THE DRONE CHRONICLE

asteria aerospace

> "NAMO Drone Didi scheme is helping women to become integral stakeholders of their local farming supply chains."
>
> **Shri Narendra Modi**
> Prime Minister of India

ASTERIA A410-XT: VERSATILE AND HIGH-PERFORMANCE DRONE FOR INDUSTRIAL SURVEILLANCE & INSPECTIONS

Asteria's A410-XT drone is a vertical take-off and landing (VTOL) small UAS with high endurance and quick deployment capabilities. It comes with advanced payload options for security and surveillance applications for defence and enterprises as well as industrial inspection for oil & gas and power transmission & distribution sectors.

With its flexible and lightweight design, the A410-XT can shift through complex environments, without experiencing the slightest dip in its performance. This state-of-the-art drone stands out with a myriad of remarkable features designed to elevate its performance and ensure utmost precision in every mission.

The A410-XT sets itself apart with DGCA type certification, ensuring unparalleled reliability and adherence to stringent aviation standards. This certification underscores its commitment to safety, meeting regulatory requirements, and instilling confidence in users about its reliability. Powered by an advanced battery system, the A410-XT boasts an impressive 60-minute flight time, enabling extended operations without compromising efficiency. With a 4 km range, this drone delivers expansive coverage, allowing seamless exploration of vast areas with minimal disruption.

Efficiency is maximized with the A410-XT's tool-less assembly, facilitating rapid setup in under 10 minutes. This streamlined process ensures swift deployment, enabling users to focus on mission execution while minimizing preparation time. Prioritizing safety, the A410-XT incorporates dual GPS functionality for enhanced navigational accuracy and failsafe modes. These features trigger safe returns in scenarios involving low battery, communication loss, or high winds, ensuring the drone's secure retrieval.

India's drone industry wants more production linked incentives

Courtesy:
cnbctv18.com

Sources close to the development told CNBC TV-18 that India's drone industry has submitted detailed representation to the Department for Promotion of Industry & Internal Trade (DPIIT).

The demand is that the government should enhance the outlay to ₹250-300 crore, from the current ₹120 crore, whether it's through a new scheme or an enhanced budget.

The Drone PLI Scheme was launched in 2021 with incentives worth ₹120 crore for three years. According to the government, the incentive offered is nearly double the combined turnover of all domestic drone manufacturers in FY 2020-21.

23 companies like Ideaforge, Asteria Aerospace, Servocontrols Aerospace qualified under the scheme which includes 12 drone manufacturers and 11 drone component manufacturers.

AI Drones: To help farmers optimise vegetable yields

Courtesy:
World Economic Forum

As plants grow inconsistently, at the time of harvesting, there will inevitably be variations in quality and size of individual crops. A new approach making heavy use of drones and artificial intelligence demonstrably improves this estimation by carefully and accurately analyzing individual crops to assess their likely growth characteristics.

For the first time, researchers from the University of Tokyo (UoT) have demonstrated a largely automated drone system to help improve crop yields, which can benefit many and may help pave the way for future systems that could one day harvest crops directly.

Associate Professor Wei Guo from the Laboratory of Field Phenomics, UoT, said, "If farmers know the ideal time to harvest crop fields, they can reduce waste, which is good for them, for consumers and the environment. But optimum harvest times are not an easy thing to predict and ideally require detailed knowledge of each plant; such data would be cost and time-prohibitive if people were employed to collect it. This is where the drones come in."

Guo - with a background in computer science and agricultural science - and his team demonstrated that some low-cost drones with specialized software can image and analyze young plants - broccoli in the case of this study - and accurately predict their expected growth characteristics. The drones carry out the imaging process multiple times and do so without human interaction, meaning the system requires little in terms of labour costs.

WHY DRONES NEED TO BE PART OF PUBLIC HEALTHCARE IN INDIA?

Courtesy: World Economic Forum

With India's diverse and distinct topographical variations and geographical spread, last-mile service deliveries in the country face chronic challenges, particularly in the healthcare sector. Infrastructural constraints and unequal distribution of medical facilities coupled with geographical constraints, especially in the remote and rural regions of the country, continue to hamper the timely and efficient delivery of medical supplies.

Certain places cannot be reached by traditional modes of transport, such as trucks and vans, owing to rugged terrain that requires specialized trucks and drivers. While this approach often manages to address immediate problems, it comes with substantial implications for cost and may not be sustainable in the long term.

As a result, taking advantage of innovative technologies, such as drones or autonomous vehicles, for last-mile healthcare deliveries is gaining momentum. Globally, firms and organizations have successfully launched projects to incorporate drones into last-mile delivery operations. Drones have shown the ability to overcome logistical obstacles, improve accessibility and increase the efficiency of transporting products and services to remote or difficult-to-reach regions.

Drones could be a game changer in overcoming the challenges of last-mile health service delivery in India. To enable effective drone technology implementation and improved healthcare access, the first step would be to establish a comprehensive drone delivery network and the necessary infrastructure.
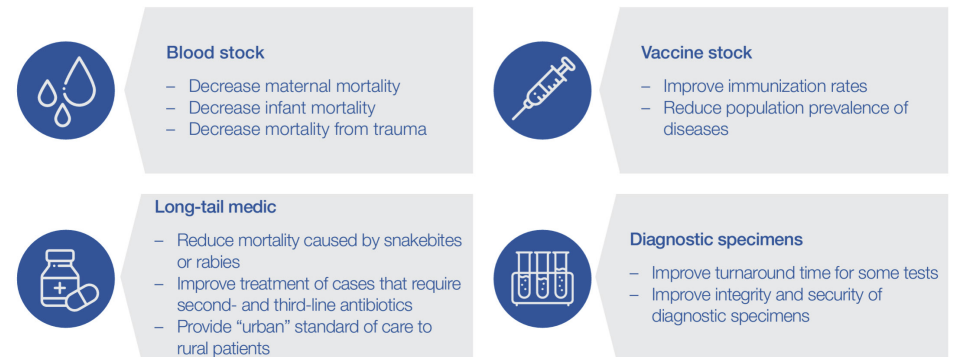
Blood stock
– Decrease maternal mortality
– Decrease infant mortality
– Decrease mortality from trauma

Vaccine stock
– Improve immunization rates
– Reduce population prevalence of diseases

Long-tail medic
– Reduce mortality caused by snakebites or rabies
– Improve treatment of cases that require second- and third-line antibiotics
– Provide "urban" standard of care to rural patients

Diagnostic specimens
– Improve turnaround time for some tests
– Improve integrity and security of diagnostic specimens

Image: Drone delivery use cases with targeted outcomes

Revolutionizing GIS with Drone-powered Aerial Innovation

Legend: Temple, Building, Shed, Land_Parcel, Road, Electric_Pole, Electric_Line, Green_Area, Overhead_Tank

For GIS professionals, precision and accuracy are paramount. Drones, equipped with advanced sensors and cutting-edge technology, are reshaping the landscape of data acquisition and analysis, offering unprecedented opportunities for spatial understanding and decision-making.

DGCA type certified drones with advanced sensors and drone operations and analytics software can help GIS professionals in faster and efficient data collection, processing, and analysis.

- **High-Resolution Imagery:** Drones capture high-resolution aerial imagery, which helps in creating detailed and accurate maps. These images, taken from varying altitudes, provide a comprehensive view of the terrain, enhancing the precision of collected data.

- **Accurate Data Capture:** Drones equipped with advanced sensors map terrain with unparalleled accuracy. This technology revolutionizes elevation modeling, which allows the easier building of detailed digital terrain models (DTMs) and digital surface models (DSMs) crucial for various applications, including flood risk assessment and urban planning.

- **Automated Cloud-Based Photogrammetry:** GIS professionals can stitch thousands of geotagged raw images into high-resolution orthomosaics and 3D models within hours.

- **Load Large Geo-Datasets on Any Browser:** Access to large geo-datasets need not be limited by the type of computer being used. A cloud optimized GIS data loader is capable of loading vast datasets on any browser in a few seconds.

- **Geotagged Video and Images:** Every piece of data on the right cloud-based drone software for GIS professionals allows GIS professionals to understand all visualized data with full geographical context.

- **Control Access to Data:** GIS professionals need to look for software that offers a full-fledged role-based access control where access to every piece of data can be uniquely controlled for every single user on the platform.

Asteria Aerospace, one of the leading drone technology companies in India, offers innovative solutions to GIS professionals. From DGCA type certified drones for fast and accurate data acquisition to cloud-based drone operations & analytics platform - SkyDeck for data processing, storage, and analysis, Asteria has a solution for all the diverse needs of GIS professionals.

U.P. cabinet nod to policy making drone registration mandatory

Courtesy: hindustantimes.com

Uttar Pradesh cabinet gave nod to Uttar Pradesh Drone Prachalan Suraksha Niti-2023 to resolve issues being faced in operation of the drones in the state. Under the policy, rules have been worked out that require mandatory registration of drones. The drones will also have a unique identity and the police stations will be aware of the presence of drones in their respective areas.

Briefing media persons about the state cabinet's decisions here, chief minister Yogi Adityanath said the drones were being used in different fields, including photography, videography as well as agriculture and security. Yogi said the policy has been formulated keeping in view the possibilities of its misuse.

He said the state government has worked out policy at the state level under the provisions of the Civil Aviation Act of the Government of India. Under the rules, the activities of drones can also be monitored from the police station level to see how many drones are present there and for what kind of use.

DRONE INDUSTRY'S PROSPECTS FOR 2024 –
A VISION FOR THE FUTURE

Advancements in AI, machine learning, and computer vision will likely refine autonomous capabilities, enabling drones to operate with greater precision, conduct complex missions, and gather and analyze data more efficiently. Apart from this, there are a few more trends that are likely to materialize in 2024.

• Continued Regulatory Support

The DGCA's commitment to a conducive regulatory environment is expected to persist in 2024. Further refinements in regulations are anticipated, encouraging more businesses to adopt drone technology for diverse applications. The industry may witness regulations addressing beyond visual line of sight (BVLOS) flights and urban air mobility (UAM), fostering safer and more widespread drone use.

• Integration of 5G Technology

The integration of 5G technology with drones is on the horizon. High-speed, low-latency connectivity will revolutionize real-time data transmission, enabling seamless communication between drones and ground stations. This development will enhance mission capabilities and open doors to novel applications.

• Expansion in Agriculture and Healthcare

The agriculture and healthcare sectors will witness a surge in drone applications. Precision agriculture will become more widespread, optimizing crop yields and minimizing environmental impact. In healthcare, drones will facilitate rapid medical supply deliveries, especially in remote areas, revolutionizing emergency response systems.

• Infrastructure Development

Investments in research facilities, testing grounds, and manufacturing infrastructure will enhance the industry's capabilities. Cutting-edge facilities will foster innovation and experimentation, driving the development of high-quality, indigenous drone technologies.

• Adoption in Emerging Markets

Emerging markets are likely to witness increased adoption of drones across various sectors. Governments and businesses will explore new applications and investments in drone technology to leverage its potential for economic growth and innovation.

With innovation at its core, regulatory support guiding its path, and a dedicated workforce propelling its growth, the sky is not the limit. Here's to a year of groundbreaking achievements, collaborative endeavors, and endless possibilities.

MEGHALAYA COAL SURVEY:
DRONES RECTIFY INVENTORY DISCREPANCIES
Courtesy: botsanddrones.in

In a bid to resolve the controversy surrounding coal inventory figures in Meghalaya, the state government turned to advanced drone survey technology, unveiling a more accurate assessment and dispelling initial discrepancies.

The decision to employ drones stemmed from the necessity to enhance accuracy and streamline the coal auction dynamics. The drone survey, powered by automated software, meticulously assessed and calculated the coal quantity, shedding light on the availability of 14.1 lakhs MT, challenging the previously reported 32 lakh MT.

Prior to the drone survey, the state government had seized approximately 4.72 lakh MT of coal. In the fiscal year 2021-2022, an auction of 1.5 lakh MT of coal took place. Post-drone survey re-verification, an additional 3.8 lakh MT was sold in March 2023, with another 5.9 lakh MT scheduled for auction in November 2023.

A critical endorsement of the drone survey's accuracy came from a single-member committee appointed by the Meghalaya High Court. The committee recognized the drone survey report as more than 90 percent accurate, underscoring its reliability in evaluating the coal inventory.

Sources also emphasized the court's guidance to rely on the drone survey due to a foreseen 30 percent difference between physical verification and drone assessment. Acknowledging challenges such as mismatched coordinates, attributed to the region's remoteness affecting network connectivity, further underscores the significance of drone technology in providing accurate and reliable data, especially in challenging terrains.

Navigating the Skies:
Understanding the Basics of Compliance in the Indian Drone Industry

Compliance, in the context of the Indian drone industry, refers to adhering to the rules, guidelines, and regulations stipulated by the DGCA. These regulations are designed to ensure the safe and responsible use of drones while minimizing potential risks to both aviation and public safety.

Key Aspects of Compliance:

• **The Regulatory Framework:** India's drone regulations are governed by the Directorate General of Civil Aviation (DGCA). The regulatory framework is designed to ensure the safe and responsible operation of drones, while also promoting innovation and growth.

• **Drone Registration:** All drones, except those in the Nano category (weighing less than 250 grams), must be registered on the DGCA's Digital Sky portal. This registration provides a unique identification number that must be prominently displayed on the drone.

• **Remote Pilot License (RPL):** Just as a driver's license is essential for driving a vehicle, an RPL is mandatory for operating a drone. Obtaining an RPL involves undergoing training, passing examinations, and obtaining DGCA approval.

• **No-Fly Zones and Permissions:** Certain areas, such as airports, military installations, and other sensitive locations, are designated as no-fly zones. Drones cannot be operated within these areas without specific permissions. Additionally, obtaining prior permissions through the Digital Sky platform is essential for operating drones in controlled airspace and other permitted zones.

• **Data Privacy and Security:** Beyond aviation regulations, data privacy and security are crucial considerations. Drones collect vast amounts of data and ensuring that this data is handled responsibly and in compliance with relevant laws is imperative.

Compliance isn't just a regulatory burden - it's a commitment to safety, responsibility, and the growth of the Indian drone industry. By adhering to DGCA regulations, operators contribute to the industry's positive image, encourage public acceptance, and pave the way for future innovations.

Why rural India needs women drone pilots?

Women's empowerment is the key to building a strong and developed nation. This is especially the case when women flourish economically and contribute to rural prosperity. NAMO Drone Didi — an initiative announced by Prime Minister Narendra Modi on November 30 during interaction with beneficiaries in Viksit Bharat Sankalp Yatra — aims to supply drones to 15,000 women Self Help Groups (SHGs) to rent to farmers for agriculture purposes. It is an excellent example of harnessing technological innovation to empower rural women.

This multifaceted scheme effectively addresses the need to modernise our agricultural practices and increase agricultural productivity by placing cutting-edge technology in the hands of rural women. This makes them the epicentre of the rural economy, spearheading the new agricultural revolution. The scheme also opens up new opportunities for the country's young and dynamic start-ups to enter the emerging field of drone aeronautics, which has huge untapped potential.

The NAMO Drone Didi scheme will be a gamechanger. It will usher in a new chapter of women's empowerment and effectively address multiple issues by providing an opportunity for rural women to be at the centre stage of economic activity and rural prosperity. There is no doubt that the scheme supported by the newly created network of Pradhan Mantri Krishi Samriddhi Kendras, which provide agricultural services under one roof, will prove to be a harbinger of modern-day agricultural revolution and prosperity in a largely agrarian country like ours.

Drone tech course for officers of armed forces at Indian Institute of Technology Guwahati

IIT Guwahati has launched a first-of-its-kind three-month certificate course in drone technology for officers of the armed forces.
The primary objective of this programme is to modernise the armed forces' operations, provide state-of-the-art skills for drone operations and utilities and facilitate a smooth transition for the armed forces as they consider post-retirement career options in the rapidly expanding drone technology sector, an IIT-G statement said.

Professor T.V. Bharat, head of centre for educational technology, IIT Guwahati, said on Thursday: "IIT Guwahati is offering a certificate programme on drone technology-related course to the defence forces for the first time in the country to skill the armed forces with this upcoming technology and to boost their career opportunities post retirement."

"The current training programme by faculty from different departments and centres with wide experience would provide numerous opportunities as entrepreneurs or any other technology-based second career to our defence forces," Bharat said on the upskilling programme.

The current batch has 30 personnel from various armed forces. Junior commissioned officers (JCOs) are availing the first-of-its-kind course and it will be extended to officers of other ranks in due course.

Brigadier Rajeev Kapur, assistant director-general of the Directorate General of Resettlement said the aim of the programme was to enable a "smooth" transition of service personnel "who aspire for a second career in the corporate world at various levels after retirement".