EIELEDIY RM

EIELEDIY Quadrotor Drone DIY Kit User Manual

Model: RM

Introduction

Welcome to the EIELEDIY Quadrotor Drone DIY Kit. This comprehensive kit is designed for DIY enthusiasts and those interested in STEM education, offering a unique opportunity to assemble a functional quadrotor drone from the ground up. It integrates advanced optical flow positioning modules, video modules, and high-power brushless motors, providing a hands-on learning experience in drone technology.

Upon successful assembly, you will have a multi-functional drone capable of 360° rolls, one-click takeoff and landing, headless mode, speed adjustment, optical flow positioning, and real-time video viewing. This manual provides detailed instructions for assembly, operation, and maintenance to ensure a successful and enjoyable experience.

Important Safety Information

- **Age Recommendation:** This kit is recommended for users over 14 years old due to its complexity and the need for careful assembly.
- **Adult Supervision:** Younger users should always have adult supervision during assembly and operation.
- **Assembly Challenge:** This is a highly challenging DIY project requiring manual assembly of the fuselage and motor. Patience and attention to detail are crucial.
- **Flight Environment:** Always operate the drone in open, clear areas, away from people, animals, buildings, and other obstacles. Avoid flying near airports or restricted airspace.
- **Battery Safety:** Use only the provided battery and charger. Do not overcharge or puncture the battery. Discontinue use if the battery is damaged or swells.
- **Propeller Safety:** Keep fingers, hair, and loose clothing away from rotating propellers. Always power off the drone before handling or adjusting propellers.
- **Emergency Stop:** Familiarize yourself with the emergency stop function on the remote control to immediately cut power in critical situations.
- **Weather Conditions:** Do not fly in strong winds, rain, or other adverse weather conditions.

Package Contents

Before beginning assembly, please verify that all components are present and undamaged. Refer to the image below for a visual representation of the kit contents.

Image: Overview of the EIELEDIY Quadrotor Drone DIY Kit components. This image displays the fully assembled drone alongside all individual parts included in the kit, such as the brushless motor, flight control board, battery, propellers, carbon fiber rods, 3D-printed frame connectors, and the remote control circuit board.

The kit includes all necessary components for building your drone, such as:

- Flight Control Module (PCB)
- Brushless Motors (4 units)
- Propellers (main and spare sets)
- Carbon Fiber Rods for frame construction
- 3D-Printed Frame Connectors and Motor Mounts
- Optical Flow Positioning Module

- Video Module/Camera
- LiPo Battery (1 included, additional may be purchased separately)
- Remote Control Circuit Board and components
- Necessary Screws, Wires, and Connectors
- Small Screwdriver (included)
- Detailed Instruction Manual (this document)
- Modifiable PPT Courseware (digital download)

Assembly Instructions

Assembly of the EIELEDIY Quadrotor Drone DIY Kit typically takes approximately 1.5 hours. Follow these steps carefully. It is highly recommended to refer to the detailed paper instruction manual provided with your kit for visual aids and more in-depth guidance.

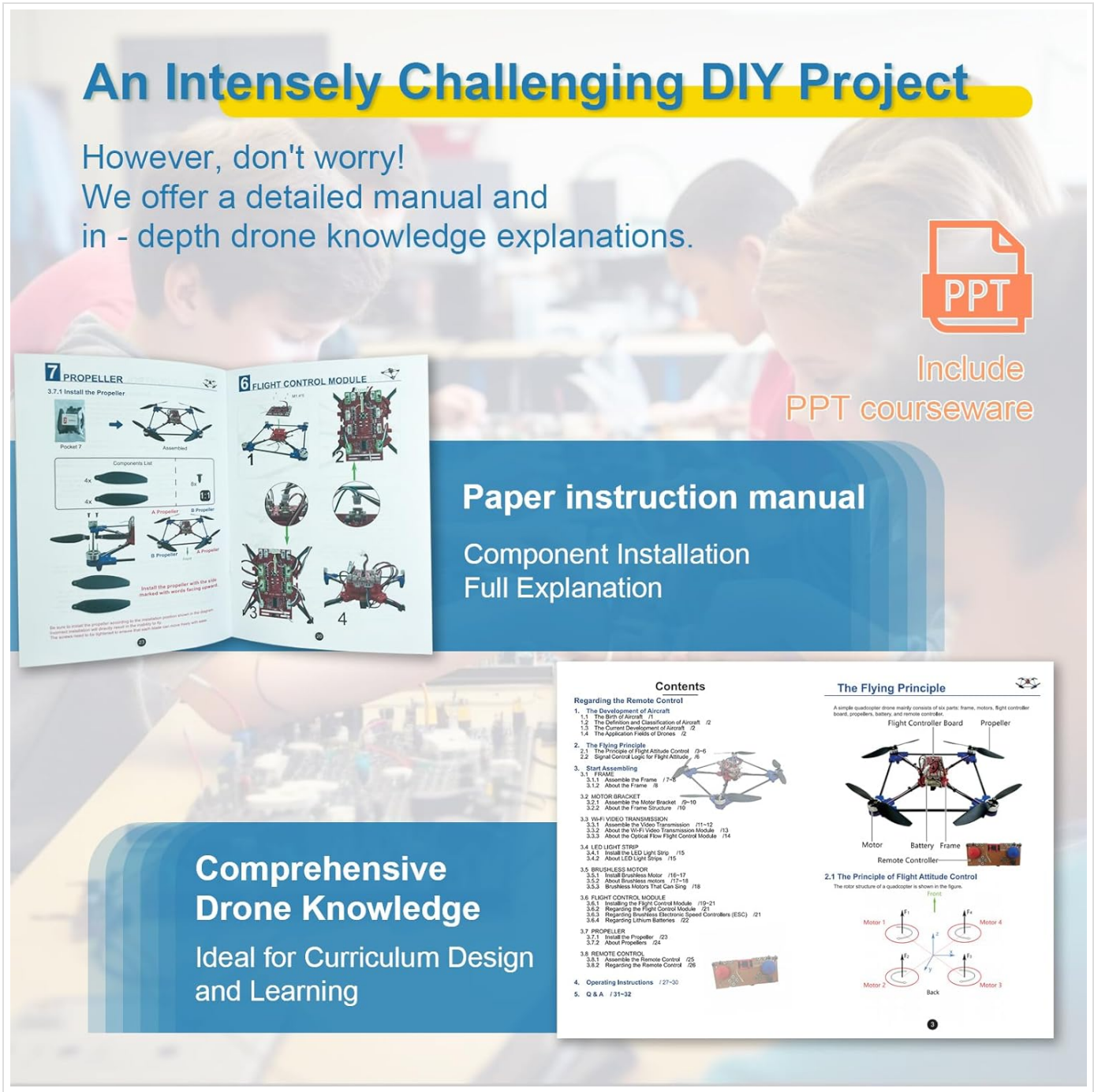

Image: A visual representation of the detailed paper instruction manual included with the kit. The manual provides step-by-step component installation guides and explanations of drone principles, serving as a valuable resource for STEM projects.

1. Frame Construction

1. Identify the carbon fiber rods and the 3D-printed corner connectors.
2. Assemble the square frame using the rods and connectors. Ensure a secure fit.
3. Attach the motor mounts to the corners of the frame.

2. Motor and Propeller Installation

1. Mount each brushless motor onto its designated motor mount at the corners of the frame. Secure them with the provided screws.
2. Connect the motor wires to the flight control module as indicated in the detailed manual. Pay close attention to the correct polarity and motor numbering.
3. Carefully attach the propellers to the motors. Note that propellers are typically marked for rotation direction (CW/CCW). Ensure the correct propeller is on the correct motor as per the manual to achieve stable flight.

3. Flight Control Module and Electronics Integration

1. Mount the main flight control module (PCB) securely in the center of the drone frame.
2. Connect the optical flow positioning module and video module to the flight control board.
3. Route all wires neatly and secure them to prevent interference with propellers or moving parts.
4. Install the battery holder or strap, ensuring it can securely hold the LiPo battery.

4. Remote Control Assembly

1. Assemble the remote control circuit board into its casing (if provided) or attach the joysticks and buttons as shown in the manual.
2. Ensure all connections are firm.

Image: This graphic illustrates the transformation from unassembled components to a fully built drone, highlighting the approximate 1.5-hour assembly time and the 5-star difficulty level. It also showcases key flight functions such as automatic takeoff, automatic landing, altitude holding, video transmission, and the brushless motor system.

Setup

1. **Battery Charging:** Fully charge the LiPo battery using the provided charger before first use. Always monitor the battery during charging.
2. **Power On Sequence:**
    - Place the drone on a flat, level surface.
    - Turn on the remote control first.
    - Connect the drone's battery. The drone's indicator lights should begin to flash.
3. **Pairing:** The drone and remote control should automatically pair. If not, refer to the detailed manual for specific pairing instructions. Indicator lights will typically become solid once paired.
4. **Calibration:** Perform a gyroscope calibration before each flight, especially after a crash or if the drone drifts. This

usually involves moving both joysticks to a specific corner or pressing a dedicated button on the remote. Refer to the remote control layout for details.

Operating Instructions

This drone offers a multi-functional flight experience. Proficiency requires practice. Always start flying in a safe, open area.

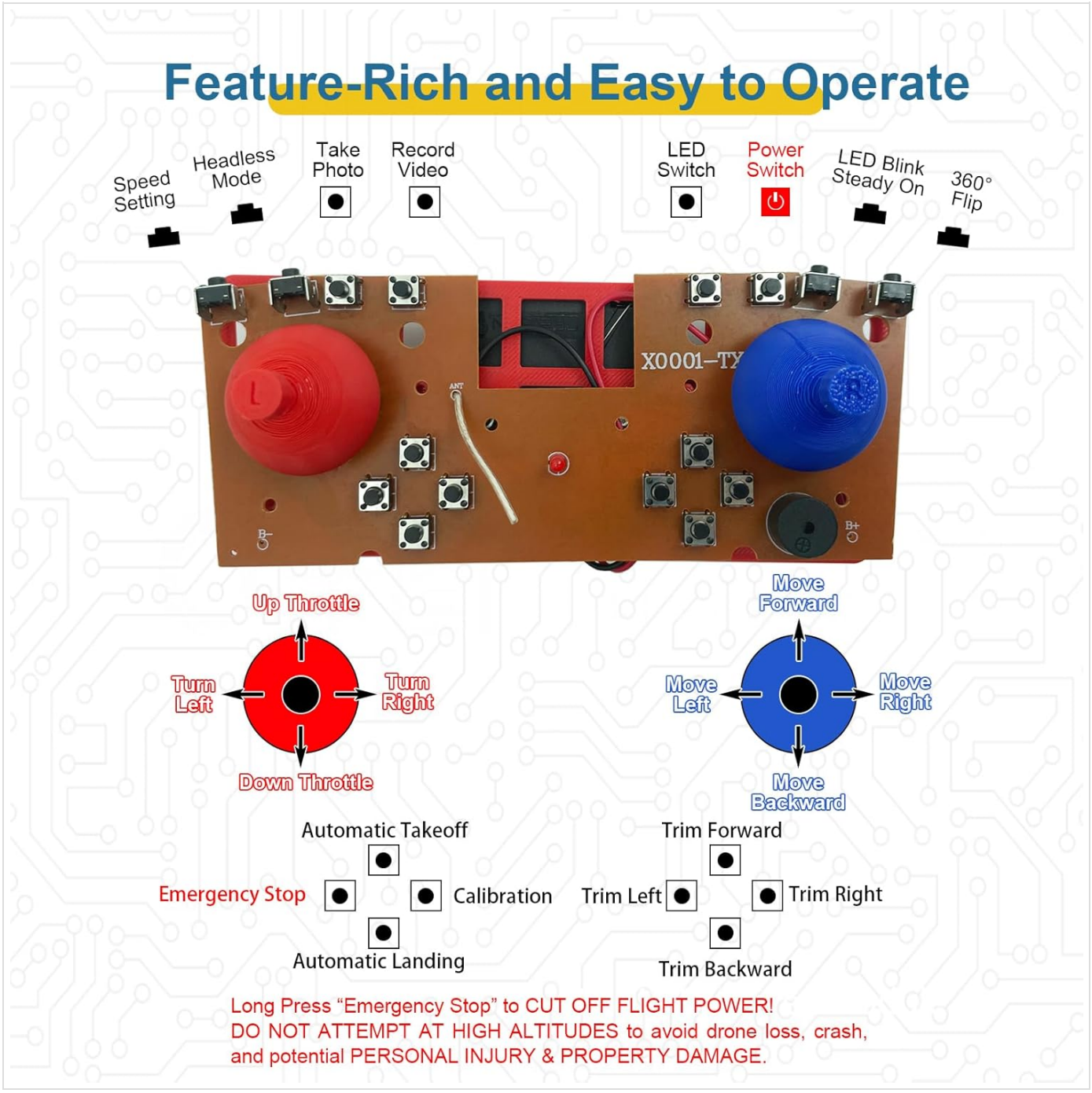

Image: A detailed diagram of the remote control board, illustrating the various buttons and their corresponding functions, including speed setting, headless mode, photo/video capture, LED control, power switch, 360° flip, joystick controls (Up/Down Throttle, Turn Left/Right, Move Forward/Backward, Move Left/Right), automatic takeoff/landing, emergency stop, and calibration/trim controls.

Basic Flight Controls

- **Throttle (Left Joystick Up/Down):** Controls the drone's altitude. Push up to ascend, pull down to descend.
- **Yaw (Left Joystick Left/Right):** Rotates the drone horizontally (left or right).
- **Forward/Backward (Right Joystick Up/Down):** Moves the drone forward or backward.
- **Left/Right (Right Joystick Left/Right):** Moves the drone sideways (strafe left or right).

Special Functions

- **One-Click Takeoff/Landing:** Press the designated button (refer to remote layout) for automatic takeoff or landing.
- **Headless Mode:** Activates headless mode, where the drone's orientation is relative to the pilot, regardless of its actual front.
- **Speed Adjustment:** Cycle through different speed modes (e.g., low, medium, high) using the speed button.
- **360° Roll/Flip:** Execute aerial stunts by pressing the flip button and simultaneously moving the right joystick in the desired direction.
- **Optical Flow Positioning:** The integrated optical flow module assists in maintaining stable hovering, especially indoors or at low altitudes.
- **Real-time Video Viewing:** Connect your smartphone to the drone's Wi-Fi network and use the dedicated app (details in manual) to view live video feed and capture photos/videos.

Important: Long press "Emergency Stop" to cut off flight power. Do not attempt at high altitudes to avoid drone loss, crash, and potential personal injury & property damage.

Maintenance

- **Propeller Inspection:** Regularly check propellers for cracks, bends, or damage. Replace immediately if damaged using the spare propellers provided.
- **Cleaning:** Gently clean the drone with a soft, dry cloth. Avoid using liquids or solvents.
- **Battery Care:** Store batteries in a cool, dry place. Do not leave batteries fully charged or fully discharged for extended periods.
- **Component Check:** Periodically inspect all screws and connections to ensure they are secure.
- **Software Updates:** Check the manufacturer's website or app for any available firmware updates for the flight control module.

Troubleshooting

Problem	Possible Cause	Solution
Drone does not power on.	Battery not charged or connected properly.	Ensure battery is fully charged and securely connected. Check power switch.
Drone does not respond to remote.	Not paired or low battery in remote/drone.	Re-pair the drone and remote. Charge both drone battery and remote batteries.
Drone drifts during flight.	Not calibrated or uneven surface at takeoff.	Perform gyroscope calibration on a flat surface. Use trim adjustments.
Propellers not spinning or spinning unevenly.	Damaged propeller, loose motor connection, or motor issue.	Check for obstructions. Replace damaged propellers. Verify motor wire connections. Contact support if motor is faulty.
Video feed is choppy or not appearing.	Weak Wi-Fi signal, app issue, or video module connection.	Ensure strong Wi-Fi connection. Restart app and drone. Check video module wiring.

Specifications

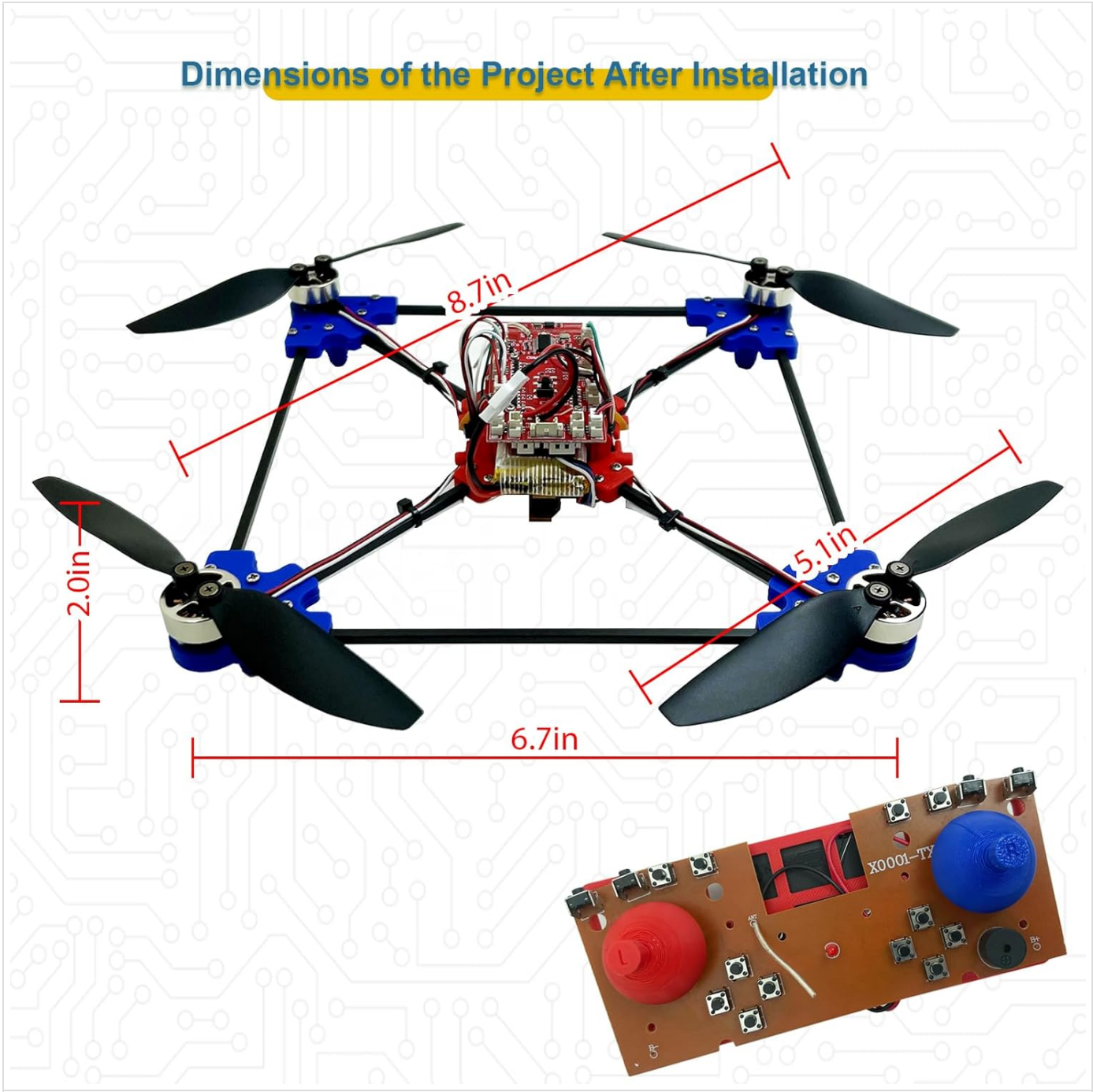

Image: This image provides the key dimensions of the assembled Quadrotor Drone, including its length (8.7 inches), width (6.7 inches), overall height (5.1 inches), and propeller height (2.0 inches). The remote control board is also shown for scale.

- **Model Name:** RM
- **Brand:** EIELEDIY
- **Assembly Time:** Approximately 1.5 hours
- **Recommended Age:** 14+ years
- **Difficulty Level (Assembly):** 5 out of 5 stars
- **Flight Functions:** 360° Roll, One-Click Takeoff/Landing, Headless Mode, Speed Adjustment, Optical Flow Positioning, Real-time Video Viewing
- **Motors:** Brushless
- **Battery:** 1 Lithium Polymer battery (included)
- **Single Flight Duration:** Up to 30 minutes
- **Video Capture Resolution:** 1080p
- **Connectivity Technology:** Wi-Fi

- **Control Type:** Remote Control
- **Material:** Plastic or Composite (for 3D printed parts)
- **Assembled Dimensions:** Approximately 8.7 x 6.7 x 5.1 inches (L x W x H)
- **Weight:** Approximately 1.01 Pounds (assembled)

Warranty and Support

EIELEDIY provides comprehensive technical support for this DIY drone kit. While this is a challenging project, most users can successfully experience all functions by carefully and meticulously following the instruction manual.

- **Technical Support:** For any assembly difficulties, operational issues, or technical inquiries, please contact EIELEDIY customer support. Refer to the contact information provided in the physical instruction manual or on the product's purchase page.
- **Spare Parts:** The kit includes spare propellers. Additional spare parts may be available for purchase through authorized channels.
- **Educational Resources:** Modifiable PPT courseware is provided to assist with educational work and deepen understanding of drone principles.