


THE DRONE CHRONICLE



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How Ambuja Neotia digitalized real estate surveys to increase efficiency & improve decision-making?

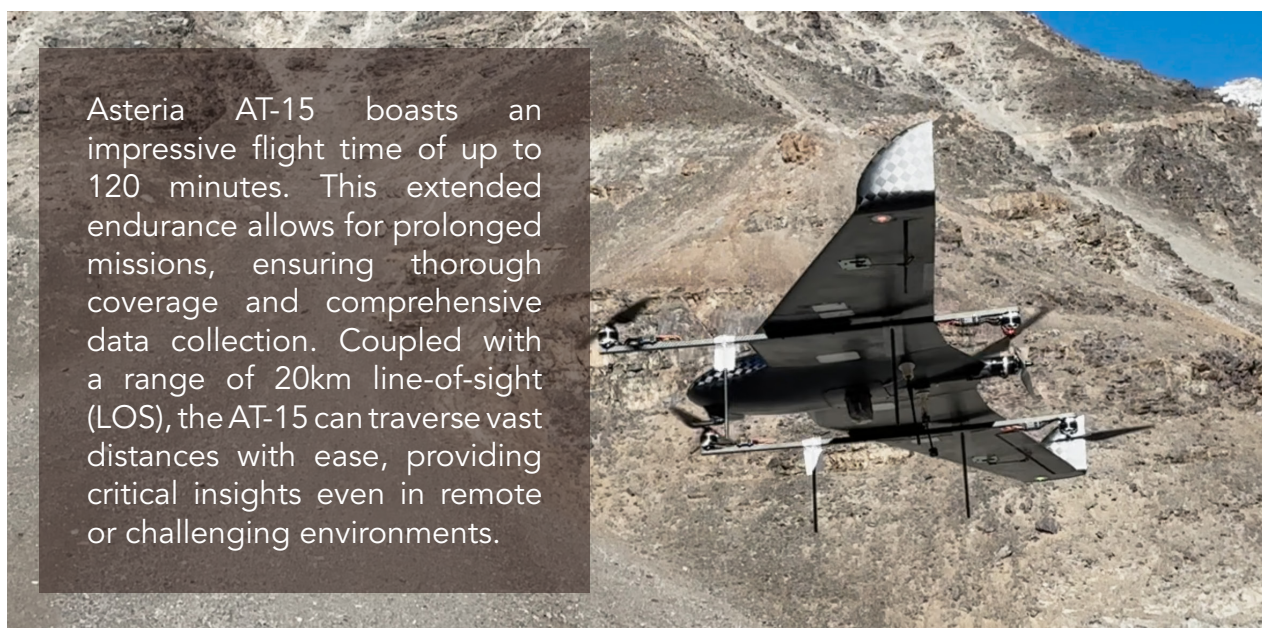


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ASTERIA AT-15 VTOL DRONE WITH SUPERIOR ENDURANCE AND RANGE FOR CRITICAL MISSIONS



Asteria AT-15 boasts an impressive flight time of up to 120 minutes. This extended endurance allows for prolonged missions, ensuring thorough coverage and comprehensive data collection. Coupled with a range of 20km line-of-sight (LOS), the AT-15 can traverse vast distances with ease, providing critical insights even in remote or challenging environments.

One of the standout features of the AT-15 is its vertical takeoff and landing capability, offering unmatched flexibility in deployment. This feature eliminates the

need for a traditional runway, allowing the drone to operate in confined spaces or rugged terrain with ease.

Security is paramount in mission-critical operations, and the AT-15 delivers on this front with secure digital MIMO communication and AES-128 encryption. These advanced encryption protocols ensure that communication remains secure and resistant to interception, safeguarding sensitive data and mission integrity.

Navigating the AT-15 is a breeze with the intuitive Asteria Mission Control interface. Designed for ease of use, this user-friendly interface provides operators with full control over the drone's flight parameters, payload management, and mission planning, streamlining operations and maximizing efficiency.

Equipped with an integrated dual EO-IR payload with target tracking capabilities, the AT-15 offers unmatched versatility in intelligence, surveillance, and reconnaissance (ISR) missions. Whether tracking targets in real-time or capturing high-resolution imagery, this advanced payload ensures that critical information is captured accurately and efficiently.

India should focus on emerging as a hub for medium and small drones

Courtesy: Bizz Buzz



The global military drone market size reached a value of around \$ 14.22 billion in 2023 and it is expected to grow at a CAGR of 9.5% between 2024 and 2032, reaching a value of \$32.20 billion by 2032. The increase in the defense expenditure by major countries is expected to be the driving factor to boost the drone market. The global defence industry is heavily focused on remote surveillance, border security, thermographic inspection, infrastructure protection, law enforcement and firefighting, each of which requires technologically cutting-edge techniques and equipment.

India's military spending of \$81.4 billion was the fourth highest in the world. It was six percent more than in 2021. The country is in the process of acquiring 31 high-end MQ9B Predator armed drones from the United States at an approximate cost of Rs 2.5 lakh crore. Data from the Stockholm International Peace Research Institute (SIPRI), which tracks global arms transfers, shows that China has delivered some 282 combat drones to 17 countries in the past decade, making it the world's leading exporter of the weaponized aircraft. By comparison, the United States-which has the most advanced UAVs in the world-has delivered just 12 combat drones in the same period to France and the United Kingdom.

In-depth research is being done on those manufacturing drones equipped with a variety of autonomous tools supported by machine learning (ML) and AI capabilities. These developments could represent a significant market opportunity for global military drones in the years to come. These drones will be equipped with a variety of electronic warfare capabilities and be used in numerous military applications as a result.

Asteria at Firstpost Defence Summit 2024



Neel Mehta, Director and Co-founder, Asteria Aerospace, represented the Indian drone industry at the Firstpost Defence Summit 2024 as an eminent panelist. He shared his views about the importance of strengthening the domestic defence manufacturing ecosystem and enhancing export opportunities.

MAKE IN INDIA DRONES AT THE HELM TO TRANSFORM CONSTRUCTION PROCESSES

Drones are becoming indispensable tools in the construction industry, reshaping the way projects are planned, executed, and monitored. Their applications span various facets of construction, enhancing efficiency and precision.

Swift Construction Planning: Drones simplify land surveying, swiftly covering vast expanses in minutes. This accelerates the construction planning phase, providing detailed insights that traditional methods struggle to match.

Precision in Project Bids: High-resolution drone maps become invaluable in estimating cut-fill volumes for project bids. The accuracy achieved through drone data empowers construction companies with reliable metrics, contributing to more informed and competitive bids.

Real-time Progress Monitoring: Monitoring construction progress becomes easier with periodic aerial maps and 360-degree videos captured by drones. Project managers gain an immersive view of the site, facilitating real-time decision-making and ensuring projects stay on track.

Transparent Inventory Audits: Drones bring transparency to on-site inventory audits. With their ability to navigate construction sites effortlessly, drones enable thorough audits of materials and

equipment. This not only ensures accuracy but also streamlines the often cumbersome inventory management process.



The adoption of drones in construction represents a significant shift, providing a technological edge that propels the industry forward. As construction projects evolve in complexity and scale, it is important to find a reliable ally in the form of a drone manufacturing company that can deliver unparalleled efficiency, accuracy, and transparency.

Asteria Aerospace is one of the top drone companies in India offering a one-stop solution for drone hardware and cloud-based AI software platform, SkyDeck with drone operations, data processing, interaction, analysis, and reporting capabilities. Ambuja Neotia, a real estate construction and development company, leveraged Asteria's full-stack drone solution for surveying and mapping, progress monitoring, and safety inspections. Asteria helped Ambuja Neotia to improve decision-making, streamline operations, enhance safety protocols, and increase efficiency.

Use drones to study forest cover: Odisha Chief Secretary

Courtesy: Prameya News



Use drone technology to study forest cover mapping before and after plantation; after one year and subsequent years, Odisha Chief Secretary P K Jena advised the forest department officials recently.

Chairing the State Level Steering Committee meeting of Compensatory Afforestation Fund Management & Planning Authority (CAMPA) Jena advised that during and after 10 years of plantation management, how much groundwater recharge achieved and soil erosion prevented has to be assessed.

He also instructed that there is need for plantation to support livelihood of the area concerned and it should be done with planned design.

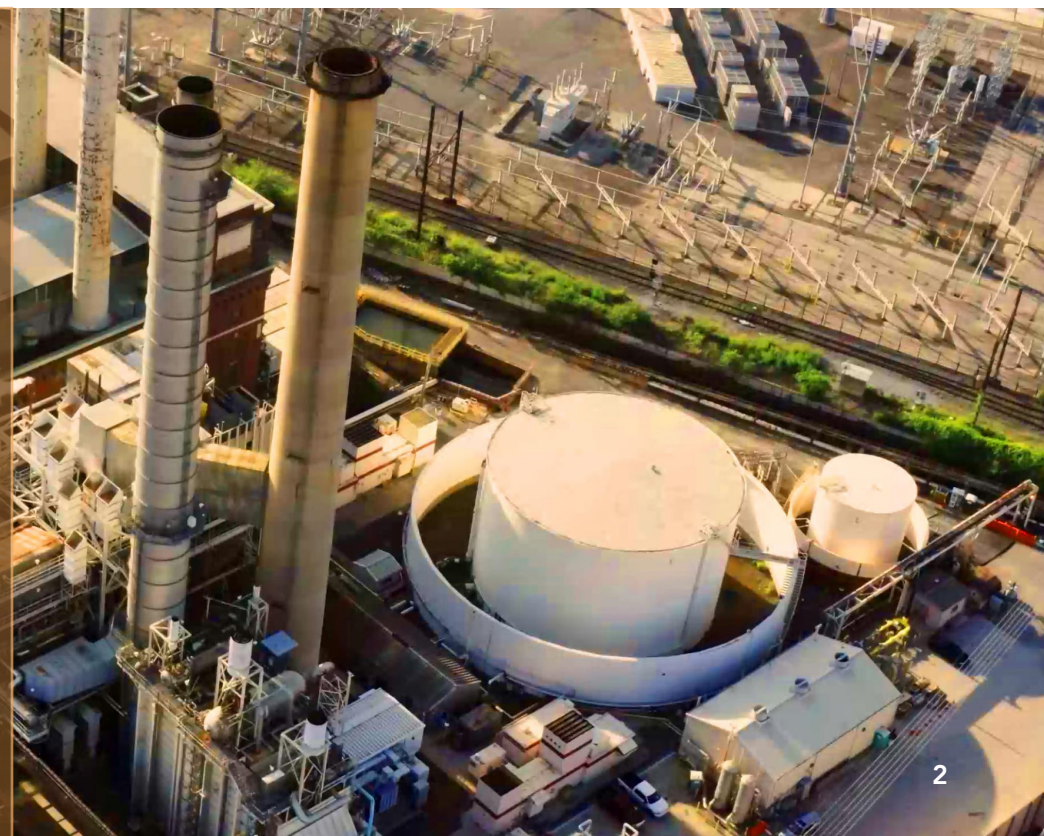
The annual plan of operation (APO) - 2024-25 was presented for approval in the meeting with a proposed budget of Rs 1044.47 crore.

The proposed area for compensatory afforestation in APO 2024-25 is 7174.203 hectare. New plantation under Artificial Regeneration (AR) will be 17197 hectare and under Assisted Natural Regeneration (ANR) will be of 1675.5 hectare.

Drone technology in India - Bringing efficiency & precision to manufacturing industry

The integration of drone technology in India across industries is becoming a game-changer. The manufacturing industry is one such example where drones are revolutionizing traditional approaches to asset inspection, routine plant maintenance, and situational awareness. Drones offer unparalleled advantages in terms of efficiency, safety, and accuracy across various applications in the manufacturing industry.

The seamless integration of drone technology not only enhances the efficiency of routine tasks but also plays a vital role in ensuring the safety of manufacturing facilities. To make adoption easier, it is critical to look out for the best drone companies in India and choose the drone manufacturing company with a product line featuring the most innovative drones in India as well as cloud AI platform to make sense of the collected data.



REAL-ESTATE SURVEY USING CUTTING-EDGE DRONE SOLUTION

Ambuja Neotia's partnership with Asteria Aerospace

About Ambuja Neotia

Ambuja Neotia was established in 2005. The company serves customers throughout India. Some of the services offered by Ambuja Neotia include buying, selling, renting and operating of self-owned or leased real estate. Ambuja Neotia, one of the most prominent corporate houses in India had entrusted Asteria Aerospace to leverage drone technology for ongoing monitoring, leading to a range of benefits to streamline processes and improve project outcomes.

Need for Innovation

The need for innovation in the real estate industry has become more critical than ever. Traditional methods, characterized by manual labour, time-consuming processes, and a lack of real-time data, are proving to be inefficient and limiting in meeting the demands of a rapidly growing industry. Innovation in real estate construction and development is imperative to enhance efficiency, optimize costs, and make accurate, data-driven decisions. Modern technologies, such as drones for surveying and mapping, not only streamline processes but also contribute to precise planning, minimizing unexpected expenses and optimizing project budgets. Ultimately, innovation is driving the real estate industry towards a future where technology, sustainability, and efficiency converge for lasting success.

Needs and challenges

Needs	Challenges
Precise Elevation Determination	Manually documenting elevation points across an area demands meticulous attention to detail and accuracy.
Canal Cross-Sectional Profiling	Manually depicting the cross-sectional profile of a canal can be labor-intensive and prone to human error.
Mapping Vegetation & Built-up Structures	Identifying trees and built-up structures manually is time-consuming and can overlook smaller or obscured elements, impacting assessments and planning.
Contour Line Generation	Manually generating contour lines involves precise measurements and mapping, which is highly resource-intensive, susceptible to errors, and time-consuming.
Earth Surface Modeling	Creating a model representing the earth's surface requires precise data capture and processing, which is challenging and time-intensive to achieve manually.
Bare Earth Surface Modeling	Separating surface features to create a model of the bare earth surface involves complex data processing, making manual creation tedious and prone to inaccuracies.

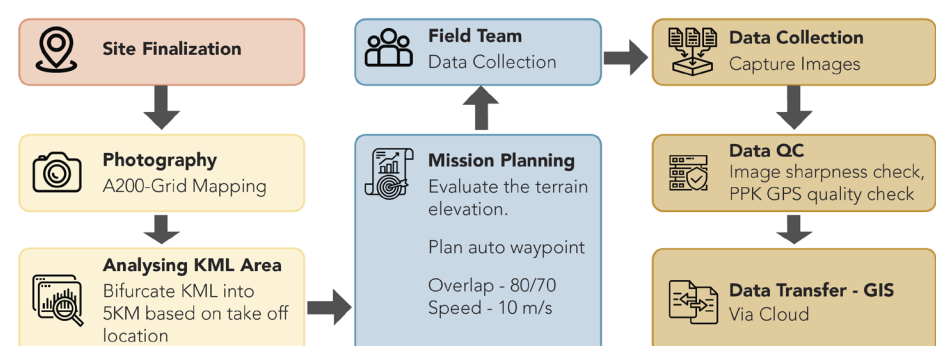
Asteria Aerospace's Role

Asteria played a pivotal role in supporting Ambuja through the deployment of diverse drone capabilities, providing valuable insights across various facets of their operations. Equipped with high-resolution cameras, Asteria's drones conducted surveys of the designated area, generating detailed and accurate topographical maps. This data proved instrumental in outlining contours and understanding the terrain, offering crucial support during the planning and design phases of the project.

Real-time and periodic aerial views of the site were obtained through the utilization of drones, offering up-to-date visual documentation. This facilitated efficient progress monitoring, timely identification of potential delays, and ensuring strict adherence to project timelines. The incorporation of Asteria's drone technology significantly enhanced Ambuja's overall project management efficiency.

Asteria's contribution extended to comprehensive aerial inspections, providing an in-depth analysis of hard-to-reach areas. The high-definition imagery captured during these inspections was invaluable in identifying safety hazards and compliance concerns. By leveraging drone technology for such inspections, Ambuja bolstered site safety measures and mitigated risks effectively.

Asteria's diverse drone capabilities helped Ambuja in effective project planning and management, and adherence to safety standards. The integration of high-resolution cameras and real-time aerial views not only streamlined processes but also contributed to a safer and more compliant work environment.



Client- Ambuja Neotia

Highlights

- Accurate documentation of land features
- Digitalization of real estate surveys
- Periodic & detailed surveys of the designated area
- Detection of water logging spots, tree positions & types, and built-up structures with aerial intelligence
- Accurate cross section profiles of existing canals

Technology at Work

Asteria's A200 is India's first survey-grade micro category drone with DGCA type certification. It captures topographic data enabled with PPK GPS, which makes it ideal for surveying and mapping applications in the real estate industry.

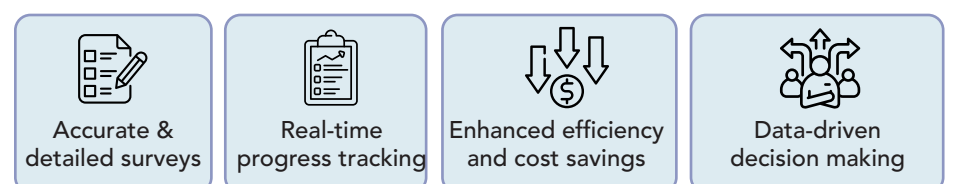
The A200 drone is a cutting-edge unmanned aerial vehicle designed to deliver exceptional performance and versatility.

- **Impressive Endurance:** Boasting an impressive endurance of 35 minutes, the Asteria A200 ensures extended flight durations for comprehensive aerial missions.
- **Best-in-class Range:** With a range of 2km LoS, the drone is capable of covering substantial distances during its missions.
- **Agile Manoeuvrability:** Equipped with a speed of 10m/s, the Asteria A200 is agile and swift, allowing for quick and efficient manoeuvring.
- **Autonomous Operation:** The drone features a fully autonomous operation mode, enhancing ease of use and reducing the need for manual intervention during missions.
- **Single-Person Operability:** Designed for efficiency, the Asteria A200 can be operated by a single person, streamlining mission control and management.
- **Automatic Return-to-Base:** This feature adds an extra layer of security. In the event of communication loss or unforeseen circumstances, the drone ensures a safe and controlled return.
- **Advanced Imaging:** One of the standout features is its advanced imaging capabilities. The drone is equipped with a high-resolution 24MP camera featuring a CMOS sensor that enhances image quality, providing sharp and clear visuals for precise analysis and documentation.

Outcome

- Identify distortion, ice-cream effect, blurriness, holes, or misalignments inside the area of interest with orthomosaics (Ground sampling distance of 2.434 cm/pixel).
- Capture both the natural and built/artificial features of the site environment with Digital Surface Model (DSM).
- Provide details about the vector features of the terrain with the help of Digital Terrain Model (DTM).
- Contour lines were used to represent ground elevation or depression. Contour intervals helped in developing an understanding of the difference in elevation between two contour lines.
- Determine tree positions, tree types, and built-up structures using high definition orthomosaics.
- Identify the level/altitude of the study area with the help of spot levels.
- Simulate a flood inundation model considering 70 years of daily precipitation from Indian Meteorological Department, using the surface model generated for the study area.
- Predict water logging spots in the area using the surface model.

Benefits



Business Impact

By leveraging Asteria's full-stack drone solution for surveying and mapping, progress monitoring, and safety inspections, Ambuja Neotia was able to improve decision-making, streamline operations, enhance safety protocols, and increase efficiency.

TRANSFORM SOLAR FARM CONSTRUCTION & MAINTENANCE WITH BEST MADE IN INDIA DRONES

Solar energy is revolutionizing the way we harness power, and drones are playing a pivotal role in maximizing the efficiency and sustainability of solar farms. Here's a glimpse into the diverse applications of drones in the solar energy sector.

Site Selection Surveys: Drones take center stage in the early phases of solar farm development by conducting comprehensive site selection surveys. The detailed topographical insights provided by drones assist planners and developers in optimizing the layout for maximum energy yield.

Construction Progress Monitoring: Monitoring the construction progress of solar farms is a complex task, given the expansive nature of these projects. Drones provide an overarching view of the construction site, capturing high-resolution aerial data that facilitates automated reporting and progress tracking.

Anomaly Detection and Operational Efficiency: Maintaining the optimal functionality of solar panels is crucial for maximizing energy output. Drones equipped with thermal imaging cameras become invaluable tools for detecting anomalies in solar panels. By generating thermal maps from drone data, operators can identify malfunctioning panels or potential issues early on.



Achieve maximum business outcomes while ensuring compliance



Adherence to drone regulations is paramount for businesses seeking to leverage drone technology for operational efficiency and enhanced decision-making. The Drones Rules 2021, issued by the Ministry of Civil Aviation of India, have paved the way for the liberalization of drone operations in the country, but non-compliance can pose significant risks to businesses. However, to ensure complete compliance, it is imperative for enterprises to partner with a drone technology company like Asteria Aerospace that understands the regulations and has the experience and expertise to ensure safe, secure, and risk-free operations.

Compliance as the Cornerstone of Drone Operations

The Drones Rules 2021 have set clear guidelines for drone manufacturing, sales, and operations, emphasizing the need for compliance to foster the widespread adoption of drone technology. For businesses incorporating drones into their operations, ensuring regulatory compliance is essential to mitigate risks and unlock the full potential of this transformative technology. Key considerations include the type certification of drones, pilot certification, and permissions for airspace zones, all of which play a crucial role in project success and regulatory adherence.

Asteria's Approach to Compliance

Asteria Aerospace has DGCA type-certified drones with unique identification numbers generated from the Digital Sky Platform, ensuring compliance with regulatory requirements. It navigates airspace geo-zoning and obtains permissions for operating in restricted zones from respective authorities and agencies, prioritizing safety and regulatory adherence. Certified remote pilots trained in operational safety and regulatory requirements conduct drone flights, while robust safety audits and data security measures further ensure compliance and risk mitigation.

Customers Speak

“The quality of Asteria’s work meets our expectations, and the attention to detail was remarkable. What truly sets them apart is their dedication to customer satisfaction. They listened to our specific needs, communicated effectively throughout the project, and went above and beyond to ensure that we were completely satisfied with the final deliverables. I highly recommend their drone survey services to anyone in the real estate industry looking for top-notch professionalism, expertise, and results.”

AmbujaNeotia **Kripadyuti Sarkar**
Ambuja Neotia