



AERIAL IMAGING SCOTLAND

Appendix B.

DJI Mavic 4 Pro LiDAR Sensor

The DJI Mavic 4 Pro includes a forward-facing LiDAR sensor that improves obstacle detection, especially in low-light conditions. It helps the drone fly more safely by detecting objects such as trees, buildings, and other obstacles, even when it is nearly dark.

Light Detection And Ranging

It works by sending out thousands of laser pulses and measuring how long they take to bounce back from objects. Using that information, the system creates a highly accurate 3D map of the surroundings.

Simple Example

Think of LiDAR like a bat using echolocation:

- A bat sends out sound waves and listens for the echo.
- LiDAR sends out laser light and measures the reflected light.
- Both calculate distance based on the time it takes for the signal to return.

Key Benefits

Obstacle Avoidance

- Measures distances accurately and helps the drone avoid obstacles in real time.
- Works even when GPS signals are weak or unavailable.

Low-Light Flying

- Continues detecting obstacles in very dark conditions.
- Ideal for night photography, inspections, and flying at dusk or dawn.

Improved Camera Movement

- The LiDAR sensor is mounted on a propeller arm, keeping it out of the way of the camera.
- This allows the 360° Infinity gimbal to rotate freely for creative shots, including vertical video and upward-facing angles.

Enhanced Flight Safety

- Works with the drone's other vision sensors to improve navigation and return-to-home performance.
- Helps maintain safe flight in complex environments such as cities and forests.