

DUAS25

Posted on 04.01.2024 by Rupert Dent

Category: [Drones/UAS](#)

Report Title Lost sight of drone

Initial Report

Having searched the banks of the river I spotted a feature that required closer investigation. I attempted to circumnavigate the feature whilst keeping the drone's camera facing toward the centre point. With eyes flicking up and down between screen and sky, at some point during this manoeuvre I lost sight of the drone. As per training, the safest way out of such situation is to fly straight upward; however, the drone must have been too close to a tree and the branches claimed it on ascending.

The drone's position on the smart controller was clear, so I waded through the river and its boggy banks to find the drone wedged high up in the tree branches. I climbed the tree and was able to retrieve the drone. No visible damage to the aircraft or propellers. Test flights carried out and all okay. Proceeded with training exercise.

Additional answers to a number of questions that we put to the reporter:

1) How far away from the tree do you think you were, when you lost sight of it?

"AirData shows it as 145m from the home point (14 minutes into the flight)"

2) What sort of Drone was it?

"Mavic 2 Zoom"

3) Does the Drone have a Point of Interest function that would have enabled you to circle what you were looking at autonomously with a pre-determined radius?

"Yes, I believe it does, however I cannot say that I have ever used it; but more to the point, in a search and rescue scenario it is highly unlikely that it would be used. However, in this instance, I was consolidating my flying practice, after passing my A2 CofC theory exam, and I was attempting to stretch my inner boundaries and increase my confidence."

4) Does the Drone you used have a vision system that prevents it from encountering obstacles and if it does was it switched on?

"Yes, it does, and yes it was active; but the overhead collision avoidance is done by dead reckoning (not by proximity sensors), and as it was only just underneath the overhanging

branches, I think it would be unreasonable to expect it to work in this circumstance."

Lessons learned.

This was too complex a manoeuvre to carry out without having a sensor operator, and too far away to have accurate understanding of the position of the aircraft relative to its surroundings.

Comment

We agree with the idea of a pilot practising their skills at judging distance. Determining the relative distance between two far away objects is difficult at the best of times. But practising it alone is the most difficult way of learning. A pilot accompanied by an Airspace Observer (AO) is a better way of developing one's skills and learning how to do this. In this instance, it would have resulted in one set of eyes focussing on the controller and a second set of eyes staying focussed on the aircraft. If the AO had lost sight of the aircraft, they could have asked the pilot to hover and then approached where they had last seen the aircraft to improve the likelihood of locating it again. The perception of relative distance is dependent on several different variables such as visibility, background colour, light, distance and so on. Managing these variables as a team of two rather than one is advisable!

A point worth mentioning that is specific to rotary Drones is that if you lose sight of the aircraft at any point, it is always worth considering initiating a stationary hover, so the AO or the RP if it is being flown single crew, can then move towards where the aircraft was last seen, looking at the controller screen first, for general direction and to ensure there are no system failures. This might help to establish visual contact with the aircraft, before moving it any further.

With regards to the answers we received to our clarification questions, we feel it is worth noting two aspects:

- Whilst the Mavic 2 Zoom does have a vision system to warn of proximity to other objects, in our experience it does find it hard to identify the tips of tree branches. Later models have an improved dual system of sonar combined with an infrared system. However, caution when flying near trees is still recommended.
- The 145m visibility distance mentioned is roughly consistent with other estimates of the distance away from an observer when seeing an object of that size starts becoming difficult. Later models have strobes fitted both underneath and on top of the aircraft. Strobes might have made a difference in this case.



