

Mythbusting Unmanned Aircraft Systems

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Abstract:

We see UAS or drones in the media portrayed as one of two things: 1. Dangerous 'toys' that can inflict injury, invade privacy, or interfere with security or other aircraft operations; or 2. Incredible technological innovations able to revolutionise everything from search and rescue to pizza delivery. Unfortunately, neither view is helpful to the burgeoning industry. The former instils fear and a belief that drones are bad, while the latter creates unrealistic expectations that disillusion and disappoint. The reality of this capability lies somewhere in between the two portrayals. This presentation will address some of the very real challenges faced when building a UAS capability. It details the significant time and financial investment required to become operational. This considers the current regulatory environment, as well as the technological status of equipment and components. Most importantly, the presentation will communicate reality, with no superficial promises or capability overselling. Experience with a recent custom build small UAS carrying hyperspectral, thermal, and DSLR camera will be used to demonstrate requirements and considerations. While the project has concluded with infrastructure purchase, sensor integration applications will be presented as a work in progress. The greatest learning point from this project is that cutting edge and turnkey solutions are mutually exclusive. It is hoped that by sharing this experience, others may have a more realistic understanding of the current capabilities, and the difference between custom systems and those available as commercial off-the-shelf.



Figure 1. Custom build 'Aeronavics' small UAS with hyperspectral, thermal, and RGB camera payload.