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## ELEGOO EL-KIT-001

# ELEGOO UNO R3 Project Most Complete Starter Kit Instruction Manual

Model: EL-KIT-001

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## 1. INTRODUCTION

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The ELEGOO UNO R3 Project Most Complete Starter Kit is designed for individuals interested in learning electronics, programming, and robotics. This kit provides a comprehensive set of components and tutorials to guide users through various projects, compatible with Arduino IDE.



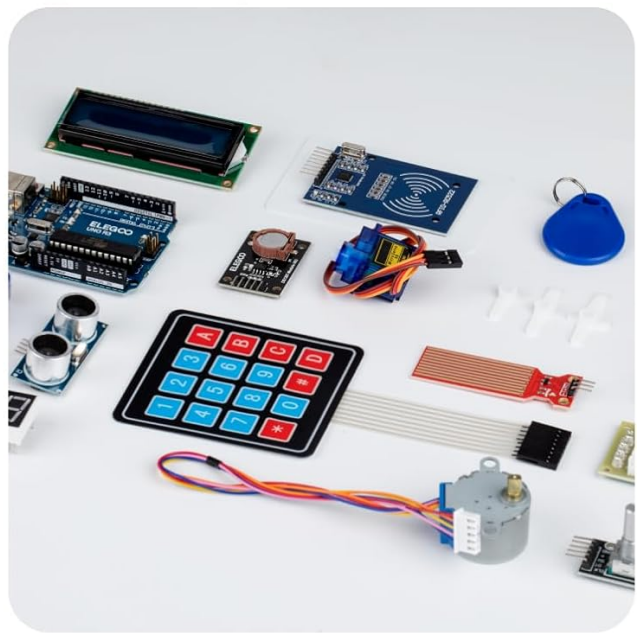


Image 3.1: An overview of the various components included in the kit.

# Component List

## for Elegoo UNO R3 The Most Complete Starter Kit

25pcs LED (white, yellow, blue, red, green)	1pcs UNO R3 Controller Board
1pcs RGB LED	1pcs Servo Motor (SG90)
10pcs Ceramic Capacitor (22pf & 104pf)	1pcs Stepper Motor
2pcs Photoresistor	1pcs ULN2003 Stepper Motor Driver Board
1pcs Thermistor	1pcs Prototype Expansion
5pcs Diode Rectifier (1N4007)	1pcs Power Supply Module
4pcs Electrolytic Capacitor (10UF 50V & 100UF 50V)	<b><i>Warning: Do not use voltage higher than 9V</i></b>
10pcs NPN Transistor (PN2222 & S8050)	1pcs HC-SR501 PIR Motion Sensor
1pcs Tilt Switch	1pcs Ultrasonic Sensor
5pcs Button (small)	1pcs GY-521 Module (with pin header)
1pcs 1 digit 7-segment Display	1pcs 3V Servo Motor
1pcs 4 digit 7-segment Display	1pcs MAX7219 Module
1pcs Sound Sensor Module	1pcs Remote
1pcs LCD1602 Module (with pin header)	1pcs 9V 1A Power Supply
1pcs IC L293D	1pcs 65 Jumper Wire
1pcs IC 74HC595	1pcs Water Level Sensor
1pcs Active Buzzer	1pcs USB Cable
1pcs Passive Buzzer	1pcs 9V Battery with DC
1pcs RTC Module	1pcs RC522 RFID Module
1pcs DHT11 Temperature and Humidity Module	120pcs Resistor
2pcs Potentiometer	(10R/100R/220R/330R/1K/2K/5K1/10K/100K/1M)
1pcs Rotary Encoder Module	20pcs Female-to-male DuPont Wire
1pcs Joystick Module	
1pcs Keypad Module	<b><i>Safety Directive Age Warning:</i></b>
1pcs 5V Relay	Not suitable for children under 10 years.
1pcs IR Receiver Module	For use under adult supervision.

Image 3.2: Diagram showing the component list and their quantities.

- 1pcs UNO R3 Controller Board
- 1pcs Breadboard
- 1pcs Prototype Expansion Board
- 1pcs Power Supply Module (Max 9V input)
- 1pcs USB Cable
- 1pcs 9V Battery with DC Connector
- 65pcs Jumper Wires
- 20pcs Female-to-male DuPont Wires
- 5pcs White LED, 5pcs Yellow LED, 5pcs Blue LED, 5pcs Green LED, 5pcs Red LED
- 1pcs RGB LED
- 5pcs 22pf Ceramic Capacitor, 5pcs 104 Ceramic Capacitor
- 2pcs Photoresistor
- 1pcs Thermistor
- 5pcs Diode Rectifier (1N4007)
- 2pcs Electrolytic Capacitor (10UF 50V), 2pcs Electrolytic Capacitor (100UF 50V)
- 5pcs NPN Transistor (PN2222), 5pcs NPN Transistor (S8050)
- 1pcs Tilt Switch
- 5pcs Small Button

- 1pcs 1-digit 7-segment Display, 1pcs 4-digit 7-segment Display
- 1pcs Sound Sensor Module
- 1pcs LCD1602 Module (with pin header)
- 1pcs IC L293D, 1pcs IC 74HC595
- 1pcs Active Buzzer, 1pcs Passive Buzzer
- 1pcs RTC Module
- 1pcs DHT11 Temperature and Humidity Module
- 2pcs Potentiometer
- 1pcs Rotary Encoder Module
- 1pcs Keypad Module
- 1pcs 5V Relay
- 1pcs IR Receiver Module
- 1pcs Servo Motor (SG90)
- 1pcs Stepper Motor
- 1pcs ULN2003 Stepper Motor Driver Board
- 1pcs HC-SR501 PIR Motion Sensor
- 1pcs Ultrasonic Sensor
- 1pcs GY-521 Module
- 1pcs 3V Servo Motor
- 1pcs MAX7219 Module
- 1pcs Remote
- 1pcs 9V 1A Power Supply
- 1pcs Water Level Sensor
- 1pcs RC522 RFID Module
- Resistors: 10pcs (10R), 10pcs (100R), 30pcs (220R), 10pcs (330R), 10pcs (1K), 10pcs (2K), 10pcs (5K1), 10pcs (10K), 10pcs (100K), 10pcs (1M)

## 4. SETUP

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To begin using your ELEGOO UNO R3 Starter Kit, follow these general setup steps. Detailed instructions for each project are provided in the included PDF tutorial.

### 4.1. Software Installation

1. Download the Arduino IDE from the official Arduino website ([www.arduino.cc/en/software](http://www.arduino.cc/en/software)).
2. Install the Arduino IDE on your computer.
3. Download the comprehensive PDF tutorial and necessary libraries from the ELEGOO website ([www.elegoo.com](http://www.elegoo.com)). This tutorial contains over 30 lessons and all required code.
4. Follow the tutorial's instructions to install any specific drivers or libraries needed for the ELEGOO UNO R3 board, as it is compatible with Arduino UNO R3.

### 4.2. Hardware Connection

1. Connect the ELEGOO UNO R3 Controller Board to your computer using the provided USB cable.
2. Ensure the board is recognized by your computer and the Arduino IDE.
3. For specific projects, refer to the tutorial for wiring diagrams and component placement on the breadboard.

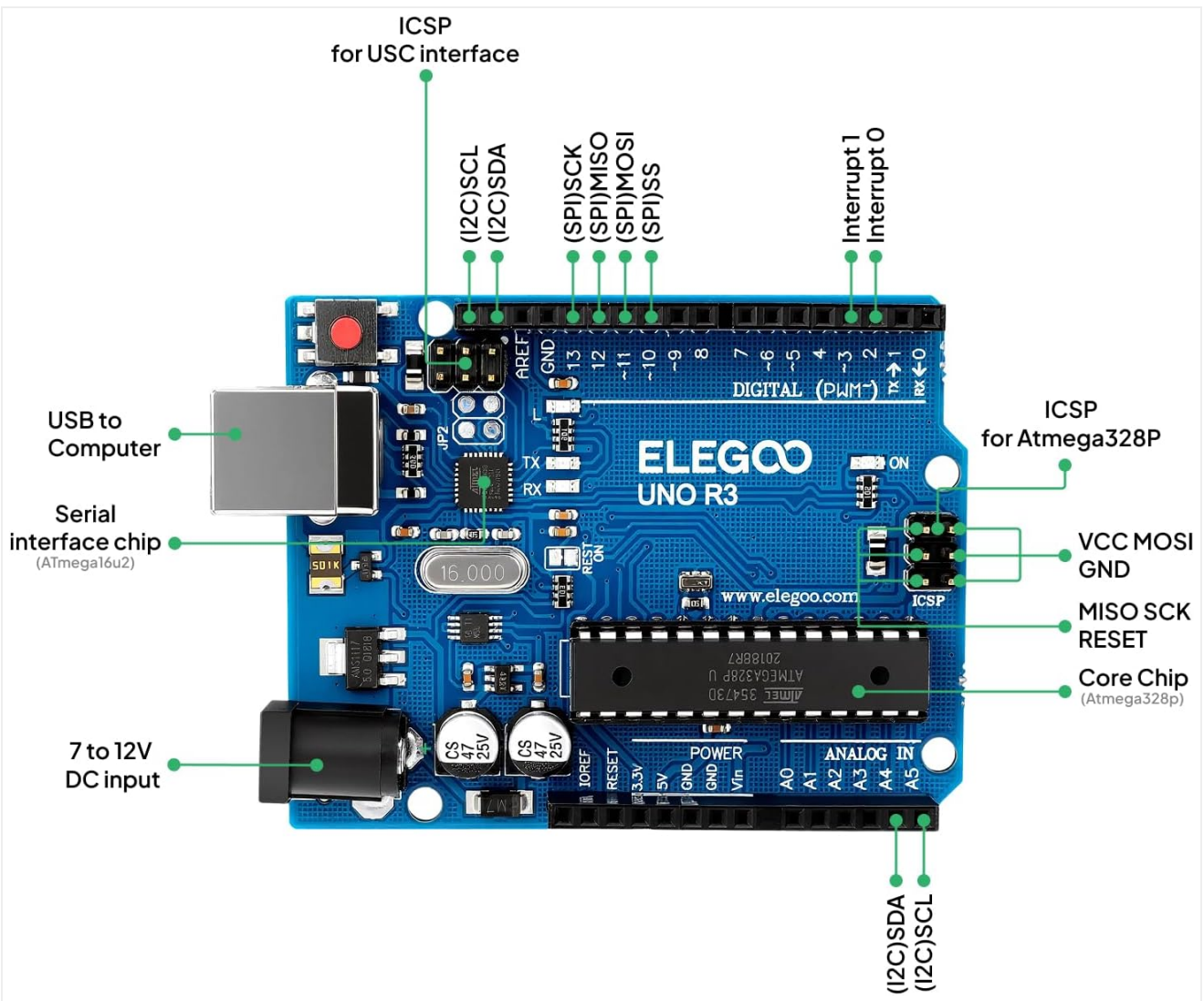


Image 4.1: Detailed diagram of the ELEGOO UNO R3 Controller Board, highlighting key interfaces and components.

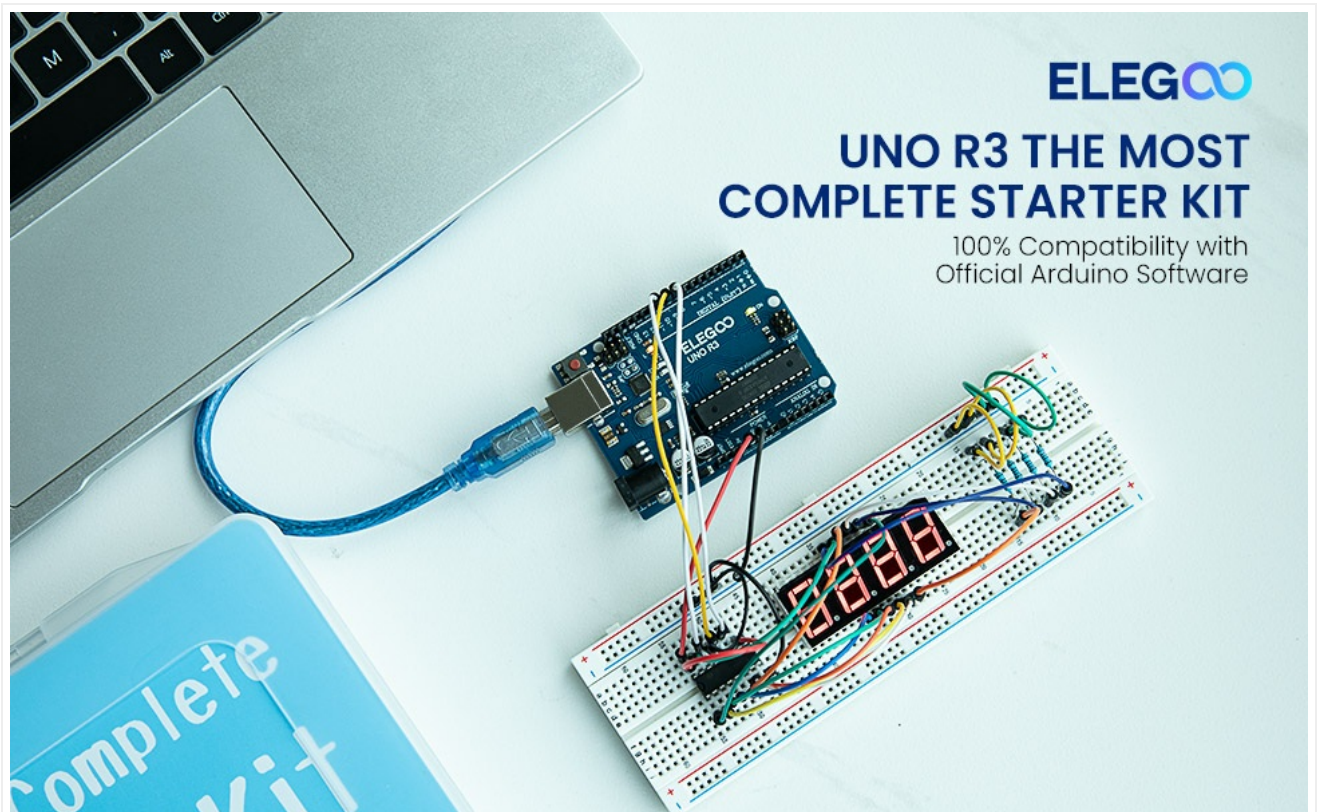


Image 4.2: An example setup showing the UNO R3 board connected to a breadboard with components.

## 5. OPERATING INSTRUCTIONS

The kit is designed for hands-on learning. Each lesson in the provided PDF tutorial guides you through building a circuit and uploading code to the UNO R3 board.

### 5.1. Project Execution

1. Open the Arduino IDE and load the example code for your chosen project from the tutorial files.
2. Connect the components as per the wiring diagram in the tutorial. Ensure all connections are secure and correct.
3. Select the correct board type (Arduino Uno) and port in the Arduino IDE.
4. Upload the code to your ELEGOO UNO R3 board.
5. Observe the circuit's behavior as described in the tutorial.

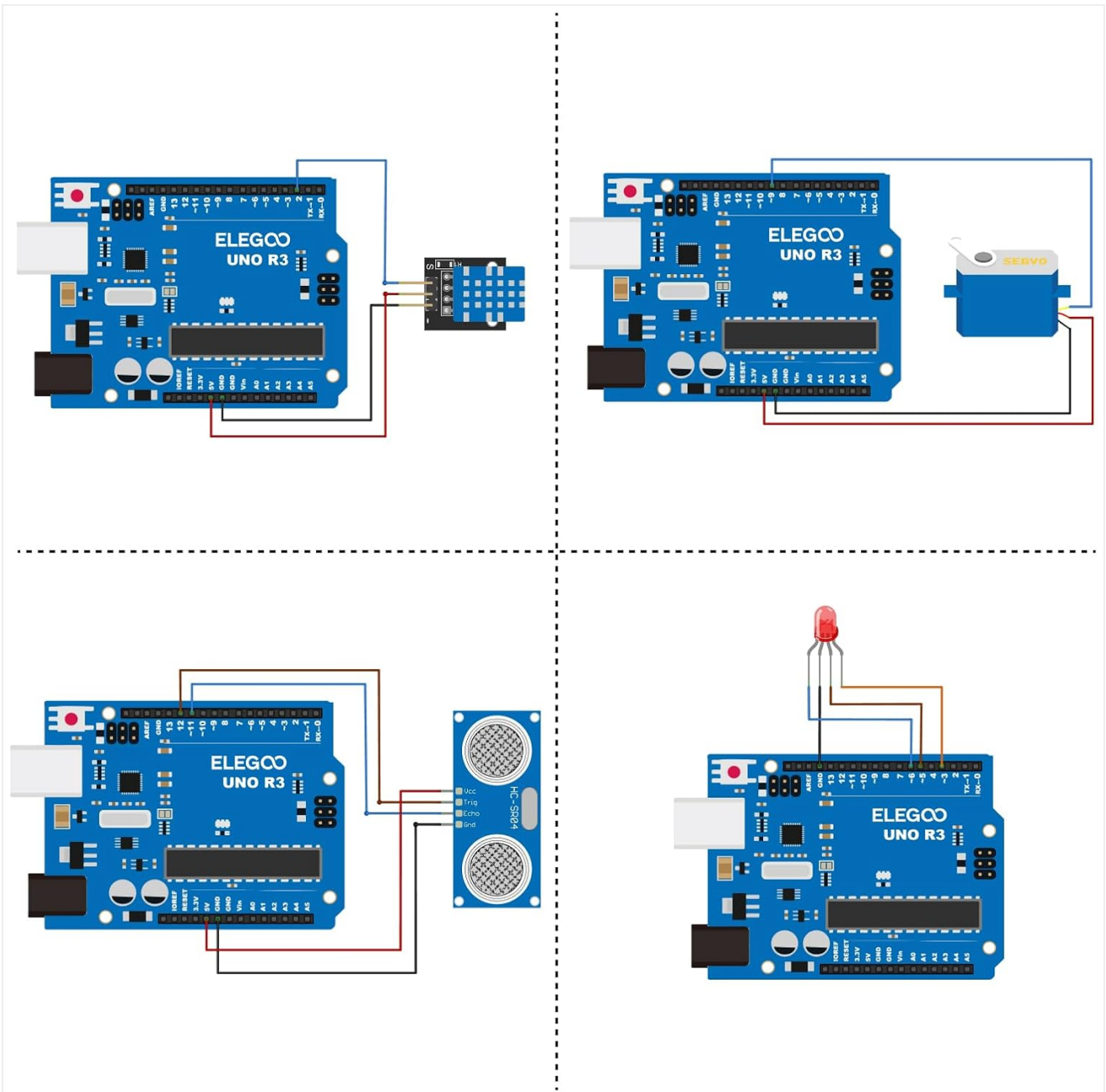
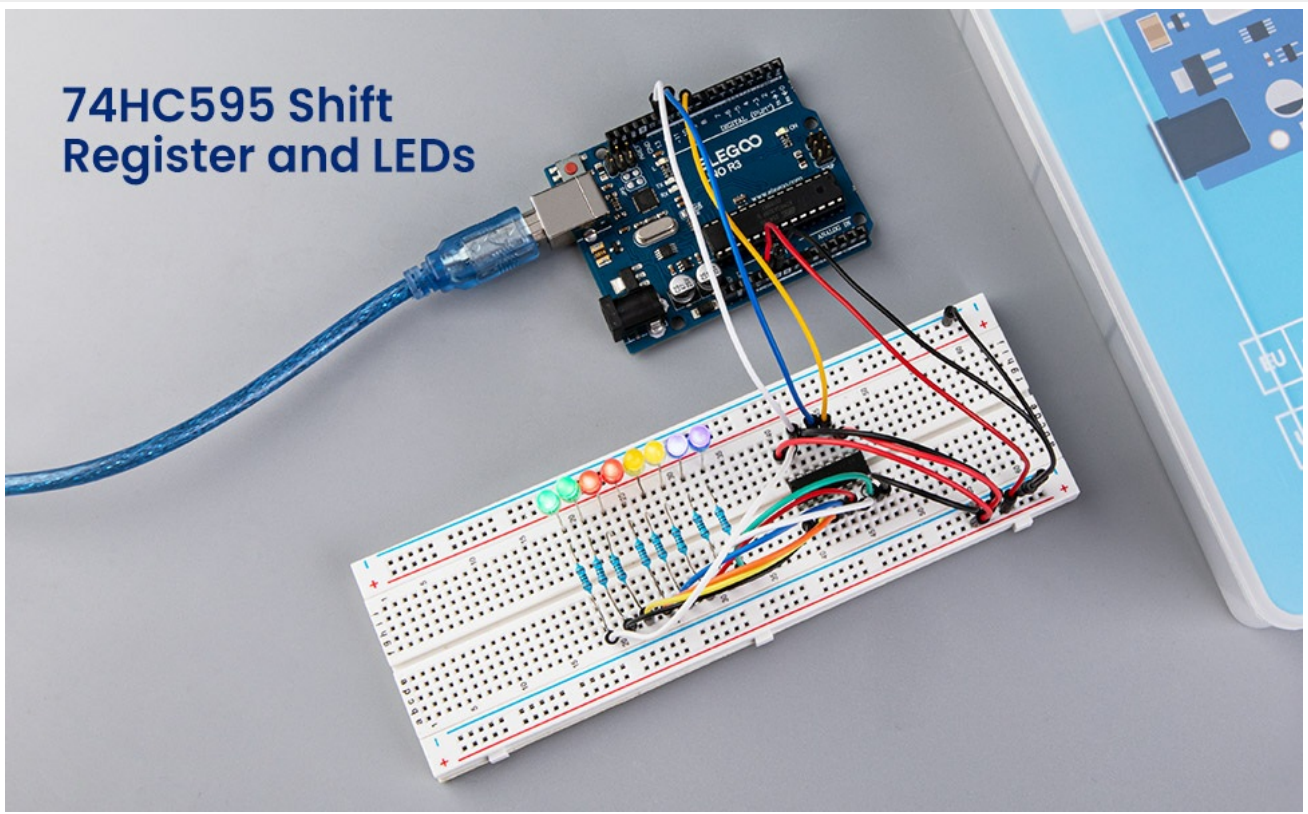


Image 5.1: Various example circuits demonstrating basic functionalities with the UNO R3 board and components.



## 74HC595 Shift Register and LEDs

Image 5.2: A project in progress, illustrating the practical application of the kit's components and tutorial guidance.



## Most Complete UNO R3 Starter Kit

Tutorial of 33 Projects Included

Image 5.3: Users engaging with the ELEGOO STEM kit, demonstrating its educational use.

## 6. MAINTENANCE

Proper maintenance ensures the longevity and functionality of your kit components.

### 6.1. Storage and Organization

- The kit comes packaged in a compartmentalized case. Utilize this case to keep all components organized and

easily accessible.

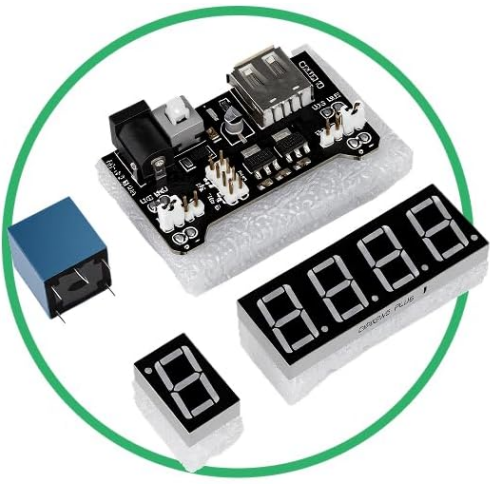
- A bonus box is included for small parts like LEDs, ICs, buttons, and diodes. Use this to prevent loss of tiny components.



Image 6.1: The ELEGOO UNO R3 Starter Kit stored in its compartmentalized case.

## 6.2. Component Protection

- Many components are supplied in anti-static bags. Keep sensitive electronic components in these bags when not in use to prevent damage from electrostatic discharge (ESD).
- Foam inserts are provided to prevent pins from bending during storage and transport.
- Avoid exposing components to excessive moisture, dust, or extreme temperatures.



## Foam

Prevent pins from bending

## Antistatic Bag

Prevent chips from damaging by ESD (Electrostatic Discharge)



## Plastic Bag

Easy to collect and well protected from shaking

Image 6.2: Details on packaging, including anti-static bags and foam for component protection.

## 7. TROUBLESHOOTING

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If you encounter issues while working with your kit, consider the following common troubleshooting steps:

- **Software/Driver Issues:** Ensure you have installed the correct Arduino IDE and any necessary drivers for the UNO R3 board. If the board is not recognized, try reinstalling drivers or checking your computer's device manager.
- **Wiring Errors:** Double-check all connections against the wiring diagrams in the tutorial. Incorrect wiring is a common cause of non-functional circuits. Pay close attention to power and ground connections.
- **Code Errors:** Verify that the code uploaded to the board matches the tutorial's example. Syntax errors or incorrect pin assignments can prevent proper operation. Use the Arduino IDE's verify function to check for compilation errors.
- **Component Malfunction:** If a specific component is not working, try testing it in a simpler circuit or replacing it with a known working component if available.

- **Power Supply:** Ensure the board is receiving adequate power. If using an external power supply, confirm it is within the recommended voltage range (not higher than 9V for the power supply module).
- **Tutorial Discrepancies:** Some users have reported minor discrepancies in older tutorial versions or specific code examples. If a project isn't working as expected, search online forums or the ELEGOO support page for updated information or community solutions.

For further assistance, refer to the detailed troubleshooting sections within the ELEGOO PDF tutorial or contact ELEGOO customer support.

## 8. SPECIFICATIONS

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Feature	Detail
Brand Name	ELEGOO
Model Number	EL-KIT-001
Set Name	ELEGOO UNO R3 Most Complete Starter Kit
Item Dimensions	13.7 x 8.4 x 1.85 inches
Item Weight	2.15 Pounds
Assembly Required	Yes
Educational Objective	Coding Skills, Concentration, Creative Skills, Exploratory Skills, Logical Thinking, Problem Solving Skills, Programming Skills, STEM
Minimum Age (Manufacturer)	120 Months (10 years)
Maximum Age (Manufacturer)	1200 Months (100 years)
GTIN / UPC	00746591610364

## 9. WARRANTY

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The ELEGOO UNO R3 Project Most Complete Starter Kit comes with a **1 Year Manufacturer Warranty**. Please retain your proof of purchase for warranty claims.

## 10. CUSTOMER SUPPORT

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For any questions, technical assistance, or support regarding your ELEGOO product, please contact ELEGOO customer service:

- **Email:** [service@elegoo.com](mailto:service@elegoo.com)
- **Website:** [www.elegoo.com](http://www.elegoo.com)

When contacting support, please provide your product model number (EL-KIT-001) and a detailed description of your issue.

