

**DEPLOY:** DEVICE SOFTWARE

# DEVELOPING VIABLE PROTOTYPES EFFECTIVELY

## THE CHALLENGE

A startup focusing on autonomous, on-demand drone delivery services is architecting its airborne platform prototype under an aggressive timeline for presentation to investors. The design is based on a hybrid power train for vertical takeoff and landing (VTOL) and uses a combination of sensors (such as lidar and radar) and air traffic management software for navigation.

To validate the minimum viable product (MVP) and draw venture capitalists and accelerators, the team must prove the drone's ability to operate autonomously in compliance with safety regulations.

Because of limited space and power and a low weight requirement, the device must host several functions on one compute platform, with separation of different DAL levels. Evolving requirements could also include DO-178C safety evidence in the future.

**To connect workflows, the team needs a centralized development environment plus access to a certifiable real-time operating system (RTOS) with support for vehicle/flight management unit (VMU/FMU) reference hardware and simulator. Workflows must integrate third-party air traffic management software and test automation capabilities.**

## THE SOLUTION

Using Wind River® Studio, the team can start development on the proven foundation of VxWorks® Cert Edition, while the Type 1 hypervisor in Wind River Helix™ Virtualization Platform allows the use of third-party middleware and applications alongside the VxWorks Guest OS. Starting from this foundation provides a path to future safety certification using the DO-178C certification artifacts.

With the built-in Wind River Studio Virtual Lab and available Wind River Simics® components, the team can develop, debug, and validate on a simulator. Studio's scalable access to virtualized hardware and test automation frameworks can streamline software certification. Generated safety artifacts are sharable and tasks can be securely consolidated in the cloud, saving resource costs during the prototyping phase.

Wind River Professional Services can further assist the customer with architecture design to minimize risk during potential future certification of multi-core systems.

## THE RESULTS

The startup can build a viable plan toward prototyping the solution, using Wind River as trusted, proven supplier on the path toward safe, secure MVP development and deployment.



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