schedule, which helps improve pets' digestion and overall health.

- **Portion Control**

Dispenses a fixed amount of food, preventing overfeeding or underfeeding.

APPLICATIONS AND FUTURE SCOPE

- Ideal for homes with pets (dogs, cats, birds)
- Can include camera to monitor pet
- Add mobile notifications or voice alerts
- Include food level sensing for refilling reminders

CONCLUSION

- **The smart pet feeder is a simple yet effective solution for pet care.**
- **It brings convenience, reliability, and better health management for pets.**
- **A practical example of home automation improving daily life**.

THANKYOU