1. Get to Know Your DOBBY

DOBBY is ZEROTECH’s compact, portable, multi-axis aircraft that has been tailor-made for selfie-lovers. It comes with a high definition camera that can take 4208 x 3120 photos and can shoot 1080p videos @30fps. The accompanying Do.Fun app lets you control DOBBY’s flight.

DOBBY’s structural components:

1. Camera
2. Propeller
3. Arm
4. On/Off Switch, Power Indicator
5. Reset Button
6. Micro-USB Port
7. Battery
8. Battery Level Button
9. Battery Level Indicator
10. Optic Flow and Ultrasonic Positioning Module
11. Aircraft Status Indicator

Symbols

- **Hints**
- **Warning**

<table>
<thead>
<tr>
<th>LEDs</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>On</td>
<td>⬤</td>
<td></td>
</tr>
<tr>
<td>Flashing</td>
<td>⬤</td>
<td>⬤</td>
</tr>
<tr>
<td>Off</td>
<td></td>
<td>🗑</td>
</tr>
</tbody>
</table>
2. Get to Know Your Do.Fun

Do.Fun is specifically designed for DOBBY. Through the app, users can use their mobile as a remote controller for flight control and to take photos and record videos. You can also directly share your photos and videos to social networks.

Downloading Do.Fun

Search for Do.Fun in App Store or Google Play, download and install the app to your mobile device.

Get to Know the Status Indicators

<table>
<thead>
<tr>
<th>Outdoor Positioning Status Indicator</th>
<th>GPS Positioning Status Abnormal (number of searched-out satellites &lt; 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GPS Positioning Status Normal (number of searched-out satellites ≥ 8)</td>
</tr>
<tr>
<td>Indoor Positioning Status Indicator</td>
<td>Optic Flow Positioning Status Abnormal</td>
</tr>
<tr>
<td></td>
<td>Optic Flow Positioning Status Normal</td>
</tr>
<tr>
<td>Wi-Fi Connection Status Indicator</td>
<td>Wi- Fi Disconnected</td>
</tr>
<tr>
<td></td>
<td>Wi- Fi Connected</td>
</tr>
<tr>
<td>Aircraft Battery Indicator</td>
<td>Low Battery</td>
</tr>
<tr>
<td></td>
<td>Full Battery</td>
</tr>
<tr>
<td>Flight Distance/Height</td>
<td>Current Flight Distance</td>
</tr>
<tr>
<td></td>
<td>Current Flight Height</td>
</tr>
</tbody>
</table>

Get to Know the Functional Buttons

- Login/Register
- App Settings
- Indoor/Outdoor Switch
- Takeoff
- Landing
- Voice Control
- Photo Timer
- Camera Settings
- Shutter
- Photo/Video Switch
- Record
- Stop Recording
- More Features
- Short Video
- Orbit
- Target Tracking
- Face Tacking
- Return to Home
- Somersault
- Media Library
- Assisted GPS Positioning
3. Charging the Battery

Press the Battery Level Button, the Battery Level Indicator will show the current battery level. If any of the lights are off, please charge the battery.

Plug the battery down to the charger. Use the USB cable to connect the charger to the adapter, and then plug the adapter into a power socket to begin charging.

When charging, the Charging Status Indicator will be solid orange/red. If the light turns solid green, it means it has completed charging. Turn off the power source and remove the battery from the charger.

4. Preparing the Area for Flight

We suggest that you conduct the first flight in an open outdoors area and that you conduct indoor flight after getting familiar with the flight control.

Outdoors

- Don’t fly DOBBY in bad weather conditions, such as in high wind, rain, snow, etc.
- Please fly in open area, do not fly near buildings and keep a good distance from tall buildings, for fear that the GPS signal would be blocked. If you can’t fulfil the requirements for the GPS positioning, please do so for the optic flow and ultrasonic positioning, see “Indoors” for more information.
- Do not fly near areas with abnormal magnetic fields and near complex electromagnetic environments.

Please do not fly in areas where flying is illegal or restricted. DOBBY will not be able to fly in restricted areas while using the GPS positioning.
Indoors

- During indoor flight, DOBBY uses the optic flow and ultrasonic positioning. The flight area needs to be above a clear textured surface that is not too sparse or too dense. If you can’t find an appropriate textured surface, you can put a textured carpet or cloth on the ground, table or any large, horizontal surface to provide the required texture.

- Indoor flight needs to be conducted in a well-lit area (luminosity > 15lux) such as an area illuminated by an ordinary fluorescent lamp.

- During fast flight at low levels (0.5m or less), the ultrasonic positioning system may not work.

- Do not fly above objects that readily absorb ultrasonic waves.

- Do not fly above highly reflective surfaces.

5. Preparing the Aircraft

1) Unfolding the Aircraft

Fold out the four arms of the aircraft.

![Unfolding the Aircraft](image)

2) Adjusting the Camera’s Pitch Angle

There are 6 rotations in the Camera’s pitch angle limit. The lens facing the front: 0°; Push up the lens: elevation 22.5°; Push down the lens: successively depressions -22.5°, -45°, -67.5°, -90°. There are several ink lines on the side of the Camera corresponding to different pitch angles. Push the Camera to the needed angle, just exposing the corresponding ink line.

![Adjusting the Camera’s Pitch Angle](image)
3) Turning the Aircraft On
Plug the battery into the battery compartment in the right direction (the Battery Level Indicator near to the Camera), and make sure it’s clamped.

Hold the On/Off Switch for 3 seconds. Wait until the Power Indicator flashes blue, take your finger off the Switch and the aircraft will turn on.

Wait a few seconds. It will emit a noise notifying you that the ESC has turned on.

4) Calibrating the Compass
You’re required to calibrate your compass before the first flight and the first outdoor flight!
Connect to the aircraft’s Wi-Fi, open Do.Fun and go to “App Settings” - “Compass Calibration”, and then follow the onscreen prompts to calibrate the compass.

Do not calibrate your compass near large metal objects or in places with strong magnetic field interferences.

6. Connecting the Aircraft to Do.Fun
Connect your mobile device to the aircraft’s Wi-Fi. The default SSID is Dobby-XXXXXXX, please check the label beside the battery compartment on the base of the aircraft to acquire the SSID, and the default password is zerotech.

Open the main interface of Do.Fun. First, toggle the “Indoor/Outdoor Switch” to choose your current environment:

- 🏡 indicates indoor, it will use optic flow positioning.
- ⛺️ indicates outdoor, it will use GPS positioning.

At last, check if it shows that it’s connected to the Wi-Fi 📵, that the aircraft’s battery level is high ⚡, and that the optic flow positioning status is normal 🏡 or the GPS positioning status is normal 🦃. If so, you can take off.

7. Flying

The rotating propeller blades may cause damage to nearby people and objects. Please don’t fly DOBBY near groups of people and keep a good distance from the propeller blades.
Takeoff/Landing

- Tap it, the app will pop up the “Ground Takeoff” and “Palm Takeoff” options.
- If you choose “Ground Takeoff”, DOBBY will directly take off.
- If you want to try palm takeoff, please first place DOBBY on your palm, and then choose “Palm Takeoff”, the propellers will start to rotate. Wait until they fully rotate, remove your palm or slightly toss it.

- Tap it, the app will pop up the “Ground Landing” and “Palm Landing” options.
- If you choose “Ground Landing”, it will directly start to descend.
- If you choose “Palm Landing”, it will start to descend slowly. Place your palm right under it, it will land onto your palm. Or it will close palm landing and restore to ground landing in 10 seconds.

Flight Control Method - Motion Sensing

Your mobile device tilted within 45° from horizontal, hold down on any part of the right hand half of your screen and tilt your mobile device backward and forward/left and right to control backward and forward/left and right movements.

- Swipe the left hand half of your screen up and down to control up and down movements; Swipe left and right to control the direction. Swipe and hold to continue the movement.

- The default control method is set to “Motion Sensing”. You can switch it to “Swipe Screen” or “Sticks” in “App Settings” - “Control Method”.
- The default camera orientation is set “Selfie” by default. You can switch it to “Find a View” in “App Settings” - “Camera Orientation”.

Forward tilt
Backward tilt
Left tilt
Right tilt
Flight Control Method - Swipe Screen

Swipe the screen up and down to control up and down movements; Swipe left and right to control left and right movements. Swipe and hold to continue the movement.

Two fingers swipe the screen, get close to or away from each other to control backward and forward movements. Swipe and hold to continue the movement.

Tap the direction icon in the top right hand corner, and then swipe the screen left and right to control the direction; Swipe up and down to control up and down movements. Swipe and hold to continue the movement. Tapping again will exit direction control.

Flight Control Method - Sticks (Taking American Operator for Example)

Free Sticks: Hold down on the dot at the center and toggle up and down/left and right. Toggle and hold to continue the movement.

Safe Sticks: Similar to free sticks, but it uses tapping on the arrows on the four directions instead of toggling.

8. Taking Photos/Recording Videos

Taking photos

Single shot: In the single shot mode, every time you tap the “Shutter” button, it will take one photo.
Burst shot: Tap the “Camera Settings” 📷. Tap “Burst Shot 📷” and select how many photos to take in the “Modes” popup menu, and you’re switched to the burst shot mode. Afterwards, every time you tap “Shutter” 📷, it will take a series of burst shot photos.

You can press the volume buttons on your mobile device or earphones to take photos.

Conventional Video Recording

Toggle the “Photo/Video Switch” 📷 to go to the conventional video recording interface.

Tap the “Record” button 🎥, it will begin recording. Tapping the “Stop Recording” button 🎥 will end your recording.

We suggest that you enable EIS for video stabilization before recording. Tap the “Camera Settings” 📷 to enter “Settings” - “EIS”, select any of the lens angles to enable EIS.

10s Auto-Track Short Video Recording (Only under Outdoor GPS Positioning)

Tap the “Camera Settings” 📷 to enter “Settings” - “EIS”, select the needed lens angle (also enable EIS), and then tap the “More Features” 🔄, choose “Short Video 📷” in the popup feature list to go to the short video recording interface.

Then hold the “Record” button 🎥 to record a video. Meanwhile, DOBBY will fly in the direction of the selected lens angle. Releasing your finger off the button (or the duration reaching 10 seconds) will stop recording, and DOBBY will automatically return. You can also hold 🎥 to record short videos during DOBBY’s return flight.

We suggest that you adjust the Camera’s pitch angle to be the same as the selected lens angle.

Here we respectively take the selected lens angles 0°, -45° and -90° for example to illustrate the relationship between the flight path in the short video recording and the selected lens angle:
### Aircraft Specifications

- **Weight**: 199g
- **Size**
  - Expanded: 135mm x 145mm x 36.8mm
  - Folded up: 135mm x 67mm x 36.8mm
- **Max. operating altitude**: 3000m
- **Flight duration**: 9 minutes (at sea level)
- **Operating temperature**: 0~40°C
- **Highest wind resistance**: 28km/h
- **Positioning system**
  - Outdoor: GPS & GLONASS dual-mode satellite positioning
  - Indoor: optic flow (luminosity > 15lux) + ultrasonic wave
- **Max. ascent height**
  - GPS positioning: 50m (may be adjusted by local regulations)
  - Optic flow and ultrasonic positioning: 3m
- **Max. control distance**: 100m (in open air free of interference)
- **Hovering accuracy**
  - Vertical: ±0.1m (ultrasonic positioning active); ±0.5m (outdoor)
  - Horizontal: ±0.3m (optic flow positioning active); ±1.0m (outdoor)

### Appendix  Indicators

#### Aircraft Status Indicator
- **Solid blue**: GPS positioning normal
- **Slow blue flashing**: Optic flow and ultrasonic positioning normal
- **Fast green flashing**: GPS failure
- **Fast yellow/green flashing**: Ultrasonic failure
- **Fast yellow/red flashing**: Optic flow failure
- **Fast red flashing**: No-fly zone warning
- **Solid Red**: Critical battery warning
- **Fast purple flashing**: Compass failure
- **Solid Green**: Horizontal compass calibration
- **Solid White**: Vertical compass calibration

#### Battery Level Indicator
- **0~25%**
- **25%~50%**
- **50%~75%**
- **75%~100%**

#### Charging Status Indicator
- **Solid orange**: Fast charging
- **Solid green**: Charging completed
- **Green flashing**: Not charging
- **Solid red**: Slow charging
- **Red flashing**: Failure

### Appendix  Specifications

**Appendix Indicators**

**Battery Level Indicator**

**Charging Status Indicator**
### Camera

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor</td>
<td>1/3.06” CMOS; Effective pixels: 13M</td>
</tr>
<tr>
<td>Lens</td>
<td>FOV75°; 28mm (35mm format equivalent); f/2.2; Focus at ∞</td>
</tr>
<tr>
<td>Pitch Range</td>
<td>-90°~22.5°</td>
</tr>
<tr>
<td>Photo Size</td>
<td>4208x3120</td>
</tr>
<tr>
<td>Photo shooting modes</td>
<td>Single shot  Burst shot (2-15 photos)  Timed shot</td>
</tr>
<tr>
<td>Video shooting modes</td>
<td>HD video shooting 10s Auto-track short video shooting</td>
</tr>
<tr>
<td>EV range</td>
<td>-12; -8; -4; 0; 4; 8; 12</td>
</tr>
<tr>
<td>Timed shot countdown</td>
<td>Off; 3s; 5s; 10s; 20s</td>
</tr>
<tr>
<td>Video recording</td>
<td>1080p@30fps after EIS on 4k@30fps</td>
</tr>
<tr>
<td>Storage format</td>
<td>Photo: JPG  Video: MP4 (MPEG-4 AVC/H.264)</td>
</tr>
<tr>
<td>Storage capacity</td>
<td>16GB</td>
</tr>
<tr>
<td>Data port type</td>
<td>Micro-USB</td>
</tr>
</tbody>
</table>

### Battery

<table>
<thead>
<tr>
<th>Feature</th>
<th>Capacity</th>
<th>Voltage</th>
<th>EIRP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated capacity</td>
<td>970mAh</td>
<td>8.7V</td>
<td></td>
</tr>
<tr>
<td>Rated energy</td>
<td>7.37Wh</td>
<td>8.7V</td>
<td></td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>7.6V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery type</td>
<td>LiPO 2S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature (charge)</td>
<td>5~45°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature (discharge)</td>
<td>5~45°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. charge voltage</td>
<td>8.7V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Charger

<table>
<thead>
<tr>
<th>Feature</th>
<th>Type</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charging port type</td>
<td>Type-C</td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>9V</td>
<td>2A</td>
</tr>
<tr>
<td>Output</td>
<td>8.7V</td>
<td>1.5A</td>
</tr>
</tbody>
</table>

### App

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>App name</td>
<td>Do.Fun</td>
</tr>
<tr>
<td>Real-time image transmission</td>
<td>640x480@30fps</td>
</tr>
<tr>
<td></td>
<td>320x240@30fps</td>
</tr>
<tr>
<td></td>
<td>1280x720@30fps</td>
</tr>
<tr>
<td>Delay</td>
<td>160ms (depending on actual shooting environment and mobile device)</td>
</tr>
<tr>
<td>Supported mobile device OS</td>
<td>Android 4.3 and higher versions</td>
</tr>
<tr>
<td></td>
<td>iOS 8.0 and higher versions</td>
</tr>
</tbody>
</table>

This guide only covers basic information on DOBBY’s operation. Please read **DOBBY User Manual** for more details.

This guide will be irregularly updated as necessary, and is subject to renewal without prior notice. Please visit ZEROTECH’s official website (www.zerotech.com) to download the latest version.

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