



CUSTOMER SUCCESS STORY:

Aeronyde replaces DJI Mavic with Skydio 2 and reduces scanning flight time by 60%





reduction in required flight time per job



improvement in image quality



categories of business with indoor flights

Executive Summary

Aeronyde is a diversified Drone Services Provider (DSP) serving various enterprise and public safety clients across the Southeastern United States. The company offers a range of advanced drone services for clients performing stockpile analysis, environmental impact assessments, smart city construction, site mapping, and more.

As the team grows, Aeronyde has been challenged to find a versatile aircraft that can serve its various enterprise clients at a high level of quality, while reducing pilot training requirements, risk of crashes, and required scanning time. After rigorously testing over 1,000 automated missions comparing the Skydio 2, DJI Mavic series, and DJI Inspire series UAVs, the Skydio 2 outperformed DJI in nearly every category.

While the team originally flew the DJI Mavic series, Aeronyde is making a full transition from these legacy manual drones to autonomous drones from Skydio. The results to date have delighted both Aeronyde's team and their diverse customer base.

After rigorously testing thousands of automated missions across the DJI Mavic and Inspire series, the Skydio 2 outperformed the Chinese UAVs by nearly every quantifiable metric."- Edgar Muñoz, CEO of Aeronyde

With Skydio drones, Aeronyde has realized up to 60% faster data capture, claims to produce 8–10x higher quality scans, and can now scan more environments, enabling new use cases and lines of business for their drone services.

Challenges

Manual DJI drones were hampering Aeronyde's operations, despite having a focused team of full-time, Part 107 certified drone pilots. While a well trained pilot makes a huge difference, the shortcomings of manual drone technology fundamentally limit the effectiveness of even the most skilled operator. Aeronyde's analysis found that 82% of inspection costs were associated with pilot spend.

HEADQUARTERS

Melbourne, FL

INDUSTRY

Industrials and Public Safety (Drone Service Provider)

CHALLENGE

Using manual DJI drones led to low quality image capture, elongated jobs that required multiple flight grid patterns and battery swaps, and limitations to address more challenging use cases.

SOLUTION

Switching from DJI Mavic to Skydio 2 Pro Kit to use Al-powered drones to boost the data capture quality and efficiency and address new use cases, such as indoor flight.

RESULTS

- Up to 60% reduction in required flight time per job
- 8-10x improvement in image quality
- Opened new categories of business with indoor flights



This image from an Aeronyde bridge inspection is nearly impossible with a manual drone, which would lose GPS and magnetometer readings below the bridge deck.

Inefficient scanning (e.g., for road construction)

Using manual DJI drones with a photogrammetry flight scripting software was highly inefficient. Scanning missions would require multiple flights with battery swaps in between, especially in cases where obstacles were present. Aeronyde particularly felt the pain of manual drones while performing road construction scanning for the City of Covington, VA. Aeronyde was contracted to scan 17 sections of a 3.1 mile section of Route US-220. Their manual DJI drone required multiple days because, without Al-enabled obstacle avoidance, they had to fly grid patterns slowly so that the pilot could intervene in case of a collision risk. Further, any time that obstacles were present in the flight area, Aeronyde would need to set up multiple scans for each section and recalibrate the DJI - taking up to 1.5x the flight time and generating redundant data that slowed down back-end processing.

Insufficient scan quality (e.g., for facility mapping)

The manual DJI Mavic series drones Aeronyde tested also provided insufficient scan data for the high-quality models clients require. The result was that the team had to make multiple passes in different weather conditions, and sometimes would still be unable to provide the level of quality demanded by the client. The team cites an example of mapping a high school for active shooter response preparation with a local public safety agency. Even after multiple time-consuming visits to the site, the 3D models were failing to capture the colored labels on the buildings that would allow first responders to make a plan and respond quickly in an emergency.

Limited use cases (e.g., for indoor stockpile analysis)

Manual DJI drones offer little help to pilots who need to navigate obstacle-rich environments, especially in the frequently GPS-denied, sometimes indoor, environments that enterprise drone pilots often fly in. When there are obstacles around, scripted grid pattern flights are no longer a possibility, and pilots need to supplement their DroneDeploy or Pix4D capture scripts with dangerous manual flight that often interfere with the magnetometer. Aeronyde felt the pain when serving a household-name Salt provider for indoor stockpile analysis and property inspection. With a manual DJI drone, they were unable to perform indoor flights due to GPS interference from the roof, and magnetometer interference from the metallic piping – making it near impossible for even the most skilled pilots in the team to safely navigate.

Solution: A next-generation workhorse

After a short period of side-by-side testing, Aeronyde has moved into a full deployment phase of the Skydio 2, permanently replacing the legacy manual systems the team previously flew. Aeronyde's fleet has grown to eight Skydio 2 Pro Kits, and the team plans to implement the Skydio Autonomy Enterprise Foundation software package on its existing aircraft to further enhance its inspection capabilities.

Flying more advanced grid pattern flights than ever before thanks to Skydio's partnership with DroneDeploy, Aeronyde is able to capitalize on Skydio Autonomy, which provides 360° Obstacle Avoidance, reliable GPSdenied operations, and elevated workflow automation.

"We are realizing tremendous value for our clients by using Skydio's autonomous drones, and are looking forward to staying on the cutting edge with the Autonomy Enterprise Foundation software and upcoming X2E."

- EDGAR MUÑOZ, CEO OF AERONYDE

Results:

Switching to Skydio has enabled Aeronyde to equip its growing team with Al-enabled tools that better help them serve enterprise customers. Their upgrade to autonomy has resulted in faster scanning, better data quality, and entire new categories of business.

Up to 60% reduction in required flight time per job (e.g., for road construction)

In Covington, VA, where Aeronyde was asked to scan 17 sections of road, Skydio 2 saved the team an estimated two hours of flight time per section, a 60% reduction. The team credits the Skydio 2's ability to fly mapping missions faster and more confidently thanks to Skydio Autonomy's always-on 360° Obstacle Avoidance. This feature improves the speed of any mapping mission, and carries added benefit on larger areas because it reduces by up to 50% the number of required battery changes to accomplish a mission.

"This isn't just about the risk of crashing a drone, which is also very real when you don't have obstacle avoidance capabilities like the Skydio, it is also about the risk of misquoting someone, especially if you have a guaranteed maximum price. Depending on how far you have to travel to the site, or how long it takes you to gather that data, you really want to make sure that you get the job done right the first time and Skydio helps us do that. In our case, I don't think we've ever had to go and re-fly a job with the Skydio."

- TREVOR RAGNO, CHIEF REAL ESTATE OFFICER OF AERONYDE



Aeronyde uses Skydio drones to perform accurate volumetric stockpile analysis on complex sites.

8-10x improvement in image quality (e.g., for facility mapping)

At the high school where Aeronyde's DJI drone failed to capture building labels, even after multiple on-site visits, the Skydio 2 generated a useful, vivid map on the first attempt, even allowing low-altitude flight to safely and efficiently scan the entrances to the buildings. Instead of multiple expensive and frustrating visits to the site, Aeronyde was able to delight their customer in one pass of the Skydio 2 thanks to the ND Filters included in the Skydio 2 Pro Kit. With these filters, the team could manage color balance in any light conditions, and they were no longer forced to fly at high noon to minimize shadows, or fly on overcast days to limit washout. The job, which was unfinished after 12 hours of flight on a manual DJI Mavic series drone, yielded Aeronyde a satisfied customer after 45 minutes of Skydio 2 flight.



SKYDIO: In Aeronyde's controlled testing, Skydio 2 delivered a model with accurate geometry, vivid colorization, and consistent exposure.



DJI: By comparison, the same flight pattern with DJI generated inaccurate geometry, poor colorization, and inconsistent exposure.

Opened new categories of business (e.g., for indoor inspection and analysis)

With Skydio Autonomy's 360° Obstacle Avoidance, the Aeronyde team is able to deliver meaningful client deliverables in complex and obstacle rich environments. When performing a grid flight with a photogrammetry tool such as DroneDeploy, pilots no longer have to fly at high altitudes or plan multiple flight scripts to avoid obstacles. With Skydio, pilots can plan grid flights right over obstacles, trusting the vehicle's on-board AI algorithms to avoid anything in the drone's path. As a result, Aeronyde can now serve customers in complex environments, such as Port Canaveral, where stockpile analysis and environmental analysis missions often require navigating around cranes and other towers. Further, the team is excited to serve customers more effectively for indoor commercial property inspections, indoor/outdoor public safety responses, and more.

"Our business was held back by the manual DJI drones we were using. Now that we are switching to Skydio, we are excited about our potential to serve our growing customer base in new and exciting ways,"

- EDGAR MUÑOZ, CEO OF AERONYDE



Skydio drones can fly indoors, and near metal, while reliably avoiding obstacles in all directions, making it possible for service providers like Aeronyde to perform all-new categories of indoor jobs for their clients.





SKYDIO IS THE WORLD-LEADER IN AUTONOMOUS FLIGHT TECHNOLOGY

Skydio is the leading U.S. drone manufacturer and world leader in autonomous flight technology. Skydio leverages breakthrough AI technology to create the world's most intelligent flying machines for consumers, enterprises, defense and civilian agencies. Founded in 2014, Skydio built a world class R&D team with leading experts in AI, robotics, cameras, and electric vehicles from top companies, research labs, and universities. Headquartered in Redwood City, CA, Skydio designs, assembles, and supports its products in the U.S. to oer higher standards of supply chain and manufacturing security. Skydio is trusted by leading enterprises across a wide range of industry sectors and is backed by top investors and strategic partners including Andreeson Horowitz, IVP, Playground, Next47, Levitate Capital, NTT DOCOMO, NVIDIA.