

DJI Drone Waypoint Mission Planning: Indoor and Outdoor Guides

Setting up Waypoint missions for DJI drones involves several steps, starting with initial safety configurations and moving through detailed flight path and camera action planning, which can be done both indoors using a map or outdoors by flying the drone.

Source video: <https://www.youtube.com/watch?v=tfVZdaVG-ig>

Initial Setup and Safety Settings: Before creating a Waypoint mission, it's crucial to correctly set up the drone's obstacle avoidance sensors and actions:

For Waypoint missions, the obstacle avoidance action must be set to either "Bypass" or "Break," as the drone will behave the same in both cases: it will stop if it senses an obstacle. It is critical not to set obstacle avoidance to "Off," as the drone would then crash into obstacles. The advanced return-to-home setting should also be checked; the optimal setting is generally preferred for the drone to find the most efficient path back if connection is lost, though its criticality for Waypoint missions is less emphasized during creation.

Planning Indoors (Map-Based):

1. Accessing the Waypoint Section:

Navigate to the Waypoint section by tapping the designated icon on the remote.

2. Using the Map:

Tap the map icon at the bottom of the screen to open a large map view.

3. Adding Waypoints:

Press on the desired locations on the map to add numbered Waypoints, which define the drone's flight path. Waypoints are connected by arrows indicating the drone's heading along the course.

4. Adjusting Waypoint Settings:

Altitude and Speed: For each individual Waypoint, you can set a specific altitude and speed. A "Global speed" can also be set for the entire mission, which the drone will maintain unless overridden by specific Waypoint speeds.

Heading: The drone's heading can be set to "Follow course" (following the flight path) or "Custom," allowing manual adjustment of the drone's direction at that specific Waypoint.

5. Setting Points of Interest (POI):

Instead of custom headings, you can set Points of Interest (POIs) on the map. The drone's camera will automatically aim towards a selected POI as it flies. You can adjust the altitude of a POI, which determines where the camera will aim (e.g., a lower altitude for the base of a tree).

6. Editing Waypoints:

Waypoints can be removed using an erase button. New Waypoints can only be added at the end of the current sequence. Existing Waypoints can be repositioned by tapping and dragging them on the map.

7. Global Mission Settings:

Global Speed: Set the overall speed for the mission.

End of Flight Action: Choose what the drone does upon completing the mission: hover, return to home, land, or return to the start position.

Signal Lost Action: Determine what the drone does if signal is lost: return to home, hover, or land.

Starting Point: Select which Waypoint the mission should begin from.

8. Camera Actions:

At specific Waypoints, you can set camera actions such as:

- Starting or stopping video recording.
- Taking a still picture.
- Adjusting the camera's zoom.
- Setting a hover time for the drone to pause at a Waypoint.

9. Review and Execution:

The system displays the total duration and distance of the planned flight. Before execution, it goes through a check of the Waypoint flight settings. A warning is issued that the aircraft will automatically take off and perform the flight, emphasising the need for a safe environment.

Planning Outdoors (Drone in Air):

1. Drone Position:

The primary difference outdoors is that Waypoints are set by physically flying the drone to the desired position in the air.

2. Creating a New Mission:

If you've loaded a previously saved mission, you need to cancel out and re-enter the Waypoint section to create a new one.

3. Adding Waypoints:

Fly the drone to the first desired location and either tap the screen or use the C1 button to set the Waypoint, which locks in its elevation, height, direction, and position. Continue flying and adding Waypoints as desired.

4. Adding Points of Interest:

Fly the drone to the location where you want a POI, set it, and then link specific Waypoints to aim their cameras towards this POI.

5. Refining Settings:

Similar to indoor planning, you can adjust global speed, end-of-flight actions (e.g., hover in a tree-filled area), signal lost actions, and camera actions (e.g., start/stop recording at specific Waypoints).

6. Execution:

Once settings are finalised, tapping "go" loads the mission into the drone, and it will begin the flight. The drone relies on GPS positions, so visual recognition of exact positions is not used, meaning it can be slightly off.

7. Mid-Flight Adjustments:

During a Waypoint mission, pushing the stick forward will make the drone fly faster, but pulling it backward will cause it to break and stop, not just fly slower. Lateral stick inputs (right or left) have no effect. If needed, you can start the mission from a different Waypoint.