

THE DRONE CHRONICLE

“ We will train women in SHGs to fly drones and also repair drones. The Government of India will provide drones to thousands of Women SHGs.”

PM Shri Narendra Modi
in his speech on 77th Independence Day

Customers Speak

“ Asteria’s sales & support gives us an extra ordinary intelligence in our mining industry. Our company has lot of mining projects. The software support of A200 drone gives an extra ordinary output of DEM, DTM and 3D outputs. The service support team of Asteria helps us in, on time response from mining industry platforms.”



Mr. Kishore Dev M
Geo Exploration & Mining Solutions

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FLIGHT PRECISION AND CONTROL WITH ASTERIA MISSION CONTROL



In the world of drones, control is everything. It’s the difference between a successful mission and a lost opportunity. That’s where Asteria Mission Control comes into play, revolutionizing the way we harness the power of drones. Asteria Mission Control can turn complex missions into seamless endeavors.

The heart of any drone mission lies in its path planning. Asteria Mission Control empowers operators to chart intricate

routes with precision and ease. Whether you’re navigating urban landscapes or rugged terrain, the software ensures your drone follows the perfect flight path, avoiding obstacles and hazards. Imagine having eyes in the sky, transmitting real-time data directly to your fingertips. With remote live streaming, it offers operators invaluable situational awareness. Monitor mission

progress, assess changing conditions, and make real-time adjustments, all from the comfort of your control station.

Your drone’s perspective is only as good as the maps it uses. This software enables versatile map integration, allowing you to tailor your maps to your specific mission. From topographic maps for surveying to street-level maps for urban planning,

the possibilities are limitless. Safety is paramount in drone operations. Pre-flight checks embedded in the software ensure your drone is in optimal condition before takeoff. From battery health to GPS signal strength, these checks minimize the risk of in-flight issues and enhance mission reliability. Every mission presents its unique challenges. Asteria Mission Control provides terrain awareness, allowing operators to adapt to changing landscapes. Whether it’s altitude adjustments for mountainous regions or obstacle avoidance in dense forests, this feature ensures safe and successful missions.

Imagine having the ability to revisit past missions, learning from each flight and fine-tuning your strategies. With record/playback functionality, this software lets you do just that. Analyze flight data, identify areas for improvement, and refine your missions for future success. Complex missions often require multiple drones working in harmony. Asteria Mission Control allows for multi-drone control, enabling synchronized operations. Whether it’s for large-scale surveys or inspection, you can seamlessly manage multiple drones from a single interface.

Navigating the Drone Industry Amidst the Rapidly Shaping Regulatory Landscape

According to a recent GlobeNewswire report, the Indian drone market is forecasted to grow by \$ 2,760 million during 2023 - 2028. What are the areas that the industry is going to focus on?

The focus area for the Indian drone industry will be on developing indigenous manufacturing capabilities and significantly bringing down reliance on import of technology. The goal would be to build the most innovative and competitive products not just for India, but also for the world. There is a need to create a conducive environment for research & development in a close collaboration between academia, industry, and government. Furthermore, the industry needs to work closely with the government and other stakeholders to create robust demand for drone technology, attract investments, and facilitate exports.

Going forward, what will be the role played by AI, cloud and robotics among other latest technologies? How does Asteria Aerospace look at this opportunity?

The drone industry itself is a confluence of various technologies across robotics, cloud and AI. Going forward, the advancement of these technologies will see drones becoming intelligent flying robots. We’re talking about autonomous and precise flight patterns, real-time data analysis, and superior decision making in any environment. Cloud-based platforms can provide a centralized hub for scaling drone operations, making it easier for teams to collaborate, track flights, and manage regulatory compliance.

How has the role of modern-day leadership evolved in this sector? How should leaders develop working structures that attract and retain talent to score organizational and people goals?



Neel Mehta’s Interview with CEOInsights Magazine

By fostering a culture of purpose, work autonomy, continuous learning and collaboration, leaders can create working structures that not only attract and retain top talent but also propel the organization toward its goals, both in terms of technology advancements and people development.

Enabling Smart corn breeding & seed production with end-to-end drone-based solutions

The key to the ideal management of corn fields across different stages of its breeding and seed production lifecycle is regular access to large-scale phenotyping data with higher accuracy and high throughput. This data acts as the basis for producing reliable insights that can be used to validate the optimal performance and take corrective actions in case of an anomaly to address the field issues. For most of the corn seed producers across the country, this poses the biggest bottleneck that prevents the use of crop trait data in taking data driven decisions and improving crop production. At the same time, traditional methods for acquiring this data can be labor-intensive, time consuming, inaccurate, and costly.

Traditionally, crop phenotypic data is collected manually by breeders or researchers assisted by labor, who scout the field and make all the estimates. This data is manually recorded and kept for reference for years. However, there are several downsides to this approach. It is not only time-consuming and inaccurate but doesn't offer reliability and detailed information on crop phenotypic traits in the field. Also, the accuracy of data captured is dependent on the level of expertise of human resources deployed. On the other hand, drones and drone analytics offer accurate data of the entire field in a fraction of the time taken by traditional methods.

Not so long ago, plant stand counts were done by sampling a very small portion of the original number of corn plants present in a field, which was then extrapolated to represent the complete field. But now, drones coupled with Asteria's proprietary deep learning artificial intelligence algorithms help in precisely and quickly counting the number of corn plants in a field with high accuracy.

Earlier, crop uniformity was subjective and was checked by taking random sample observations from fields and extrapolating them for the entire area. Assessing crop uniformity is a highly skilled job and demands expertise. Now, it has become much easier to assess crop uniformity with digital means. Imagery collected by drones can be fed into Asteria's proprietary deep learning AI algorithms to look for growth patterns and vegetative indices for the entire farm.

Recent innovations in image processing and drone hardware have made it possible to streamline corn breeding and seed production process and at the same time, enable faster, simpler, more accurate and regular measurement of traits, things those weren't possible earlier with traditional methods. To make the most of drone-based intelligence, it is important for seed producers and breeders to partner with a drone technology company that has proven expertise in providing industry and crop specific drone

solutions. Asteria Aerospace Limited is one such company. It is a leading supplier of end-to-end drone solutions for corn breeders/researchers as well as corn seed producers.

Asteria's end-to-end drone-based solutions for corn breeding & seed production.

Asteria's expertise lies in providing industry-leading drone-based tools for corn breeders and seed producers at different stages of the crop lifecycle. The objective is to help them make timely and data driven decisions as well as simplify and fast-track their digitalization journey. Asteria acts as an enabler by providing a comprehensive drone-based solution that is capable of providing corn breeding and seed production stakeholders with vital information about phenotypic traits and support in crop improvement. Asteria's drone operations and analytics platform, SkyDeck, is the perfect tool for deriving actionable insights from the data collected by drones.

Asteria's end-to-end drone solutions can be used for:

Data collection: DGCA type certified drones with integrated high-end sensors –RGB & multispectral – to gather high-quality data and offer customized solutions specific to corn breeding & seed production.

Data processing, analysis & visualization: Proprietary, AI-enabled algorithms built specifically for corn seed production on SkyDeck. SkyDeck tool enables automated stand count, uniformity, missing tassel count, area measurement, isolation distancing, crop stress identification and more.

Reporting: Generate customized reports, share and download high-precision maps of fields and research plots from SkyDeck. Collaborate on the data through any simple browser, analyze problem areas, annotate and callout issues. Generate and access reports of meaningful insights for informed decision-making.

Karnataka govt plans major push for drone industry

Courtesy: Deccan Herald



The Karnataka government is planning a multi-pronged push to make the state the preferred destination for the burgeoning drone sector, which is expected to be a billion-dollar nationwide industry by 2025. Consultations are already being carried out with industry stakeholders, including the Drone Federation of India, and another round of talks will be held this week, on September 7, a top state government official told DH.

"We need to create an ecosystem. We are looking to come up with research and development facilities and testing laboratories. These will be funded in a public-private partnership model," the official said.

Customers Speak

“Our collaboration with Asteria has enabled us to revolutionize our approach to surveillance. The integration of their State-of-the-art UAV has allowed us to digitize our surveillance operations. These UAVs are not only user friendly but also come equipped with cutting edge sensors that capture high-resolution imagery providing us with invariable insights for our operations.”

Commanding Officer
XX Bn Brigade of the Guards

CASE STUDY

How partnering with a compliant drone solution provider ensures safe, secure, and risk-free operations while maximizing business outcomes



Importance of Compliant Drone Solutions

The Drones Rules 2021, issued by the Ministry of Civil Aviation of India, have greatly liberalized the manufacturing, sales, and operations of drones in the country. It is imperative that drone manufacturers, operators, and end-users abide by these rules to further the adoption of this exciting technology. Non-compliance with these basic rules can lead to loss of trust with the regulator that can result in enforcement actions and stricter regulations in the long term. This can significantly limit the potential of this technology to make industrial operations better, faster, and safer. In this context, it is essential that industry users seeking to incorporate drone solutions into their operations, are able to get an assurance of regulatory compliance from their drone solution providers by getting answers to the following questions:

1. Are the drones operated on their premises or projects type-certified by the DGCA?
A list of type certified drone models can be found at: https://digitalsky.dgca.gov.in/certified_rpas
2. Do the remote pilots flying the drones have the requisite pilot certificate?
3. Has the drone operator taken appropriate permissions for flying in Yellow/Red airspace zones?

It is critical for project success that the drone solution provider chosen for the project is able to demonstrate compliance by providing evidence against these regulatory requirements. Otherwise, the risk of regulatory audits and enforcement threatens to derail the project and its intended outcomes.

Asteria Aerospace has a long history of developing and deploying compliant drone solutions across sectors as diverse as agriculture, GIS, oil & gas, and telecom. Let's look at a specific case study to understand how Asteria provided compliant drone solutions.

Asteria's Expertise in Providing Compliant Drone Solutions



One of the biggest oil & gas companies in India was looking to utilize drone technology to bring more efficiency into its process of monitoring and securing pipelines routes and capture critical data to make informed decisions. However, the safety, compliance and legal risks associated with operating drones made the company decide against taking this responsibility on its own shoulders. It turned to Asteria Aerospace to provide fully compliant drone solutions that can be deployed on its project.

Asteria combined its proprietary drone hardware, software, and analytics as well as its understanding of rules & regulations and best practices of drone operations to provide an end-to-end compliant drone-based solution. This enabled the oil & gas company to conduct its operations safely, risk-free, and derive maximum business value from drones. Here's how Asteria helped the oil & gas company with its compliant drone solutions:

- Deployed DGCA type-certified and registered drones for data collection, which is mandatory under the Drones Rules 2021.
- Drones that were used on the project had a Unique Identification Number (UIN) generated from the Digital Sky Platform.
- Performed airspace geo-zoning using Digital Sky platform based on the area details shared by the client to find out whether that area of drone operations comes under Green, Yellow, or Red zone.
- Requested MoCA for the details of the departments or establishments that have blocked an area for flight operations.
- For operating drones in locations that fall in Yellow or Red zones, Asteria obtained requisite permissions from the respective local and central authorities including Air Traffic Control and the Indian Air Force. Asteria used its Standard Operating Procedures derived from years of experience of flying safely to obtain the approvals.
- Asteria deployed only certified remote pilots that were trained in regulatory requirements and operational safety on the project. When operating in Yellow/Red zones, the pilots communicated effectively with the local Air Traffic Control agencies to perform drone flights safely.
- Before executing the project, a safety and risk audit was conducted to assess the operational workflow, identify risk areas, and mitigate the same through systems and processes.
- The confidentiality and safety of the client's data was ensured by processing, analyzing, and hosting all of the data captured by drones on Asteria's secure cloud-based platform, SkyDeck, without involving third-party data service providers.

Benefits

 Assured compliance with Drones Rules 2021	 Greater safety	 Minimized legal and financial risk
 Improved security	 Enhanced business outcomes	

While deploying drone technology and realizing its benefits, it is critical to choose drone solutions providers who thoroughly understand the drone rules & regulations and value their compliance to minimize risk and maximize the project outcomes.

Now, drones to monitor MGNREGA worksites

Courtesy: The Hindu



Increasing its surveillance of worksites under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme, the Union Ministry of Rural Development will be pressing drones into service to monitor both the progress and quality of assets produced. According to a standard operating procedure (SOP) recently issued by the Ministry, the drones will be used for four types of monitoring: surveying the ongoing works, inspecting the completed works, impact assessment, and special inspection in case of complaints.

“There are several complaints about corruption in MGNREGA works that we receive regularly. These vary from machines being used in place of the workers, many receiving wages without doing

work, or works beyond the approved list being undertaken, and so on. Drones will be especially helpful in such cases for real-time monitoring and for garnering evidence,” a senior Ministry official said.

This will be the second big technological intervention introduced to keep a check on MGNREGA workers. From May 2022, the Union government made it mandatory to capture attendance at all worksites using a specially developed mobile-based application.

The SOP stipulates that the drones will be used by the ombudsperson; according to the act which governs the scheme, there should be one ombudsperson per district who is responsible for registering suo moto complaints and disposing of them within 30 days. “For efficient monitoring and redressal of grievances, it is decided by the ministry that the ombudsperson may use drone technology facilities for verification of the works virtually,” the SOP states. It has directed state governments to provide the facility to ombudspersons, as needed.

Rather than purchasing drones, the Union government has directed States to hire agencies specialising in drones for this purpose. The ministry also proposes to form a centralised dashboard to store the videos and photos collected from the drones, for data analysis and reporting purposes.

Why are drones ideal for Enterprise Security?

Drone technology has advanced tremendously over the years. No wonder both government agencies and private enterprises have started to realize how they can implement drone programs to not only identify potential security threats but also act faster to deal with them. The global perimeter security market size is estimated to reach USD 186330 million by 2028 at a CAGR of 6.9% during the review period. Considering that perimeter security is only a part of the overall enterprise security market, we can expect the market to grow exponentially in the years to come.

It is now clear that drones for physical security are crucial for providing security to enterprise locations as well as people. There are enterprises that are operating from sensitive locations that require enhanced monitoring periodically and real-time responses. There are two types of drones within the enterprise security space. Routine surveillance drones act as monitoring and response systems that are both rapid and precise in helping enterprises meet actual as well as perceived security threats. Premise security drones are a great support to both security personnel and emergency responders. These drones provide real-time visibility of events and help enterprises prepare against breaches.

There are several benefits of drones in industrial security and surveillance, including 360-degree surveillance in pitch dark nights: Thermal or infrared imaging allows surveillance in poorly lit areas or at night, high accuracy tracking and surveillance: security personnel



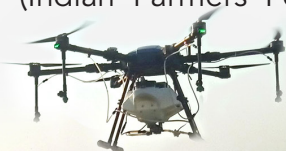
can track the activities and movement through HD imagery, which can further be used to respond to an immediate threat for the purpose of keeping records, and easy to deploy and manage: drones are easier to deploy than traditional methods of security. They limit the use of human resources and thus the exposure to errors associated with them.

The key factors that make drones a success in security operations include their high endurance for extended operation, fast and accurate monitoring, and immaculate image quality amongst others. Asteria Aerospace manufactures rugged, reliable, and performance-driven drones to help enterprises strengthen the security of their buildings, people, and assets. Asteria’s drones for surveillance come with higher endurance, range, and operating height to offer the best results.

In a 1st, spraying via drones in UP sugarcane fields

Courtesy: Times of India

The Uttar Pradesh’s sugarcane administration is set to introduce drone-based pesticide and fertilizer spraying on sugarcane crops, aiming to boost protection and productivity. The Initiative will be in partnership with IFFCO (Indian Farmers Fertilizer Cooperative) Limited.





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