

DUAL CHAMBER SECURITY SYSTEM PROJECT

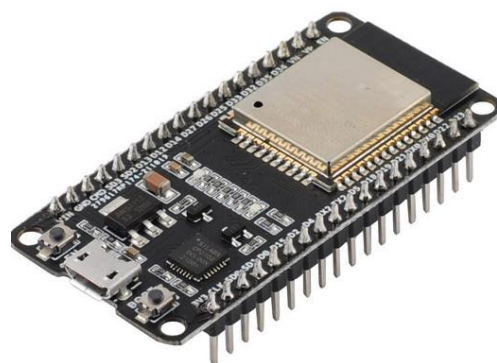
COMPONENTS

ARDUINO UNO



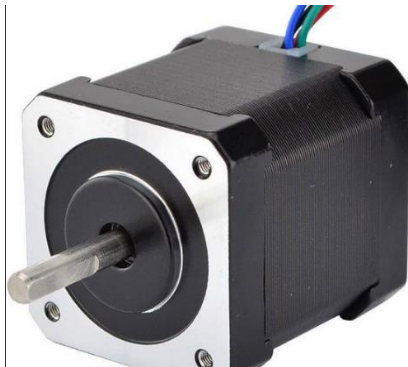
Arduino UNO is a low-cost, flexible, and easy-to-use programmable open-source microcontroller board that can be **integrated into a variety of electronic projects.**

ESP32



The ESP32 is a low-cost, low-power system-on-a-chip (SoC) microcontroller developed by Espressif Systems, featuring integrated Wi-Fi and Bluetooth connectivity, making it ideal for a wide range of applications, especially in the Internet of Things (IoT)

NEMA 17 STEPPER MOTOR WITH A4988 DRIVER



A stepper motor is a type of brushless DC electric motor that rotates in discrete, controlled steps, allowing for precise positioning and speed control, without needing feedback sensors.

SERVOMOTOR



A servomotor is a **closed-loop servomechanism that uses position feedback (either linear or rotational position) to control its motion and final position.** The input to its control is a signal (either analog or digital) representing the desired position of the output shaft.

LCD WITH I2C



An I2C LCD1602 consists of a normal LCD1602 and an I2C module that is attached to the back of the LCD. The I2C module is a chip that can expand the I/O ports of the Arduino using the I2C protocol. The I2C protocol is a serial communication protocol that uses two wires: SDA (serial data) and SCL (serial clock).

R307 FINGERPRINT SENSOR



R307 fingerprint module is a **fingerprint sensor with a TTL UART interface for direct connections to microcontroller UART or to PC through MAX232 / USB-Serial adapter**

ESP32CAM



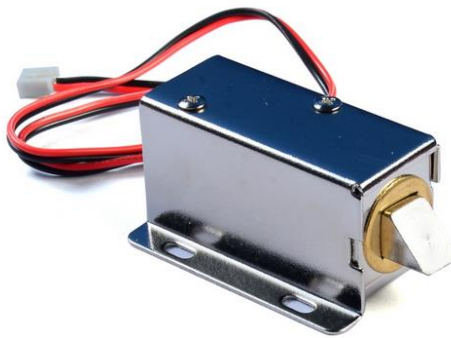
ESP32CAM is an image recognition development board.

RELAY MODULE



A Relay is used to drive a higher voltage with a lower voltage input.

SOLENOID LOCK



Used to as an electrical lock.. Has a coil inside.

DC ADAPTER



SUPPLIES 12VOLTS 3AMPES POWER.

BUCK CONVERTER



Steps down 12V down to 5V for safe operation of the Arduino and Esp32.

4x3 KEYPAD



Keypad to enter vault pin.

BUZZER



BUZZER FOR SOUND FEEDBACK.

LOGIC LEVEL SHIFTER 4 CHANNEL



3.3 ↔ 5V

Facilitates safe communication between arduino and esp32

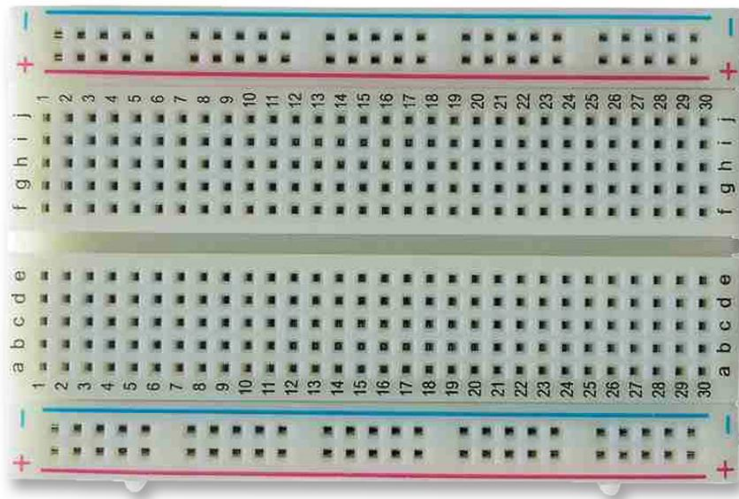
PUSH BUTTON



CONNECTING WIRES



BREADBOARDS



LED STRIP

