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Open letter

From: Philip Rowse, CTO of ProfiCNC and Hex (Now known as CubePilot)

To: the BBC

Subject: the two recent "drone documentaries"

I personally grew up listening to the BBC on the long wave radio in east Africa as a child in the 80's. We listened to the BBC world service, to find out the facts surrounding events that happened around us, and at home in Australia. In the last 30 years, I have been in the Aviation industry, starting with bush aircraft in Zambia and Kenya, maintaining aircraft in Australia for use in PNG, then as a contractor for the Royal Australian Airforce.

In all this time, the BBC was a source of FACT.

We have since been developing Autopilots for the Unmanned Aircraft industry, Our autopilots have been used by some of worlds leading Aerospace companies, names like Boeing, NASA, Airbus... they have featured in the worlds first commercial unmanned package deliveries in Switzerland, they even flew during the recent Paris Air show for the entire duration of the show. They are delivering medicine in the third world, mapping fire damage, protecting troops and civilians, patrolling swimming spots, and winning the world's leading competitions on the use of unmanned aircraft (AUVSI and the Australian outback Challenge). Some of our favourite movies feature many shots made with our autopilot. In all these use cases, the operators are responsible members of society.

Now comes the "Hobbyist" the real "villain" in these "Documentaries" these are the people that are being made to look like they are out to kill all our sons and daughters with their weaponised airliner seeking racing drones.... These "villains" are the future engineers and scientists, they are Journalists, they are doctors, teachers, students, filmmakers, real-estate agents, mums, dads, daughters and sons.

My design of Autopilot, known nowadays as "The Cube" was previously known as the Pixhawk 2, and featured at the heart of the 3D Robotics Solo multicopter. This copter was produced at the same time that DJI produced the Phantom 3 series multicopter. 10's of thousands of Solos were sold over the next year or so, and many more Phantom 3's, as well as subsequent Phantom 4's, Mavics, Sparks, and many other drones from many other companies hit the market. These drones would represent the bulk of the "fear factor" that has been presented in the programmes being discussed.

## Common factors in the common consumer drones...

1. Weight is less that 1.5kg.
2. No carbon fibre rods are used in the build.
3. No solid lumps of aluminium were used as batteries.
4. Available for the public to purchase and fly with limited piloting knowhow required

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5. All have return to home, flight logging, and some indication as to if flight is “OK” in the given area
6. These drones tend to be flown below 400ft, and within 1 mile of the operator

Let us look at the Gatwick scenario. a few known facts.

1. NO confirmed drone sightings that can clearly confirm that it WAS a drone.
2. The most common is the Airbus A319 and Boeing 737  
([https://www.gatwickairport.com/globalassets/publicationfiles/business\\_and\\_community/all\\_public\\_publications/aircraft\\_noise/fpt\\_annual\\_report\\_2014\\_v6\\_lr.pdf](https://www.gatwickairport.com/globalassets/publicationfiles/business_and_community/all_public_publications/aircraft_noise/fpt_annual_report_2014_v6_lr.pdf))
3. After monitoring actual traffic at Gatwick below 1500ft, the top speed of the A319 aircraft was 170kts in take-off or landing configuration
4. Smaller aircraft had much lower approach speeds

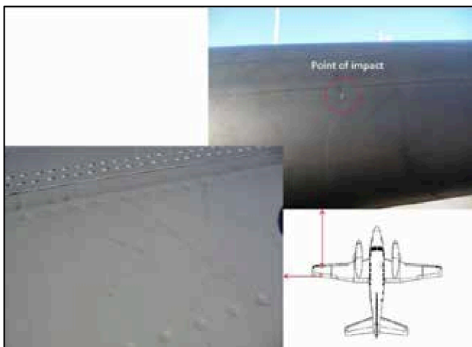
So if we are so worried about a “Consumer Drone”, ie, one mentioned in the description above, colliding with an aircraft arriving or departing out of Gatwick, we can assume that we should use the above parameters for the test.

## Actual Aircraft vs Drone collision data:

Since the advent of the “drone” from the consumer multicopter drone perspective, there has not been a single civilian aircraft involved with a collision with a drone. Unfortunately there has been a lot of reporting of “suspected” collisions, but not much follow up reporting of the investigations that have cleared drones in ALL but the Canadian cases. In NO CASE worldwide was any evidence linked to an actual drone.

The incident in Canada has been blamed on a drone. <http://www.tsb.gc.ca/eng/rapports-reports/aviation/2017/a17q0162/a17q0162.pdf>

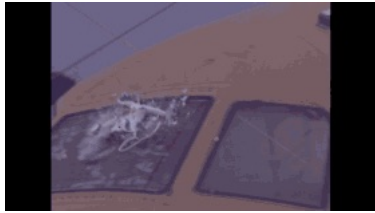
However, the lack of ANY evidence of drone, and the lack of damage to the aircraft either indicate that the risk is insignificant, or they did not in-fact hit a drone.



China has tested collisions of these consumer drones vs an aircraft, and the thing to note, is how the drone shatters on impact, it doesn't act as a spear.

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## My questions to the BBC

1. Why was the consumer drone in the test fired at 250kts not 170kts at a pre-damaged suboptimal fragment of a wing that doesn't represent the aircraft that would be affected in the scenario that is being played out?
2. Why was the "drone" augmented with solid carbon fibre reinforced rods that were allowed to "pre-fracture" the wing section?
3. Why was the battery replaced with what appears to be a solid lump of aluminium?
4. If in-fact there really was a drone at Gatwick, and it was malicious, how do you think better rules for the already hundreds of thousands of responsible drone users would deter a would-be terrorist?
5. Given the only official drone vs plane incident had a very minor dent in it, how do you explain the test results?
6. Given the Gatwick fiasco ruined the Christmas plans of hundreds of thousands of holiday makers, and the total lack of real evidence for risk caused by these devices, should we not be investigating why we are living in a climate of fear and paranoia, where panic is the only weapon we have against the unknown?
7. Given the very nature of negative press, this story will be spread far and wide, and just like false stories before this one, they do not go away. They keep getting used and referenced, and retractions do not appear on the original stories with the required emphasis on corrections, are you willing to ensure enough coverage of the required corrections to this information?

Examples of this are the Mexico "drone vs Airliner" that never happened, the BA plastic bag incident, the Mozambique incident of a 737 and so on. All get sensational media at the time of the "suspected incident" and float around forever doing massive damage to the industry.

8. Given the millions of hobby drone users that have been vilified by these "documentaries", how is the BBC going to assist them in repairing their personal reputations? How will it assist in repairing the damage to the industry?

Thank you for your time

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