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iCubeSmart 3D LED Cube Light DIY Kit Instruction Manual

Model: 3D8S-BLUE

Brand: iCubeSmart

1. INTRODUCTION

Welcome to the iCubeSmart 3D LED Cube Light DIY Kit! This kit provides an engaging and educational experience for electronics enthusiasts, students, and anyone interested in hands-on soldering and programming. Upon completion, you will have a stunning 8x8x8 LED cube capable of displaying a wide array of colorful and dynamic 3D animation effects.

This manual will guide you through the assembly process, initial setup, operation, and software customization of your 3D LED cube. Please read all instructions carefully before beginning.

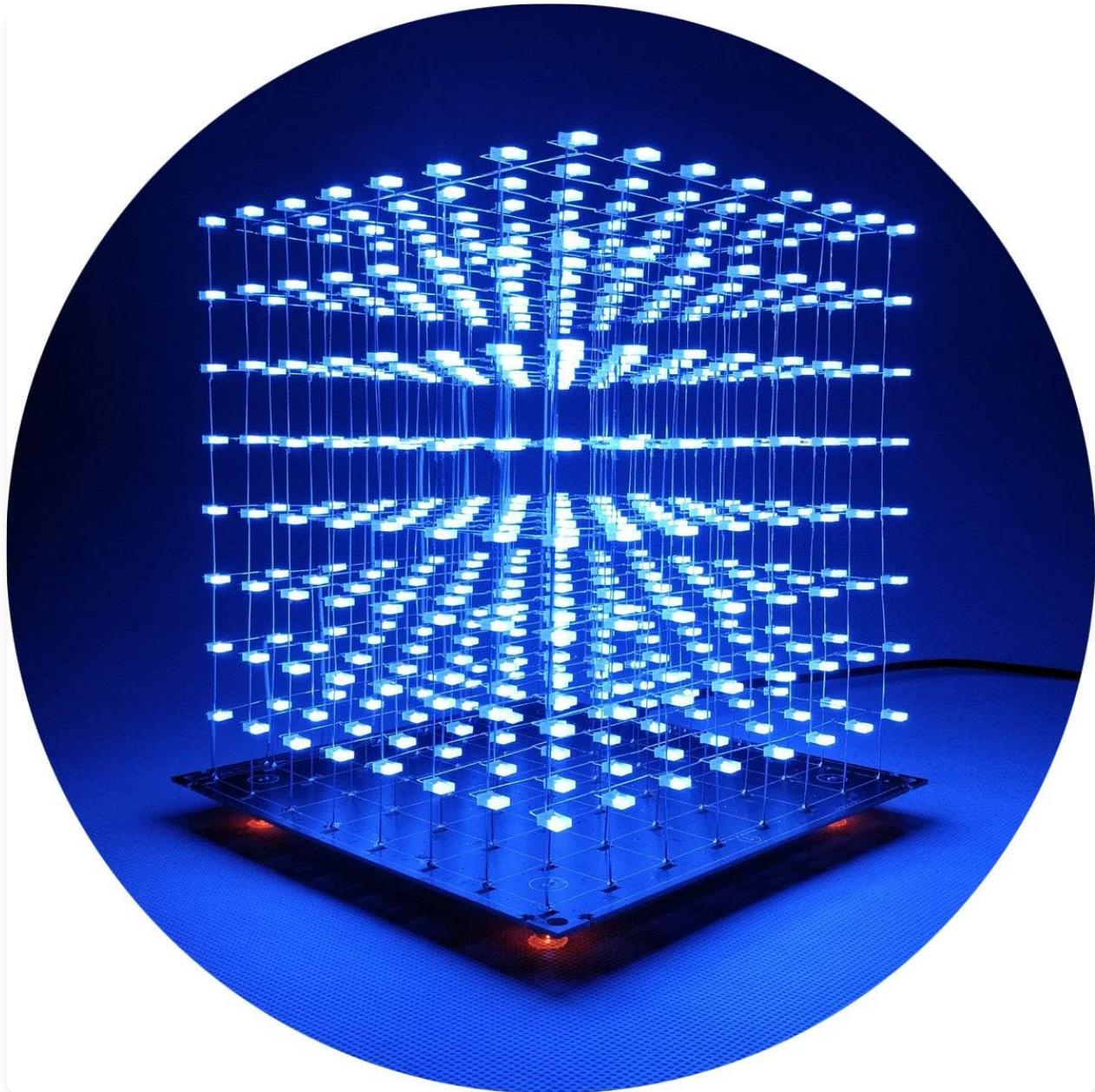
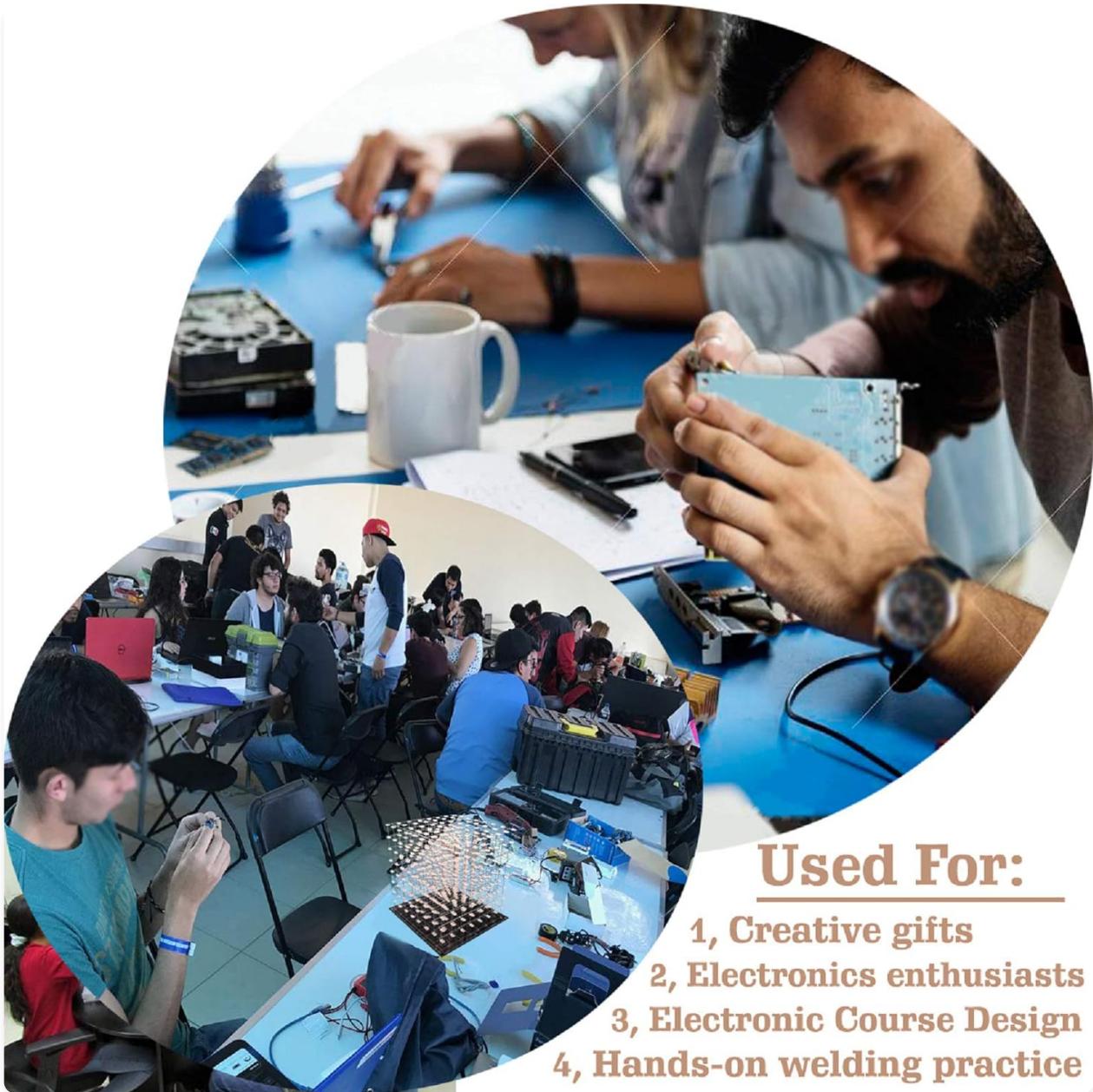


Figure 1.1: The completed iCubeSmart 3D LED Cube Light.



Used For:

- 1, Creative gifts
- 2, Electronics enthusiasts
- 3, Electronic Course Design
- 4, Hands-on welding practice

Figure 1.2: The iCubeSmart 3D LED Cube is ideal for learning activities and creative projects.

2. PACKAGE CONTENTS

Before starting assembly, please verify that all components listed below are present in your kit. If any parts are missing or damaged, please contact iCubeSmart customer support.

- Pre-soldered and tested PCB Main Board
- 512 Blue Square LEDs (plus spares)
- USB Power Cable (5V)
- Soldering Wire
- LED Bending Tool / Jig
- Paper Welding Instructions
- Mounting Screws and Spacers

Package Included:



Figure 2.1: Contents of the iCubeSmart 3D LED Cube DIY Kit.

3. ASSEMBLY INSTRUCTIONS

This kit requires basic electronic technology knowledge and soldering skills. The main PCB board is pre-soldered, simplifying the process to primarily LED soldering and assembly.

3.1. LED Preparation

1. Identify the anode (longer lead) and cathode (shorter lead) of each LED.
2. Use the provided bending tool to bend the LED leads to the correct angles for insertion into the PCB.

3.2. Assembling LED Layers

The main board has 64 square holes designed to fix LEDs and facilitate soldering. You will assemble 8 layers of 8x8 LEDs each.

1. Insert 64 prepared LEDs into the designated holes on the main board to form one 8x8 layer. Ensure

correct polarity.

2. Solder all LED connections for the layer. Ensure strong, clean solder joints.
3. Carefully remove the completed LED layer from the main board.
4. Repeat steps 1-3 for all 8 layers.

3.3. Assembling the 3D Cube

1. Carefully align and solder the completed LED layers vertically, connecting them to form the 3D cube structure.
2. Once the cube structure is complete, attach it securely to the main PCB board using the provided mounting hardware.

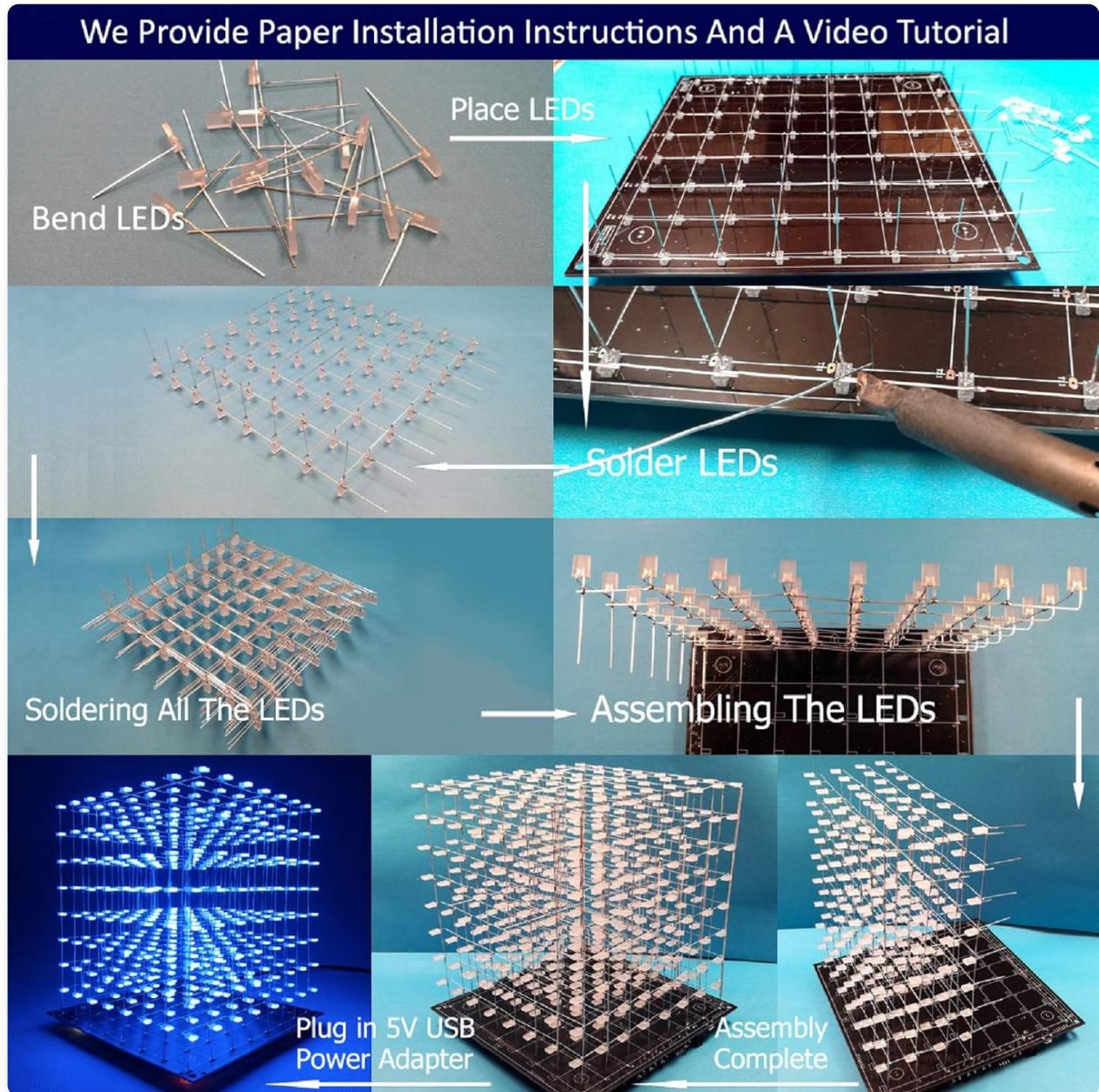


Figure 3.1: Visual guide for LED preparation and layer assembly.

Video 3.1: Official iCubeSmart assembly and demo video, providing a comprehensive visual guide for the DIY kit.

4. INITIAL SETUP

Once your 3D LED cube is fully assembled, it's ready for initial power-up and function testing.

1. Connect the provided USB power cable to the TYPE-C port on the main board.
2. Plug the other end of the USB cable into a 5V USB power adapter (not included).
3. The cube should immediately begin displaying pre-programmed animation effects.

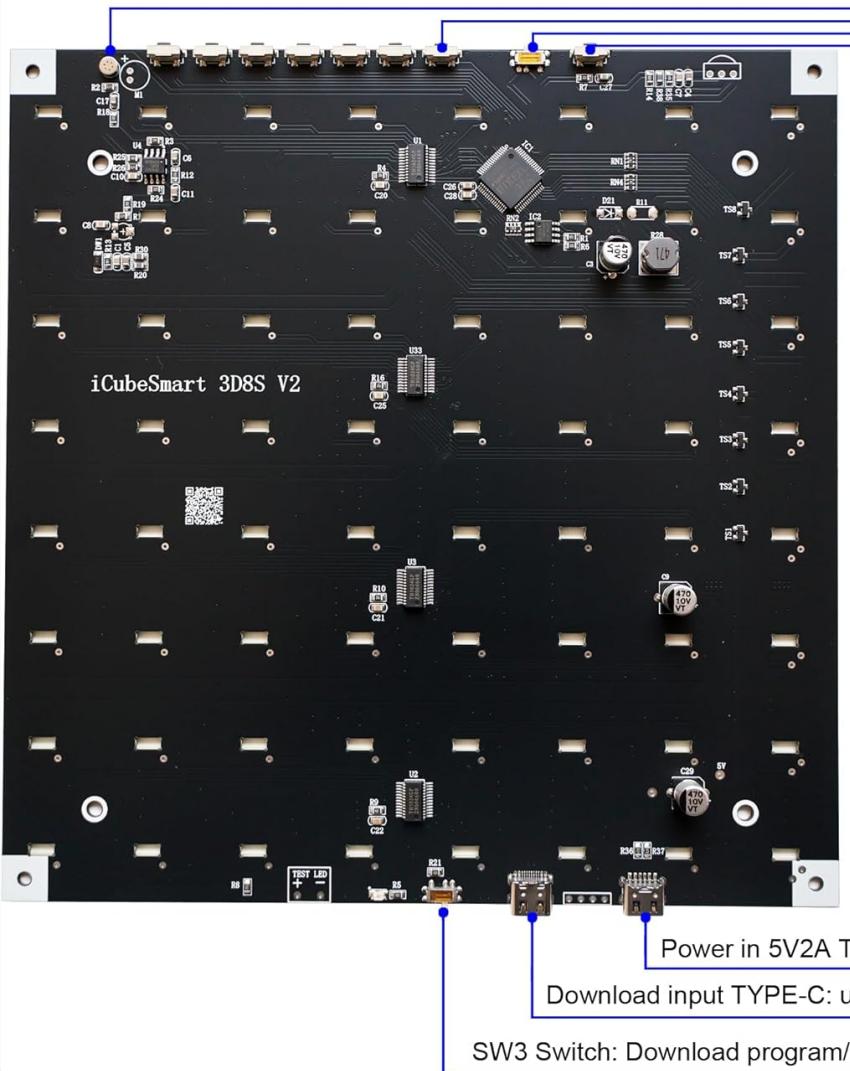
4.1. Main Board Functions

The main board features several controls for interacting with the cube's animations:

- **7 Keys:** Used to switch between different animation modes.
- **SW1 Switch:** Selects Animation/Audio Mode. SW1=1 for Dynamic effects, SW1=0 for Audio effects (if applicable).
- **RESET Button:** Press after changing SW1 or for a soft reset.
- **TYPE-C Port:** Used for 5V DC power input and for downloading programs.
- **SW3 Switch:** Toggles between Download program and Run program modes.

Mainboard Function:

Microphone:
Animation jumping with sound.



Button Functions:

- 1, Previous animation
- 2, Next animation
- 3, Speed +
- 4, Speed -
- 5, Run/pause
- 6, Loop mode
- 7, ON/OFF

SW1 Switch:

Select Animation/Audio Mode.
SW1=1 : Dynamic effect.
SW1=0 : Audio effects.

RESET Button:

When SW1 is changed,
you need to press the RESET
to make it effective.

Power in 5V2A TYPE-C: 5V DC power input.
Download input TYPE-C: used to download the program.

SW3 Switch: Download program/Run program.

Figure 4.1: Overview of the main board functions and controls.

5. OPERATING THE 3D LED CUBE

Your iCubeSmart 3D LED Cube comes with over 20 brilliant animation effects pre-built into the main board. You can cycle through these effects using the onboard buttons.

5.1. Customizing Animations with Software

One of the key features of the iCubeSmart kit is the ability to modify and create your own animations using the provided 3D software. This software allows you to directly generate a HEX burning file, which can then be downloaded to the light cube to run your custom designs.

- Access the 3D software (details for download typically provided with the kit or via customer support).
- Use the software interface to design or modify animation patterns.
- Generate the HEX file from your design.
- Connect the cube to your computer via the TYPE-C USB port.
- Use the software to download the HEX file to the cube. Ensure SW3 is in the 'Download program' position.
- After successful download, switch SW3 to 'Run program' and press the RESET button to see your new animations.

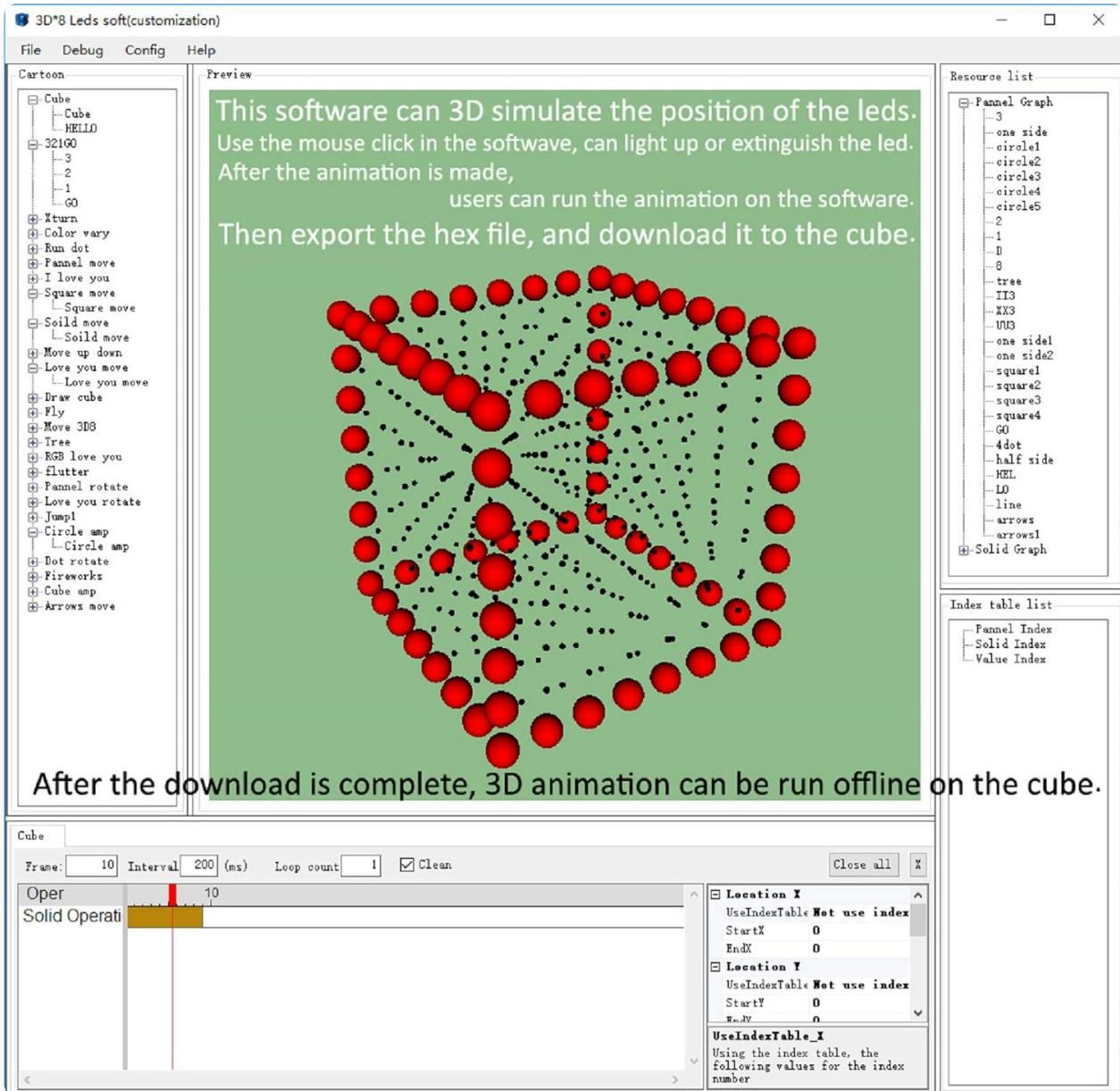


Figure 5.1: The 3D software allows for custom animation design and programming.

Video 5.1: Demonstration of various animation effects and software customization capabilities.

6. MAINTENANCE

To ensure the longevity and optimal performance of your iCubeSmart 3D LED Cube, follow these simple maintenance guidelines:

- **Cleaning:** Gently wipe the cube with a soft, dry cloth to remove dust. Avoid using abrasive cleaners or excessive moisture.
- **Handling:** Handle the cube with care, especially the LED matrix, to prevent bending or damaging the LED leads.
- **Power:** Always use a stable 5V USB power source. Disconnect power when not in use for extended periods.
- **Storage:** Store the cube in a cool, dry place away from direct sunlight and extreme temperatures.

7. TROUBLESHOOTING

If you encounter any issues with your iCubeSmart 3D LED Cube, please refer to the common problems and solutions below:

- **LEDs not lighting up:**

- Check all solder joints for cold joints or bridges.
- Verify LED polarity during assembly.
- Ensure the 5V USB power supply is connected and functioning correctly.

- **Animations not displaying correctly:**

- Confirm that the correct program has been downloaded to the cube.
- Ensure the SW3 switch is in the 'Run program' position and the RESET button has been pressed.
- Check for any loose connections or damaged LEDs within the matrix.

- **Software connection issues:**

- Verify that the correct USB drivers are installed for the programming interface.
- Ensure the TYPE-C cable is securely connected to both the cube and your computer.
- Try restarting the software and reconnecting the cube.

For further assistance, please refer to the [Warranty & Support](#) section.

8. SPECIFICATIONS

Feature	Detail
Product Dimensions	7.28 x 7.08 x 8.26 inches
Item Weight	13.7 ounces
Country of Origin	China
Model Number	3D8-S-DIP-BLUE
Manufacturer Recommended Age	15 years and up
LED Type	Blue Square LEDs
LED Quantity	512
Power Supply	5V USB

9. WARRANTY AND SUPPORT

iCubeSmart is dedicated to providing high-quality products and excellent customer service. We offer life-long technical support services for our DIY products.

If you have any questions, require assistance with assembly, need help modifying displayed animations, or find any components missing, please do not hesitate to contact us. Our professional after-sales technical support team is ready to assist you.

For support inquiries, please email us at support@icubesmart.com (example email, replace with actual if known).

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Related Documents - 3D8S-BLUE

	<p><u>iCubeSmart 3D Animation Edit Tool User Guide</u></p> <p>A comprehensive guide to using the iCubeSmart 3D animation edit tool for creating custom animations for LED cubes. This document details the software's menus, features, and animation techniques, including point, line, plane, and stereo operations.</p>
	<p><u>iCubeSmart 3D8S LED Cube Programming Guide: Driver Installation & Software Setup</u></p> <p>Step-by-step guide to installing drivers and downloading programs for the iCubeSmart 3D8S LED Cube using the STC-ISP software, including troubleshooting common issues.</p>
	<p><u>iCubeSmart 3D8S LED Cube Program Download Manual</u></p> <p>A comprehensive guide detailing the steps to install necessary drivers and software, and to program the iCubeSmart 3D8S LED Cube using the STC-ISP tool. Covers driver installation, software setup, connecting hardware, selecting MCU type, loading program files, and troubleshooting common download failures.</p>