Certified Education Partner Program

Vigilant Aerospace Systems, Inc.
Next Generation Flight Automation and Safety Systems

OVERVIEW

Don't get left behind by the NextGen and unmanned aircraft revolution! The Vigilant Aerospace Education Partner Program provides educators with access to NextGen hardware and software for training purposes, NextGen and unmanned aircraft curriculum, and free seminars on NextGen air traffic control, ADS-B, unmanned aircraft safety and unmanned aircraft regulations.

Register today to get access to the future of software-driven avionics, NextGen integration and the rapidly growing market for unmanned aircraft safety, communications and control systems.

The program is designed to help raise awareness of how NextGen works, how situational awareness systems function, how detect-and-avoid systems work and to delivery leading-edge technology instruction to your students while raising your program's profile and helping you to connect with new students in this growing field.

The program is available to professional educational organizations focused on providing training in flight safety, aircraft management and maintenance, manned and unmanned aircraft operations and unmanned traffic management.

BENEFITS

- Be the first educator in your area to get free access to new FlightHorizon software and NextGen hardware for educational and demonstration purposes
- Complimentary, up-to-date curriculum information on NextGen Air Traffic Control (ATC) and automatic dependent surveillance-broadcast (ADS-B)
- Free educational seminars on NextGen air traffic control, ADS-B, unmanned aircraft management and safety, situational awareness, unmanned regulations and detect-and-avoid systems.
- Consulting on program development from industry experts.
- Exclusive partner listing in the Vigilant Aerospace educational organization directory.
- Exclusive educational events, webinars, white papers and technical briefings on the latest technology and regulations for unmanned flight, NextGen, detect-and-avoid, transponders and sensors.

VIGILANT AEROSPACE SYSTEMS
Certified Partner
Education

REQUIREMENTS

- Education Program Partners must be accredited university, vocational or professional educational organizations.
- Education Program Partners must be serving students in the manned or unmanned aircraft industry.
- Education Program Partners must be committed to flight safety in the national airspace (NAS).

LEARN MORE AND SUMBIT AN INTEREST FORM – VigilantAerospace.com/partners-education

Company Summary

Vigilant Aerospace Systems, Inc.
Next Generation Flight Automation and Safety Systems

OVERVIEW

Vigilant Aerospace Systems, Inc. provides next-generation flight management systems for both manned and unmanned aircraft using exclusively licensed, patented NASA technology. Our avionics software platform, FlightHorizon™, provides synthetic cockpit views, detect-and-avoid functions and other flight information for both manned and unmanned aircraft using a variety of sensors, including ADS-B In signals.

QUICK FACTS

- Founded in 2015 with financial backing from Cimarron Capital Partners and with offices in Oklahoma City
- Exclusive licensee of NASA's patent and software suite for performing manned and unmanned aircraft detect-and-avoid including traffic awareness, collision alerts and avoidance algorithms and commands
- Works closely with the aerospace development team and commercialization office at NASA's Armstrong Flight Research Center in Edwards, California

PRODUCTS

- FlightHorizon GA™ – Traffic awareness and collision avoidance software for tablet or laptop use by Generation Aviation pilots with integration to onboard ADS-B transponder.
- FlightHorizon UAS™ – Traffic awareness, alerts and detect-and-avoid capabilities for unmanned aircraft, including compliance with upcoming RTCA SC-228 Phase II MPS and Part 107.200 Waiver requirements.
- FlightHorizon Enterprise™ – Unmanned fleet safety and management solution including multi-drone management, flight planning and logging, flight dashboard and enterprise mission reporting.

LEADERSHIP TEAM

- CEO Kraettli L. Epperson – Experienced technology entrepreneur with 20 years of experience building venture-backed B2C and B2B software companies including large-scale consumer SaaS and enterprise geospatial, data management and reporting solutions for both public and private sector users.
- CFO Michael Tharp - CFA and Co-Founder of Cimarron Capital Partners. Serves on the board of numerous capital funds, has overseen dozens of major investment in tech companies and is a recognized authority in the area of private equity capital management.
- Chairman Robert Heard - Co-Founder of Cimarron Capital Partners. Has over 20 years of experience as a venture capital investor advising hundreds of technology companies and making dozens of startup investments. Founding director of the National Association of Seed and Venture Funds (NASVF) and a member of the National Advisory Council of the Federal Laboratory Consortium for Technology Transfer.

AFFILIATIONS AND AWARDS

- Advisor to the US Small Business Administration's UAS Cluster Initiative (https://www.uascluster.com/)
- Member of the NASA Unmanned Traffic Management (UTM) Collaborative (https://utm.arc.nasa.gov/)
- Invited Test Partner in the FAA's ASSURE UAS Research Center (http://www.assureuas.org/)
- Member of the Association for Unmanned Vehicle Systems International (AUVSI) (http://www.auvsi.org/)
- Member of the Unmanned Systems Alliance - Oklahoma (AUVSI Chapter) (http://www.usa-ok.org/)
- Winner of the FLC's National Excellence in Technology Transfer Award 2017 (Link)
- Winner of the FLC's Far West Region Outstanding Commercialization Success Award 2016 (Link)

FlightHorizon UAS™ Product Overview

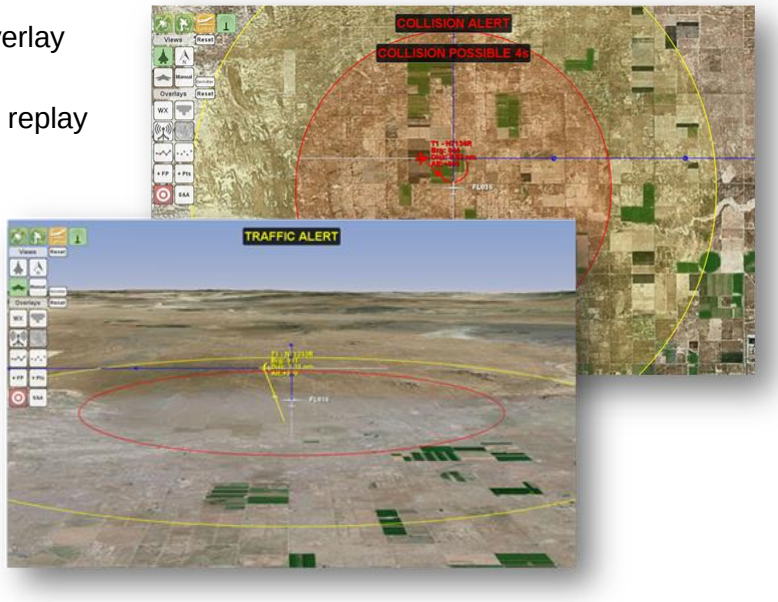
Vigilant Aerospace Systems, Inc.
Next Generation Flight Automation and Safety Systems

OVERVIEW

FlightHorizon UAS™ is an avionics software package that provides traffic and situational awareness, detect-and-avoid, synthetic cockpit views and other flight information for unmanned aircraft using a variety of sensors, including ADS-B In. FlightHorizon UAS™ is designed to meet the anticipated RTCA SC-228 Phase II Minimum Operating Standards (MPS) and Part 107.200 waiver requirements as part of the FAA's authorization to allow drones to fly beyond line of sight. The product is based on an exclusively licensed patent and software suite developed and tested by NASA at Armstrong Flight Research Center with FAA observation.

FEATURES

- Proprietary, patented avoidance algorithms and well-tested user interface design
- Traffic awareness and visualization for beyond visual line of sight (BVLOS)
- Real-time detect-and-avoid with traffic alerts and specific avoidance commands
- Air-traffic control zones and temporary flight restrictions (TFRs) overlay
- High resolution aerial photography and interactive geo-browser
- Real-time traffic data from onboard transponder and/or ground transponder and FAA feed
- Multi-platform; Runs on tablet or laptop and on Windows, Mac or Linux OS
- Integrates with multiple transponder models via serial, USB, or Wi-Fi
- Compliant with FAA Part 107 sUAS Rules with 107.200 waiver and with anticipated RTCA SC-228 Phase II MPS
- Navigational and approach charts overlay
- Detailed flight and traffic logging and replay
- 2D and 3D synthetic cockpit views
- Real-time weather radar overlay



VIDEO – VigilantAerospace.com/video

FlightHorizon Enterprise™ Product Overview

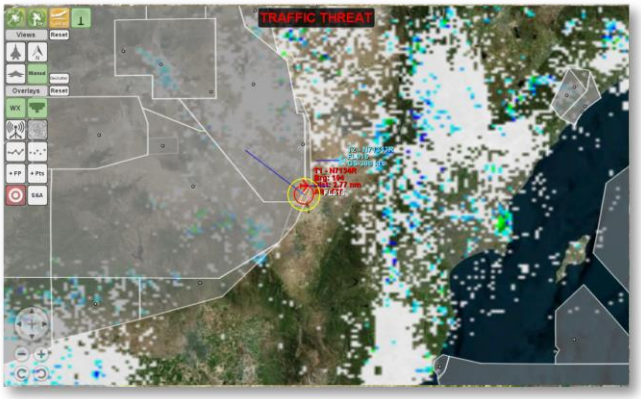
Vigilant Aerospace Systems, Inc.
Next Generation Flight Automation and Safety Systems

OVERVIEW

FlightHorizon Enterprise brings all the power and compliance features of FlightHorizon UAS into a central location to make running a corporate drone fleet easier and safer. FlightHorizon Enterpise™ is software for managing flight plans and logs, flight data, inventory and equipage, operator info and FlightHorizon UAS licenses across multiple drones. The system runs on a workstation and automatically synchronizes and collects data from all connected FlightHorizon UAS systems, providing an aviation department with detailed reports, flight tracking and visual replay of flight logs in a 3D synthetic cockpit view.

FEATURES

- Multiple aircraft can synchronize their FlightHorizon UAS flight log data back to FlightHorizon Enterprise
- Flight reporting includes vehicle ID, flight time, date and flightpath; vehicle encounters, and pilot comments
- Compliance reporting including vehicle equipage reports and flightpath reports near restricted airspace
- Centralized flight planning and pre-flight plan distribution to individual FlightHorizon UAS stations
- Incident reporting and report submission from FlightHorizon UAS stations to FlightHorizon Enterprise
- Flight log replays including 2D and 3D synthetic cockpit views of the full flight replay
- Centralized account and license management for all FlightHorizon UAS software licenses
- Pilot hours logging and vehicle hours logging for quality control and maintenance
- Offline operations sync data to FlightHorizon Enterprise at next online connection
- Vehicle inventory and payload control tracking
- Runs on a desktop, laptop or tablet



VIDEO - VigilantAerospace.com/video

OVERVIEW

The objective of FlightHorizon UAS is to provide detect-and-avoid (DAA) to both piloted and fully autonomous unmanned aircraft as well as situational awareness and other functions for unmanned pilots. The system is comprised of a software program that runs on a tablet or laptop computer that is used by the unmanned aircraft pilot during flight. An off-the-shelf aviation receiver is attached to the computer and an off-the-shelf aviation transponder is attached to the aircraft. Alternatively, the computer may receive signals directly from the onboard transponder over the aircraft's control link. The data received by the software is used to detect, track and avoid other aircraft and to provide situational awareness by displaying the flight paths of nearby aircraft and issuing self-separation and avoidance commands to either the pilot or to an autopilot. The software also provides weather data, air navigation charts and high-resolution aerial photography to aid in navigation and flight safety.

STRATEGIES

FlightHorizon implements well-tested traffic alerting and self-separation strategies to avoid collisions and improve air safety. The system implements proprietary algorithms, recursive checking processes and flight safety rules to issue avoidance maneuver commands. (AIAA-published research paper available.) In addition, the system's user interface has been tested with pilots of varying backgrounds and experience levels and has scored highly with all pilots on multiple measures of utility and responsiveness. (AIAA-published research paper available.)

OPERATIONAL PROCESS

1. Aircraft operators purchase a FlightHorizon bundle, which includes the software and either a receiver or a transponder and a receiver.
2. In the case of an unmanned aircraft, the transponder is self-installed by the pilot.
3. The software is installed on a tablet or laptop computer and the receiver is plugged into a USB port on the computer.
4. The user will locate and identify their aircraft on the screen and the software will begin tracking both the pilot's aircraft and any surrounding aircraft using the signals from their transponders.
5. In the event of air traffic approaching within 4 statute miles of the pilot's aircraft, an alert will be shown on the screen and sounded audibly.
6. In the event of traffic approaching within 2 statute miles of the pilot's aircraft, a warning will be shown on the screen and sounded audibly.
7. In the event of detection of a potential conflict between the pilot's aircraft and other air traffic, a warning will be shown on the screen and sounded audibly, and the software will issue an avoidance and self-separation command to the pilot or autopilot.
8. The software will continue to check for conflicts and continue to issue avoidance commands until the aircraft are well clear and no new conflict is detected.

PLEASE CONTACT VIGILANT AEROSPACE FOR MORE DETAILED CONCEPT OF OPERATIONS AND SAFETY DOCUMENTS.

DJI Phantom 4s used in sense-and-avoid testing

1 Feb 2017

"But, significantly, the scenarios were beyond the visual line of sight. Those flights, … simulated real-world scenarios in which visual detection of approaching aircraft by ground-based unmanned pilots might not be possible due to distance, weather, altitude and speed. […] These weren't just simple tests. The FAA's senior UAV regulator was on hand to observe, as was an FCC observer whose task was to monitor radio transmissions." – Scott Simmie

Detect-and-Avoid UAS System Successfully Trialed Beyond Line of Sight

1 Feb 2017

"The flights tested the system's DAA algorithms, hardware integration and user interface performance. Eighteen different scenarios were flown multiple times using two DJI Phantom 4 drones; one aircraft acted as the primary ownship, and the other acted as an intruder aircraft.

Vigilant Aerospace says its system successfully detected and tracked the intruder aircraft and provided warnings on 100% of air traffic during the encounters. The scenarios triggered the system's traffic alerts, threat alerts and collision warnings – in turn, allowing the drone pilots to avoid collisions.'" – Betsy Lillian

New Detect-and-Avoid System for Drones Completes BLOS Flight Tests

30 Jan 2017

"Sense-and-avoid systems are critical to integrating unmanned aircraft into the national airspace and to make beyond line-of-sight drones safe to share airspace with manned aircraft. FlightHorizon is designed to comply with FAA drone regulations on beyond line-of-sight flight, night flying and airspace authorization including Part 107.200 waiver requirements and RTCA SC-228 [Phase II] operating standards. All transponder data was logged in FlightHorizon and is being used by NASA and Vigilant Aerospace to continue to improve and add new features to the system." – Staff

FAA Forms New ARC For Operation of Small UAS Over People

31 Jan 2017

"The tests - in the presence of FAA and FCC observers - demonstrated the system's ability to provide beyond line-of-sight flight safety for both small and mid-sized unmanned aircraft to help comply with FAA regulations and integrate drones into the national airspace.

The encounters included beyond line-of-sight flights that simulated real-world scenarios in which visual detection of approaching aircraft by ground-based unmanned pilots might not be possible due to distance, weather, altitude and speed." – Staff

Vigilant Aerospace Partners with NASA on UAS Traffic Management System

5 Aug 2016

"The partnership allows the company to integrate UTM flight plans and traffic data into its FlightHorizon avionics software and provides NASA with access to the company's flight test data and system development advice and feedback. FlightHorizon provides UAV operators with air traffic visualization and detect-and-avoid commands for integration into the national airspace and beyond line-of-sight flying. The software is based on technologies the company exclusively licensed from NASA's Armstrong Flight Research Center earlier this year." - Staff