PREDEFINED HARDWARE

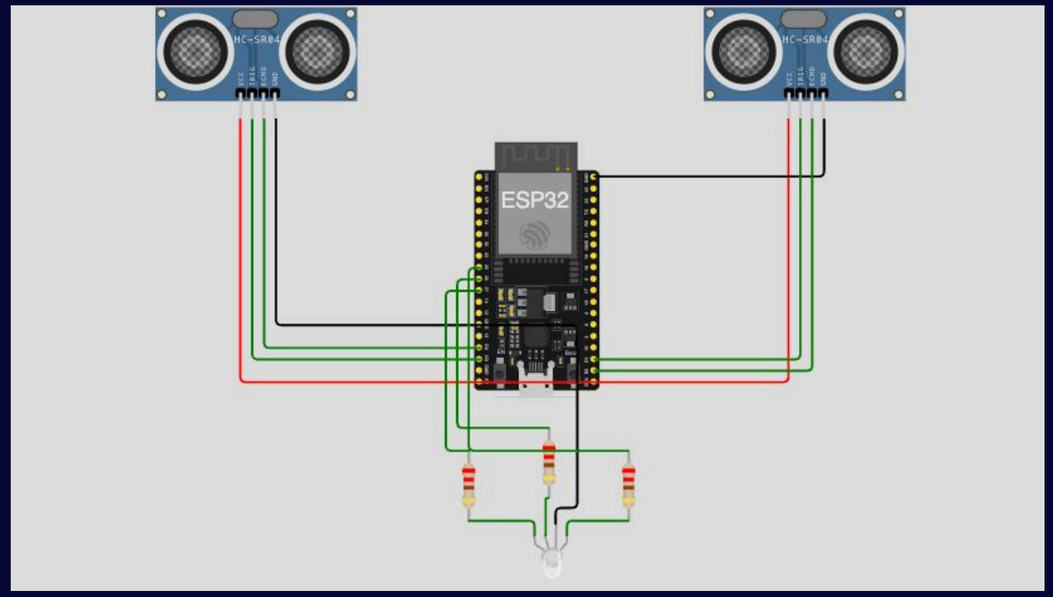
FANOUT

ABHAY 20245003 SARTHAK 20244145 SHREYANSH 20244154 VARUNVEER 20244172

GESTURE CONTROLLED MEDIA REMOTE

ENABLING SEAMLESS, TOUCH-FREE CONTROL THROUGH INTELLIGENT GESTURE RECOGNITION.

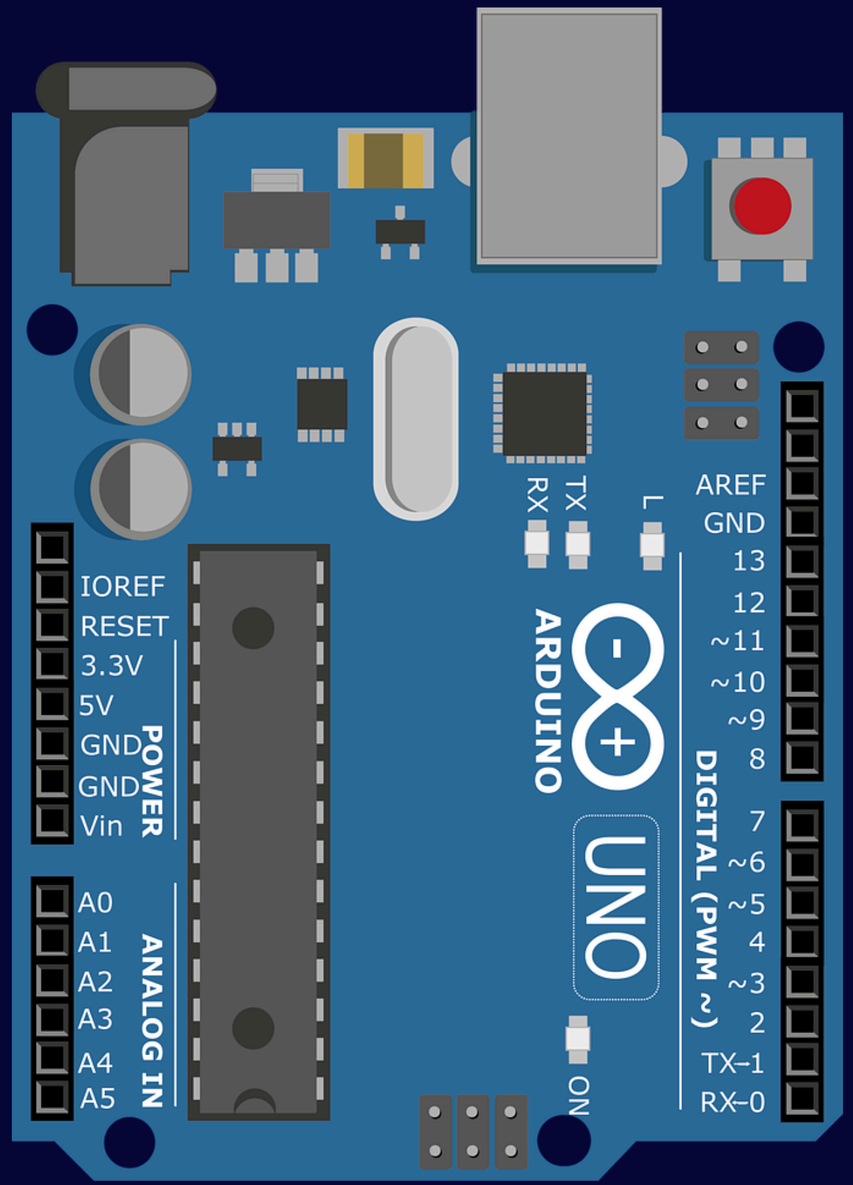
The Gesture Controlled Media Remote enables hands-free operation of digital devices using intuitive motion-based inputs. By integrating sensors such as ultrasonic modules and accelerometers with an Arduino controller, the system interprets user gestures into actionable commands, allowing seamless control of media playback, volume, and interactions without physical contact.



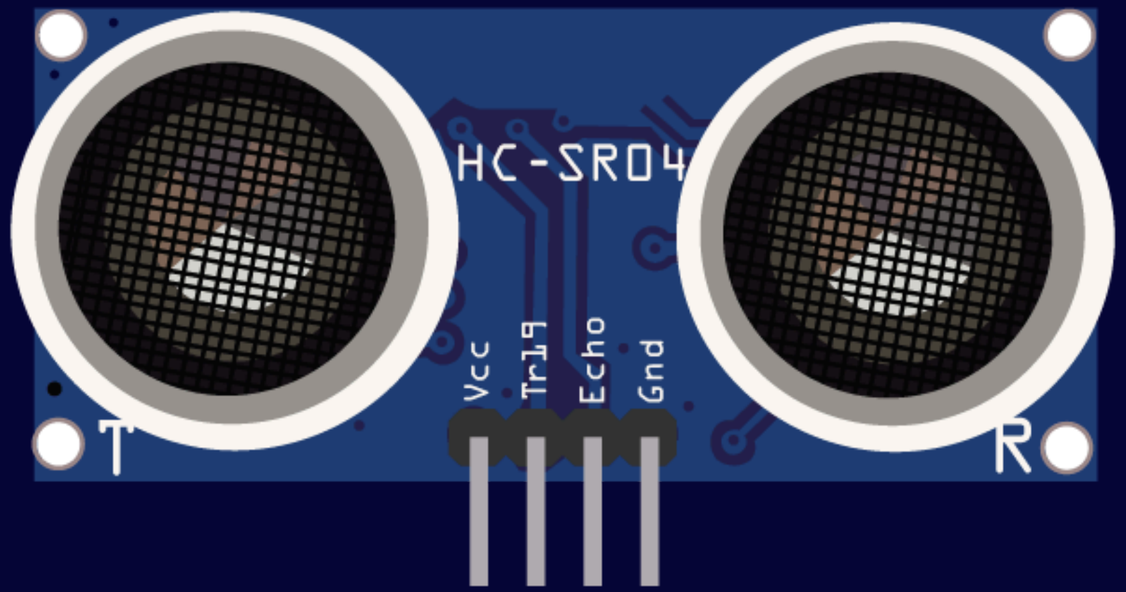
ARDUINO UNO

THE INTELLIGENT CORE

Arduino Uno powers the entire gesture-control ecosystem, orchestrating every sensor reading with precision. Acting as the central decision engine, it transforms subtle hand motions into real-time media commands, delivering a seamless, futuristic, and responsive interaction experience.



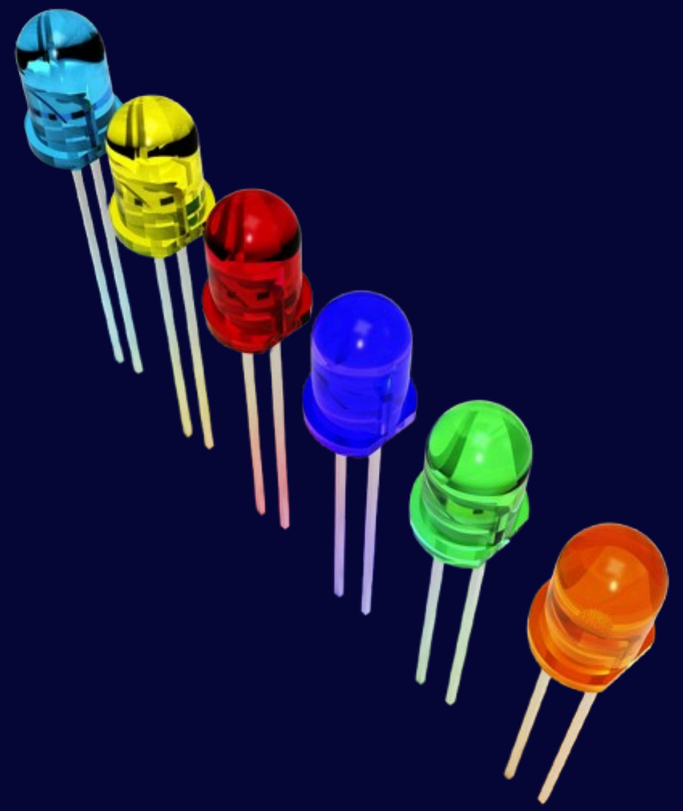
ULTRASONIC SENSOR HC-SR401



THE MOTION PERCEPTION UNIT

The ultrasonic sensor functions as the system's advanced vision module, detecting hand distance through high-frequency echoes. Its rapid, accurate readings enable smooth swipe, hold, and gesture recognition, forming the backbone of touch-free media navigation.

LED / RGB LED



THE DYNAMIC FEEDBACK DISPLAY

LEDs infuse the system with vibrant visual cues, instantly reflecting modes, gestures, and system status. Their bright, dynamic glow enhances user interaction, creating a visually rich and intuitive feedback channel for effortless media control.

BUZZER

THE AUDITORY RESPONSE ENGINE

The buzzer provides sharp, precise audio feedback for each detected gesture. With crisp tones and instant response, it adds an immersive layer of confirmation, elevating the overall user experience to a more interactive and futuristic level

HOME AUTOMATION SIMULATION

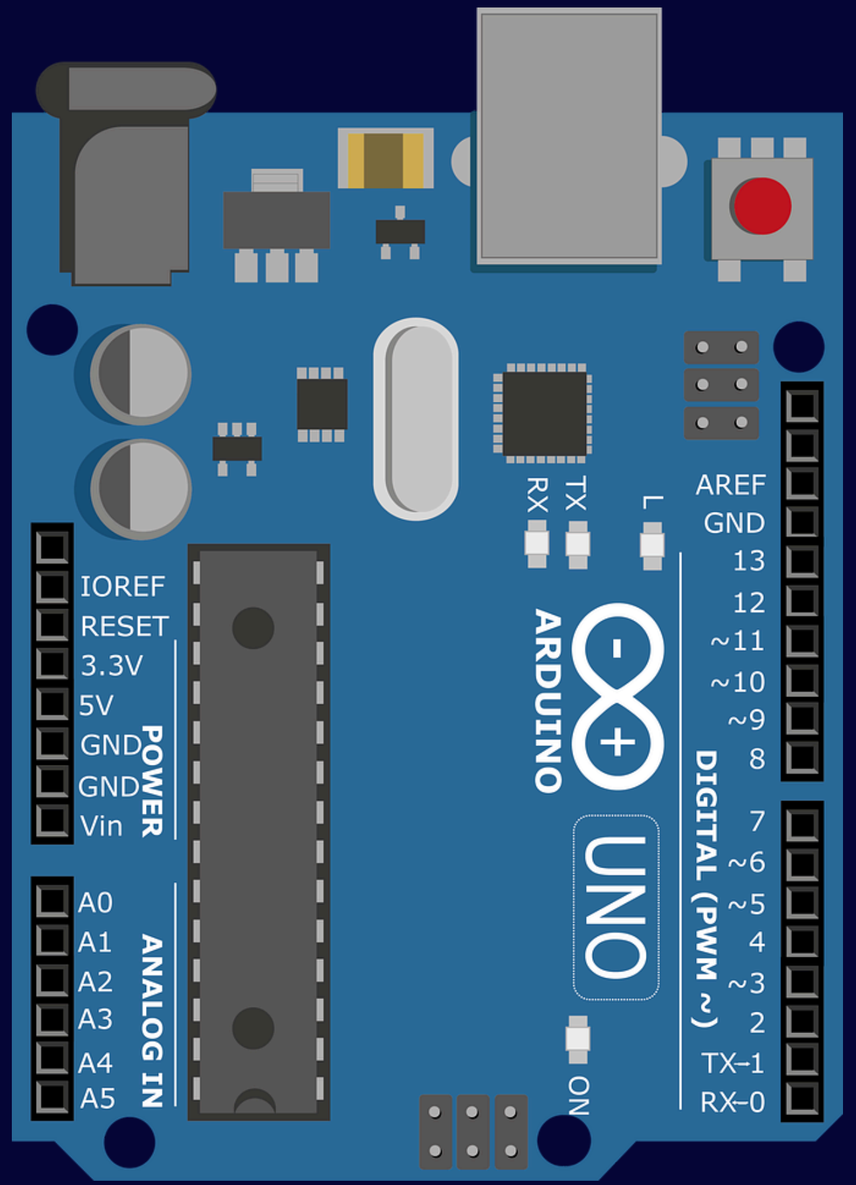
SMARTSENSE HOME SYSTEM

An advanced home automation solution using interconnected sensors to monitor environmental factors and automate household systems. The design ensures energy efficiency, responsive appliance control, and enhanced safety through intelligent detection of motion, gas, fire, temperature, and light intensity.

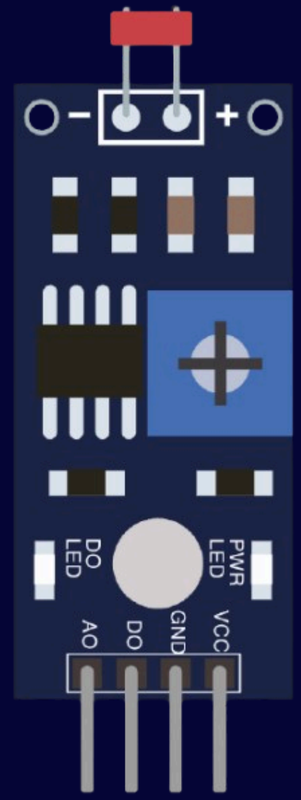
ARDUINO UNO

BRAINS OF THE AUTOMATION

Arduino acts as the decision-making hub, continuously monitoring environmental conditions through connected sensors. It processes these readings to automate lighting, fan speed, safety systems, and other home appliances, enabling a reliable, flexible, and cost-effective smart home automation framework.



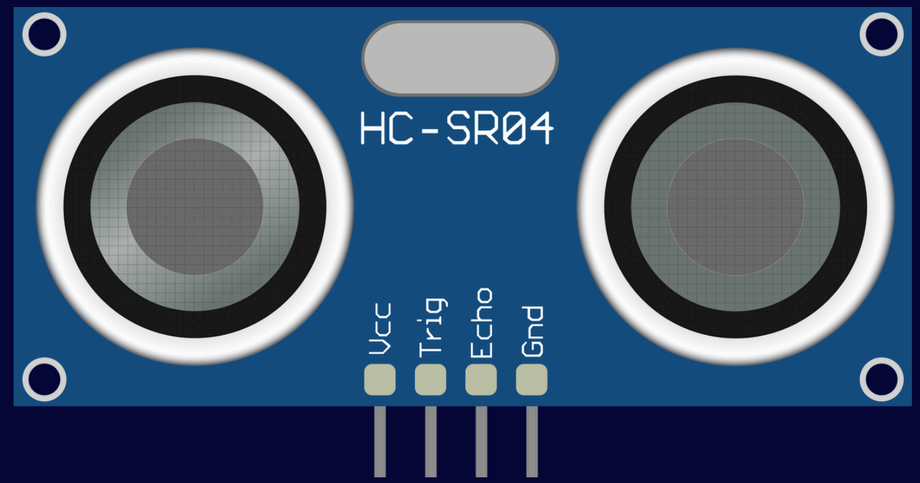
PHOTORESISTOR LDR SENSOR



EYES OF THE AUTOMATION

The LDR sensor measures ambient light intensity by varying its resistance based on the surrounding illumination level. Arduino interprets these analog readings to determine whether the environment is bright or dim. This enables automated lighting control, ensuring that lights are activated only when required. The system improves energy efficiency and convenience by adapting indoor lighting to natural conditions.

UNTRASOIC SENSOR HS-SR04



DETECTOR OF DISTANCE

The ultrasonic sensor measures distance using sound waves, enabling non-contact object detection. Arduino calculates the distance based on the echo time and uses this information to trigger automation tasks such as turning on hallway lights or activating security alerts when someone approaches. This enhances interactive behavior and adds a layer of responsive intelligence to the smart home system.

MQ2 GAS SENSOR

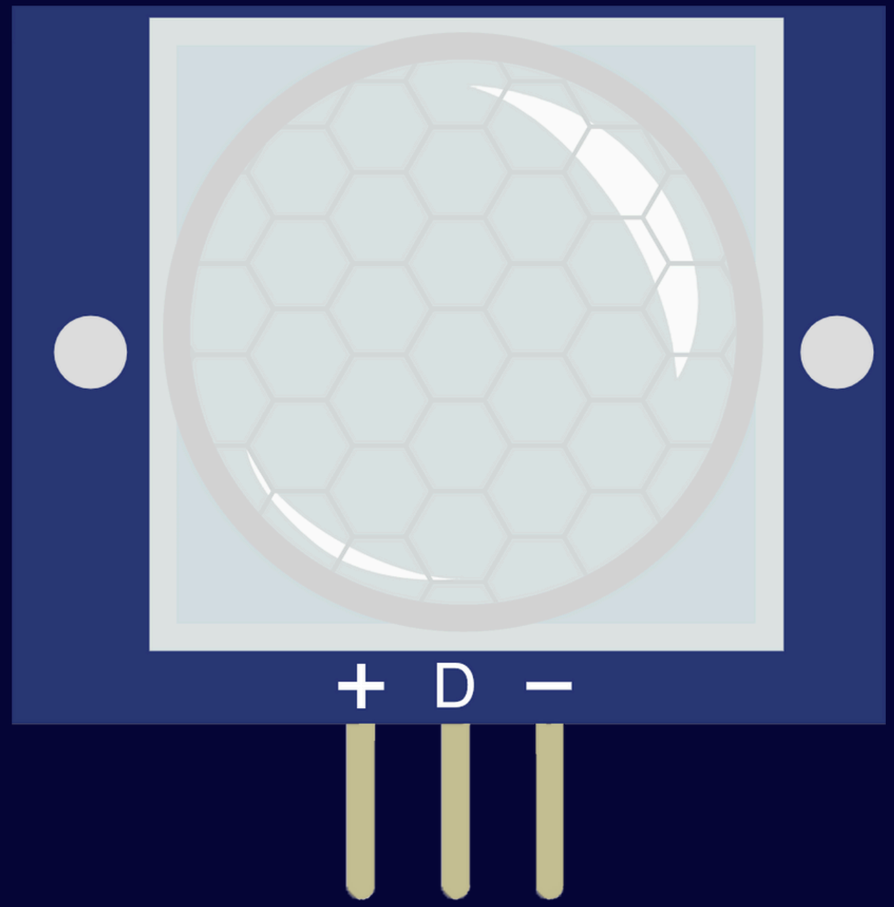
NOSE OF THE AUTOMATION

The MQ-2 gas sensor detects the presence of combustible gases and smoke by measuring changes in its internal resistance. Arduino analyzes the sensor's analog outputs to assess gas concentration levels. When hazardous values are detected, the system activates exhaust fans, triggers alarms, and executes safety protocols. This early detection mechanism greatly reduces the risks associated with leaks and fire hazards.

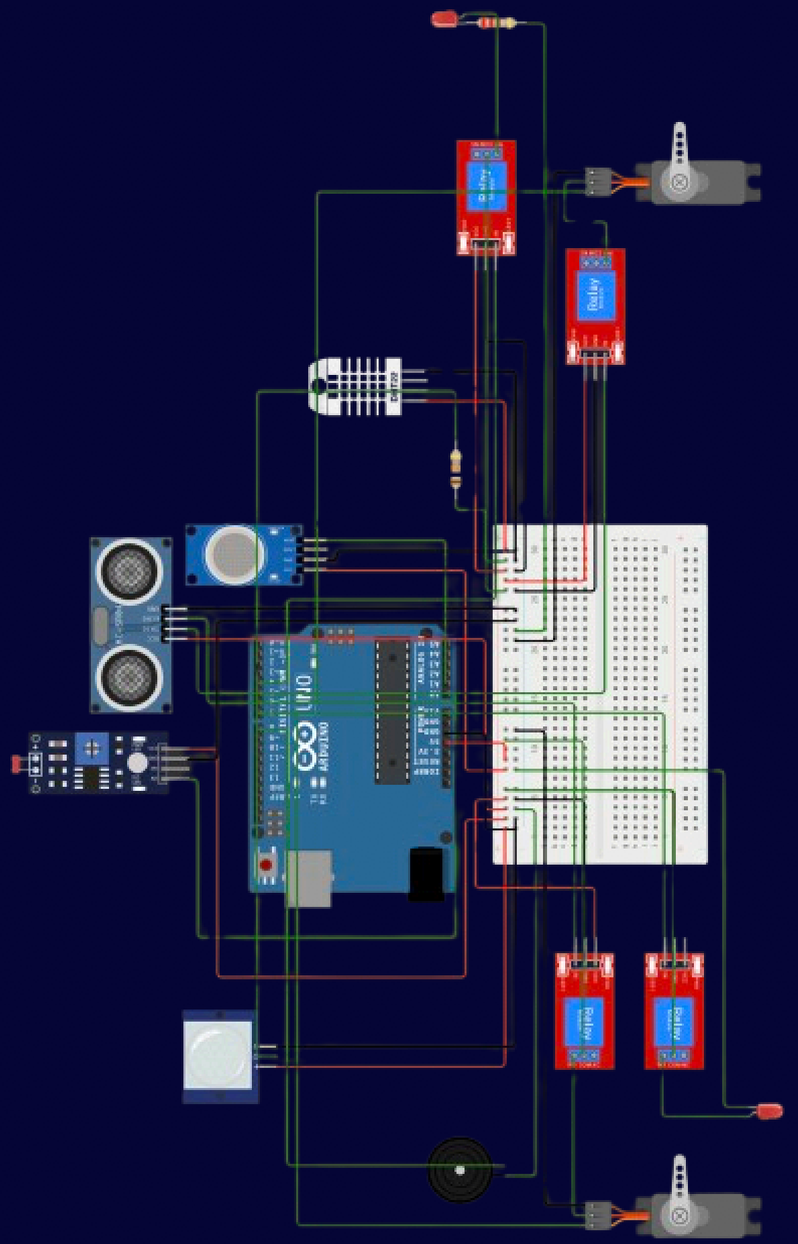
PIR MOTION SENSOR HC-SR501

SENSE OF PRESENCE

The PIR motion sensor detects changes in infrared radiation caused by human movement within its coverage area. Arduino processes these digital signals to identify occupancy or motion events. This allows the system to automatically activate lighting, security alerts, or other functions when someone enters a space. It enhances safety, optimizes energy usage, and contributes to intelligent presence-based automation.

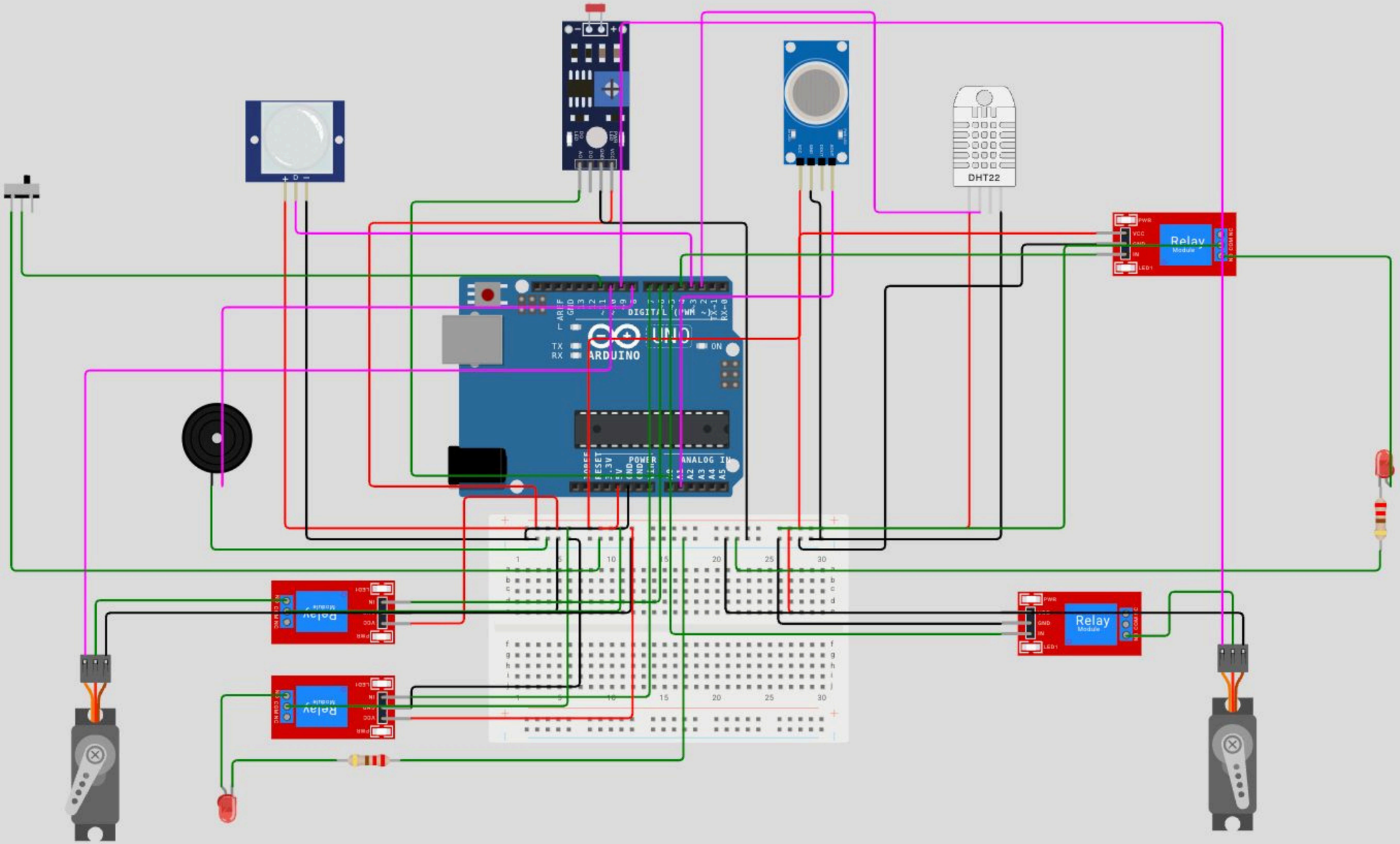


CIRCUIT IN BRIEF



FOUNDATION OF THE SMART HOME

The circuit integrates an Arduino Uno with multiple sensors including LDR, PIR, temperature, gas, flame, ultrasonic, and rain sensors, each providing real-time environmental data. Relays control appliances such as lights, fans, and exhaust systems, while a buzzer and LCD offer alerts and feedback. All components are interconnected through power, analog, and digital pins to form a unified automated home system.


DHT22
Relay
Module
UNO
ARDUINO

THANK YOU