



**CENTRE FOR JOINT WARFARE STUDIES (CENJOWS)
PRESENTS
SEMINAR & EXHIBITION**

ON

UAS WARFARE WITH SPECIAL FOCUS ON COUNTER-UAS

10 MAR 2025

Ashoka Hall, Manekshaw Centre, Delhi Cantt



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UAS WARFARE WITH SPECIAL FOCUS ON COUNTER-UAS SEMINAR PROGRAMME Monday, 10 Mar 2025



0900-0930 hrs **Registration & Arrival Tea**

INAUGURAL SESSION (0930-1015 hrs)

0930-0940 hrs Opening Address. **Maj Gen (Dr) Ashok Kumar**, VSM (Retd), DG CENJOWS
0945-1000 hrs Keynote Address. **Gen Anil Chauhan**, PVSM, UYSM, AVSM, SM, VSM, Chief of Defence Staff
1000-1015 hrs Interaction of CDS with Industry Reps.
1015-1045 hrs **Refreshment Break and Exhibition.**

SESSION 1 – ADVANCEMENTS IN DRONES TECHNOLOGIES & CAMPAIGN STRATEGY (1045-1200 hrs)

Chairperson: **Air Marshal SP Dharkar**, PVSM, UYSM, AVSM, VCAS, Co-chair **Lt Gen Ajay Kumar**, VSM, DG Inf
1045-1100 hrs Military's Drones' Requirements for 'Surakshit Bharat 2047'. **AVM Rajiva Ranjan**, VM (Retd)
1100-1115 hrs The Future of Battlefield: Drones and AI. **Mr Sarjan Shah**, JSW UAV
1115-1130 hrs Advancements in Small & MR Drones & Indian Requirements. **Lt Gen Ajay Kumar**, VSM, DG Inf
1130-1145 hrs Missiles-Drones-Rockets Campaign Strategy-Lessons from ongoing conflicts.
Brig Anshuman Narang (Retd)
1145-1200 hrs Q&A Session & Chairman's Remarks. **Air Marshal SP Dharkar**, PVSM, UYSM, AVSM, VCAS

SESSION 2 – MANIFESTATION OF DRONES THREAT ALONG INDIAN BORDERS & IOR (1210-1330 hrs)

Chairperson: **Vice Adm Tarun Sobti**, AVSM, VSM, DCNS, Co-Chair **Shri SS Rathore**, DIG (Ops), Rep DG BSF
1210-1225 hrs Drones Threat Along Northern Borders. **Brig Anshuman Narang** (Retd)
1225-1235 hrs Industry Perspective: **Mr Jasbir Solanki**, CEO, Mahindra Defence.
1235-1250 hrs Drones Threat – IOR. **Commodore Manjit Thomas**, IN
1250-1305 hrs Advancements in Drones Detection Systems. **Mr Rajiv Mehrotra**, Chairman, Shyam VNL Pvt Ltd
1305-1315 hrs Peacetime Drones' Threat along Western Borders including Rogue Drones' Threat.
Shri SS Rathore, DIG (Ops), BSF
1315-1330 hrs Q&A Session & Chairman's Remarks. **Vice Adm Tarun Sobti**, AVSM, VSM, DCNS
1330-1430 hrs **Lunch and Exhibition**

SESSION 3 – ADVANCEMENTS IN COUNTER-UAS GRID (1435-1530 hrs)

Chairperson: **Lt Gen Vipul Shinghal**, AVSM, SM, DCIDS (DOT), Co-chair **Shri Mukesh Singh**, IG, Rep DG ITBP
1435-1445 hrs Counter UAS requirements in HAA along borders. **Shri Mukesh Singh**, IG ITBP
1445-1500 hrs Comprehensive Counter-UAS Grid Technological Solutions **Mr Navneet Singh**, CEO, Kepler Aerospace
1500-1515 hrs Counter UAS Support Requirements in TBA. **Maj Gen CS Mann**, AVSM, VSM, ADG ADB
1515-1530 hrs Q&A Session & Chairman's Remarks. **Lt Gen Vipul Shinghal**, AVSM, SM, DCIDS (DOT)
1530-1600 hrs **Tea Break**

SESSION 4 – COUNTER-UAS POLICY (1600-1730 hrs)

Chairperson: **Lt Gen NS Raja Subramani**, PVSM, AVSM, SM, VSM, VCAS, Co-Chair **Shri Taha Jamal**, DIG Rep DG ICG
1600-1615 hrs Whole of Nation Approach to Counter UAS Policy. **Lt Gen Manish Erry**, UYSM, AVSM, SM, DG SP
1615-1625 hrs Legal constraints - Management of Rogue Drones **Shri Jitendra Mani Tripathi**, IPS, Delhi Police.
1625-1640 hrs CMF Challenges for National C-UAS Grid. **AVM PV Shivanand**, AVSM, VM, ACAS AD, IAF
1640-1655 hrs Advancements in Electronic Warfare in a Drone Warfare. **Mr Ashish Rajvanshi**, CEO, Adani Defence Systems
1655-1710 hrs Maritime Threat & Policy parameters – Multi-Domain UVs- UAS, USVs, UUVs & Unmanned Boats. **Shri Taha Jamal**, DIG Indian Coast Guard.
1710-1720 hrs Q&A Session & Chairman's Remarks. **Lt Gen NS Raja Subramani**, PVSM, AVSM, SM, VSM, VCAS
1720-1730 hrs Closing Remarks. **Maj Gen (Dr) Ashok Kumar**, VSM (Retd), DG CENJOWS
1730 onwards **Dispersal**



CENJOWS

ABOUT US

1. **Raising**. CENJOWS was raised at the initiative of Ministry of Defence on 27 Aug 2007 and is registered under 'The Societies Registration Act 1860'. The centre has been set up to:-
 - (a) Rise above sectoral and departmental legacies, and examine joint warfare and synergy issues in their entirety.
 - (b) Provide the much needed interface between various stakeholders, viz. the government, public and private sector, academia, NGOs and civil society.
 - (c) Initiate debate and discussions in an independent and unbiased milieu for emergence of best possible alternative.
2. **Vision**. To be the premier think tank promoting jointness, integration and transformation in Indian Armed Forces.
3. **Mission**. To promote Jointness as a synergistic enabler for the growth of Comprehensive National Power and provide alternatives in all dimensions of its applications through focused research and debate for facilitating doctrinal and policy formulations by the concerned stakeholders.
4. **Charter**.
 - (a) Accord priority to free dialogue and discussion on all issues with a bearing on joint warfare and on the formulation of independent policy options to decision makers, in the GoI and the Defence Headquarters.
 - (b) Endeavour to mould public opinion and influence the national security elite on issues where India's national power is synergised.
 - (c) Nurture and facilitate study, scholarship and discourse in respect of a broad spectrum of joint warfare issues keeping integration and ongoing transformation of the armed forces in focus.
 - (d) Seek to engage foreign institutions, having common interests and commitments, in our immediate neighbourhood and further afield, and undertake an exchange of ideas with a view to enhancing mutual understanding and cooperation in the joint warfare field.
 - (e) Pursue agenda of transformation of Indian Armed Forces into technology savvy force by provide research based inputs in fcs of emerging technologies.
 - (f) Research other relevant issues/topic pertaining to Indian Armed Forces which needs analysis for policy formulation in the Tri-services domain.
 - (g) To claim accreditation as a think tank of Global Repute.
5. **Target Audience and Membership**.
 - (a) Decision Makers–Present & Future:-
 - (i) Military Leadership.
 - (ii) National Polity.

- (iii) Foreign Policy makers.
- (iv) Bureaucrats.
- (b) AFTI's.
- (c) Academia.
- (d) Scientific Community.
- (e) Think Tank Fraternity (Including Global).
- (f) Media.

6. **Areas of Research Interest.**

- (a) Objectives and Work Areas.
- (b) Referral and Support Think Tank to MoD/HQ IDS and Nodal Agency for generation of ideas relating to all aspects of Joint Warfare.
- (c) Referral Services on Policy Issues to queries received from Min of Def and its Departments, Services HQ and other Government Departments and Strategic Studies Organisations.
- (d) Contribute to enhancing awareness on Defence and security Issues amongst Services Officers. Provide niche area expertise to Services Training Institutions.
- (e) Harness domain knowledge and expertise of Veterans in various areas of interest.
- (f) Establish useful linkages with corresponding desks at other Security Related think tanks.
- (g) Knowledge sharing through publications through access to the CENJOWS Website, Synergy, the half-yearly journal, Monographs, Issue Briefs and Occasional Papers, Anthologies and Books.
- (h) Carry out research in geo-strategic domain to provide inputs to service HQs/ HQ IDS for assisting them in policy formulation on the subject.

PROMOTING AATMANIRBHARTA AND INDIGENISATION

7. Centre for Joint Warfare Studies (CENJOWS) is a Tri-Services think tank under HQ Integrated Defence Staff/ Chief of Defence Staff / Ministry of Defence. This organisation has mandate of working in multiple domains one of which pertains to attaining Aatmanirbharta and Indigenisation.

8. Defence Sector needs to be invigorated with home grown, indigenous, state of art and modern equipments / assemblies / parts for meeting the requirement of the defence forces besides enhancing the defence exports as per focus of the Government.

9. CENJOWS provides the following opportunities for your establishment / organisation:-

(a) **Industry Interactions.**

- (i) This is one to one interaction.
- (ii) The company gets the opportunity to show case its product through presentation and seek feedback from the Subject Matter Experts (SMEs).
- (iii) The company expresses the interest for Industry Interaction with a mail at cenjows@cenjows.in. The mail should include the product details and main area needing guidance / clarification.
- (iv) A sum of Rs 25000/- (Rupees twenty five thousand only) will required to be deposited in CENJOWS account as per details below:-

Bank : State Bank of India, CGO Complex, Lodhi Estate,
CGO Com, New Delhi-110003

Acct Name : Centre for Joint Warfare Studies (CENJOWS)

Acct No : 43356624628

IFSC Code : SBIN0007837

MICR Code : 110002131

- (v) CENJOWS will contact one / two SMEs based on the query of the company and will fix a date for deliberation. SMEs will be paid honourarium out of the funds credited by the company.
- (vi) Option for physical / online interaction exists but payment remains same in both the cases.

(b) **Institutional Corporate Membership**

(i) Institutional Corporate Membership can be taken by onetime payment of Rs. 50000/- (fifty thousand only) in the following account:

Bank : Canara Bank, Rajaji Marg Kashmir House, New Delhi-110011, India
Acct Name : Centre for Joint Warfare Studies (CENJOWS)
Acct No : 91222160000046
IFSC Code : CNRB0019122
MICR Code : 110015504

(ii) The membership will be valid for 15 years. The form is available on CENJOWS website and can be filled 'online'.

(iii) The following facilities will be provided:-

- (aa) Issue of **TWO** membership cards for attending organised events by CENJOWS.
- (ab) Intimation of all events through email.
- (ac) Sending all publications through email.
- (ad) Access to CENJOWS library.
- (ae) A copy of six monthly "SYNERGY JOURNAL" being published on six monthly basis. Hard copy will be dispatched at the given address.
- (af) Preference for sponsorship of events like webinars / seminars/ Round Table Discussions (RTDs), etc.

(c) **Chair of Excellence (COE)**

(i) The industry house can also sponsor a Chair of Excellence which will need a payment of Rs 15 Lakhs for one year. It is not obligatory to extend it beyond one year. It will be sole discretion of the sponsor.

(ii) The subject chosen by the sponsor should be of utility to all the three services – Army, Navy and Air Force.

(iii) CENJOWS will hire a subject matter expert to work on the chosen subject for a year for comprehensive research in the field.

(iv) Regular write ups will be prepared based on the research & analysis by the person appointed to tenate the Chair of Excellence which will be published by CENJOWS and will be shared with the sponsor.

(v) Few Round Table Discussions / seminars related to the subject will be conducted by CENJOWS whose proceedings will be shared with the sponsor. The sponsor will be invited to attend these events in physical / online format.

(vi) A book will be published after the research at the end of the year copy of which will be shared with sponsor.

(vii) The fund can be deposited in the following account:-

Bank : State Bank of India, CGO Complex, Lodhi Estate, CGO Com, New Delhi-110003
Acct Name : Centre for Joint Warfare Studies (CENJOWS)
Acct No : 43356624628
IFSC Code : SBIN0007837
MICR Code : 110002131

(viii) Interest can be emailed to cenjows@cenjows.in with copy to dg@cenjows.in.

10. The industry can opt for any of the above options or more than one as per its requirement.



MESSAGE

1. I am pleased to note that the Centre for Joint Warfare Studies (CENJOWS) is organizing a seminar on 'Unmanned Aerial System (UAS) Warfare' on 10 Mar 2025. Recent conflicts in Europe and West Asia have clearly vindicated the utility of UAS in operations. From enhancing situational awareness to conducting high-risk operations with minimal human involvement, UAS are redefining the nature and outcome of battles.
2. The concept of Manned Unmanned Teaming, where manned platforms work alongside unmanned systems is enhancing combat efficiency and reducing human risk. Exo-Skeletal systems are further enhancing human performance. In recorded history, combat has always been between two humans. However, we are on the threshold of a new era, where combat may be between humans and machines and between machines and machines - machines that are autonomous.
3. The growing proliferation of UAS poses new security challenges, including the threat of hostile drones and swarms. Addressing these risks demands robust counter-UAS capabilities, leveraging cutting-edge technologies such as artificial intelligence, directed-energy weapons, and advanced detection systems.
4. India's emphasis on developing indigenous UAS capabilities is critical to attaining technological superiority. The timing of this seminar is pivotal and I am confident that the discussions and collaborations at this event will encourage critical partnerships that contribute to safeguarding our national interests, bolster defence preparedness and enhance our strategic autonomy.
5. I extend my best wishes for the success of the seminar and urge all stakeholders to participate wholeheartedly in this important endeavor. Together, let us build a secure and resilient future for our nation.

Jai Hind!

(Anil Chauhan)
General
Chief of Defence Staff



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चेयरमैन चीफ्स ऑफ स्टाफ कमेटी

Lt Gen JP Mathew, PVSM, UYSM, AVSM, VSM

Chief of Integrated Defence Staff to the
Chairman Chiefs of Staff Committee

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मुख्यालय एकीकृत रक्षा स्टाफ
कमरा नं. २५९ए
साऊथ ब्लॉक
नई दिल्ली-११००११
Headquarters
Integrated Defence Staff
Room No 259A
South Block
New Delhi-110011



MESSAGE

1. The evolution of drones and their innovative use in the ongoing conflicts have highlighted their profound impact on modern combat. From small, tactical UAVs to large, sophisticated ones, drones are being employed for diverse roles, from surveillance and reconnaissance to precision strikes. The extensive utilisation of drones by both, Russia and Ukraine, are presenting new challenges and vulnerabilities for both forces bringing to light both the unprecedented capabilities of these systems as well as the urgent need for robust countermeasures. Therefore, developing integrated counter-drone systems that can effectively neutralise this evolving threat across all domains – land, air, and sea, and their integration into our defence posture is now a necessity for maintaining operational advantage and safeguarding critical assets.
2. The seminar being organised by CENJOWS on 'Drone Warfare' with focus on counter-drone systems on 10th March 2025 offers us a platform to explore innovative technologies, share lessons learned from recent conflicts, and engage in meaningful dialogue on how to effectively counter the growing drone threat.
3. It is to this end that I encourage all stakeholders to participate in this event and generate vigorous debates and discussions, share expertise, and churn out solutions as we work collectively to strengthen our defence against this critical and growing threat.
4. I wish CENJOWS and all the participants the very best of luck for a successful and productive event.

(Johnson P Mathew)
Lt Gen
CISC



MESSAGE

As we witness the unfolding dynamics of modern warfare, particularly in the ongoing conflicts, the growing role of drones, both as offensive and defensive assets, has become undeniably clear. Drones have proven to be a game-changer on the battlefield. From surveillance and precision strikes to logistics and countermeasures, Unmanned Aerial Systems (UAS) have reshaped operational strategies.

Armed with AI, these platforms have become even more versatile, capable as well as lethal. In the ongoing Russia-Ukraine conflict, Ukraine reportedly employed an all-unmanned ground attack team, consisting of FPV drones for real-time aerial recce and UGVs for laying mines and mine clearance as well as armed with machine guns for cover fire. The indispensability of these platforms in modern day conflict is highlighted by the fact that some militaries have already created, or, are in the process of creating a dedicated 'Drone Force'.

However, with these advancements come significant challenges, particularly in the development and deployment of effective counter-drone systems. With advancements and innovations in drone technology which allow drones to be operated even in GPS-denied environments or controlled through fibre-optics cables, drones have become increasingly resistant to common counter-drone technologies available today.

I am sanguine that this seminar being organized by CENJOWS on 'Drone Warfare' on 10 March 2025, with the help of enthusiastic participation of practitioners and industry representatives, will explore the tactics, technologies, and systems designed to detect, disrupt and neutralize hostile drones. By learning from ongoing conflicts, we can enhance our capabilities and better prepare for future warfighting.

I wish CENJOWS all the best for a productive, insightful and successful conduct of seminar.

'Jai Hind'

(NS Raja Subramani)

Lt Gen

Vice Chief of Army Staff



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सह - नौसेनाध्यक्ष

Vice Admiral Krishna Swaminathan, AVSM, VSM
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New Delhi - 110 011

MESSAGE

The Indian Armed Forces are in the midst of an era of transformation where technological advancements are re-defining and re-shaping the battle space in all dimensions of modern warfare. The proliferation of autonomous and uncrewed systems is a defining feature of this era, with nations across the globe rushing to equip themselves with these systems, colloquially termed, 'drones'.

The disproportionate effects that drones have relative to their cost and size have been amply demonstrated in the Armenia-Azerbaijan, Israel-Hamas-Hezbollah-Houthi and the Russia-Ukraine conflicts. The strategic connotations of tactical successes witnessed in the use of drones in these conflicts are instructive and demand that we re-think our conventional approach to warfare, and identify avenues to develop the capability to both, employ and counter them. There is no doubt the Indian Armed Forces, as the principal guarantor of India's national security, need to equip themselves correctly with these 'game-changers' and remain ahead of their potential adversaries.

In this context, the seminar being organised by CENJOWS on Drone Warfare is significant and timely as it seeks to bring together the best minds in the country to brainstorm, identify and strategise on this critical facet of modern warfare. I am sure that with the active participation of the Indian Armed Forces, the academia and industry partners, the seminar will derive meaningful outcomes on the subject and contribute to strengthening the military even further.

I take this opportunity to complement CENJOWS and wish the seminar and its participants great success. Jai Hind!

(Krishna Swaminathan)
Vice Admiral
Vice Chief of the Naval Staff

15 Jan 25



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सह वायु सेना अध्यक्ष
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Air Marshal S P Dharkar PVSM UYSM AVSM

Vice Chief of the Air Staff
Indian Air Force

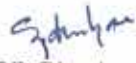
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MESSAGE

1. Every once in a while, a technology emerges that causes a change in character of war. In the opening Russia-Ukraine conflict, it is Drone tech that has found fruition making drones simple to operate, cheap and readily available. The employment of drones of varied types and in numerous numbers, as they streamed videos of tactical reconnaissance missions, destroying armour and artillery, or accepting surrenders has left a lasting impression, catapulting them to prominence. As drones make an impact in tactical battle spaces, drones with enhanced capabilities when used in conjunction with other means of force projection have caused great damage in depth areas. The foreseeable future is likely to see increasing role of drones wherein they may not supplant, but will surely complement the traditional means of force projection.
2. Outside the military realm, drones have proliferated into a large array of roles from logistics to agriculture to survey to construction and many more. The technology being common, the military and civil usage of drones will be intertwined and see a collaboration between usage.
3. The seminar on 'Drone Warfare' being organized by CENJOWS on the 10th of March 2025 could not have come at a better time. I am sure this event is going to bring together the stakeholders to collaborate, brainstorm and generate ideas towards self-reliance, while strengthening the armed forces in harnessing these 'means' as well as defend against these threats.
4. I wish the organisers and participants a fruitful event.


(SP Dharkar)
Air Marshal
VCAS

Date : 17Feb 25

Speakers' Profiles

General Anil Chauhan, PVSM, UYSM, AVSM, SM, VSM, Chief of Defence Staff



General Chauhan is an alumnus of the National Defence Academy, Khadakwasala. He was commissioned into the Sixth Battalion, the Eleventh Gorkha Rifles in Jun 1981, from Indian Military Academy, Dehradun.

He is a graduate of the Defence Services Staff College, Wellington, the Higher Command and National Defence College courses. He was awarded M.Phil in Defence Studies from Madras University in 2012.

General Chauhan has a distinguished career spanning 43 years. He has varied operational experience of most conflict and terrain profiles. His last operational assignment in the army was as the General Officer Commanding-in-Chief Eastern Command. He served as the Military Adviser to National Security Council Secretariat (NSCS) before being appointed as the second CDS of the Armed Forces.

As the highest ranked military officer, Gen Anil Chauhan is triple hatted and concurrently holds the appointment of Chairman Chiefs of Staff Committee, Secretary Department of Military Affairs, besides tenantry the appointment of the Chief of Defence Staff. He is the principal Military Adviser to the Raksha Mantri and to the national leadership on all tri-services matters.

He has been instrumental in fostering a Joint Culture amongst the three services and has spearheaded several integration initiatives that have bolstered the combat potential of the armed forces to fight an integrated battle. As CDS and Chairman, COSC, he is also formalising the roadmap towards creation of the integrated Theatre Commands.

Academically inclined, the General has authored two books namely 'Aftermath of a Nuclear Attack' and 'History of 11 Gorkha Rifles Regimental Centre'. He has also supervised the writing of the 'History of 19 Inf Div'.

Maj Gen (Dr) Ashok Kumar, VSM (Retd), DG CENJOWS



Maj Gen (Dr) Ashok Kumar, VSM, DG CENJOWS is a Kargil war veteran. He commanded an Infantry formation in Arunachal Pradesh. He was MD ECHS and PSO at HQ Eastern Command prior to retirement. He is a prolific writer and has written on a wide range of topics including China, India's neighbours, Border management, Theaterisation and capability development within the Armed Forces. He has authored two books to include 'China Betrays Again' and 'Indian Churnings on the Global Stage'.

Air Marshal SP Dharkar, PVSM, UYSM, AVSM, Vice Chief of Air Staff (VCAS)



Air Marshal SP Dharkar, PVSM, UYSM, AVSM took over as Vice Chief of the Air Staff at Air Headquarters, after relinquishing appointment as the Air Officer Commanding-in-Chief of EAC. Prior to this, he was the Senior Air Staff Officer at HQ SWAC. He has earlier been the Director General of the Defence Space Agency at Bengaluru, Air Defence Commander at HQ EAC and Assistant Chief of the Air Staff (Training) at Air Headquarters. Air Mshl Dharkar is a fighter pilot with more than 3600 hrs of flying experience.

Lt Gen Ajay Kumar, VSM, Director General of Infantry



Lt Gen Ajay Kumar, VSM assumed the appt of the Director General of Infantry on 01 Oct 2024. The Gen Offr was commissioned in the 16th Bn The PUNJAB Regiment in 1990, he later commanded 9 PUNJAB. The Gen Offr is an alumnus of IMA, Dehradun.

The Gen Offr has attended imp courses at the prestigious Def Services Staff College, Wellington, Army War College, Mhow and National Def College, New Delhi apart from mandatory courses. He has tenanted prestigious instructional and staff appts to incl Instr CI 'C' at IMA; Dehradun; GSO-1; DGMO; New Delhi; Def Attache; Embassy of India; Riyadh (Saudi Arabia); Brig MS (HQ DG NCC, New Delhi) & Brig Intl (HQ IDS, New Delhi).

The Gen Offr has vast operational experience at all levels of Comd. He commanded his Bn, 9 PUNJAB in Fd and High-Altitude Area, 27 Sector Assam Rifles and CIF (Delta) in J&K. Prior to taking over his current Appt as DG Inf he was Dy Comdt & Chief Instructor, Inf School, Mhow. For his dedicated and distinguished service, he has been awarded Chief of Army Staff Commendation Card, VCOAS Commendation Card and Vishisht Seva Medal.

Air Vice Marshal Rajiva Ranjan, VM (Retd)



Air Vice Marshal Rajiva Ranjan, VM (Retd) was commissioned into the Fighter Stream of the Indian Air Force in June 1987. He is a Fighter Combat Leader and a Qualified Flying Instructor. He is an alumnus of the National Defence Academy,

Khadakwasla, the Defence Service Staff College, Wellington, and the National Defence College, New Delhi.

The Air Officer has approx 3,850 hours of flying experience, all of which are accident/incident-free. He has flown 15 types of fighter and trainer aircraft held by the Indian Air Force. He has commanded the MiG Operation Flying Training Unit, Air Force Station Jaisalmer, and Air Force Station Bhatinda.

He was the first Flight Commander of the MiG-21 (Bison) fleet and, as Joint Director Operations (Air Defence), was responsible for formulating the Operational Exploitation Philosophy of Bison aircraft and its Standard Operating Procedures and other associated rules and regulations. He also served as Air Attaché at the Embassy of India, Kabul, Afghanistan.

The Air Officer is a recipient of the Chief of Air Staff Commendation Award twice, in 1998 and 2003, for flight safety and devotion to duty, respectively.

He was also awarded the Vayu Sena Medal (VM) in January 2008 for his exemplary performance as Commanding Officer, during which his unit was declared the "Best Fighter Squadron" of the Eastern Air Command.

Mr Sarjan Shah



Born in Mumbai in 1989, Sarjan received his BSc in International Relations and History from the London School of Economics in 2010, an Advanced Diploma in Philosophy at Cambridge and his MBA from Harvard, both in 2016.

In 2019-20, Sarjan established Ikigai Capital, with a view to bringing critical future-facing technology partnerships to India, focusing on defense, aerospace and artificial intelligence.

Sarjan has led the India market entry for Shield AI, one of the US's most promising new defense technology businesses. Since the establishment of the strategic partnership between JSW & Shield AI, Sarjan now sits on the board of JSW UAV.

Sarjan writes on geopolitics and national security affairs for the Indian Express, one of India's leading English dailies.

Brig Anshuman Narang (Retd)



Brig Anshuman Narang (Retd) is an alumni of prestigious Rashtriya Indian Military College, National Defence Academy and Defence Services Staff College. He holds the "Adani Defence

Chair of Excellence" on Counter-UAS at CENJOWS and is the Founder of an independent Think-Tank "Atma Nirbhar Soch" which is successfully running courses on PLA and Multi-Domain Operations, Future warfare and Technologies. He is also an Adviser at Suhora Technologies.

A keen China watcher and author of three books, his PhD topic is "Chinese RMA and Centennial Goals - Implications for India". His fourth book "PLA's ORBAT Compendium" is under publication. He has attended courses in all quad countries-

American Artillery's Captain Career Course, Australian Joint Warfare Course and Japanese National Institute of Defence Studies Course.

He took voluntarily retirement after commanding a prestigious Composite Artillery Brigade. He has been GSO1 of an Independent Armoured Brigade, Colonel GS of an Armoured Division, Col MS4D at MS Branch, and Directing Staff at Senior Command Wing, Army War College.

Vice Admiral Tarun Sobti, AVSM, VSM Deputy Chief of Naval Staff (DCNS)



Vice Admiral Tarun Sobti was commissioned into the Indian Navy on 01 Jul 1988. He is an alumnus of the 72nd Course, National Defence Academy, Khadakwasala. The Flag Officer is a Navigation and Direction specialist. The Flag Officer did the Overseas Staff Course from France during 2002-2003 and Naval Higher Command Course in 2009-2010.

The Flag Officer has Commanded three warships which includes the Commissioning Command of INS Kolkata, the first of its kind guided missile destroyer. He served as the Naval Attaché at the Embassy of India, Moscow from 2016 to 2018. On promotion to the rank of Rear Admiral, he was appointed as the Deputy Commandant and Chief Instructor at Indian Naval Academy, Ezhimala from Mar 2019 to Jan 2021 and as Flag Officer Commanding Eastern Fleet from Feb 2021 to Dec 2021.

On promotion to the rank of Vice Admiral on 24 Dec 21, he was appointed as Director General Project Seabird from Dec 21 to Aug 24. He held additional charge as Director General Naval Operations from Jul-Sep 23, prior taking over his present appointment as Deputy Chief of Naval Staff at Naval Headquarters.

In recognition of his distinguished service and outstanding contributions to the Indian Navy, the Flag Officer has been awarded the Ati Vishisht

Seva Medal on 26 Jan 22 and Vishisht Seva Medal on 26 Jan 2020.

Shri Surender Singh Rathore, DIG, BSF



Shri S S Rathore, joined BSF as Direct Entry Assistant Commandant on 2nd July'1993. During his more than 31 years of service, he has served on a wide variety of borders, starting from High Altitude areas of Line of Control to the Deserts of Rajasthan and in the North Eastern region, the remote and thickly forested borders of Assam and Tripura.

He has also served in the G Branch, the BSF Intelligence wing, in Jammu frontier. An alumnus of prestigious Defence Services Staff College, he has served on various staff appointments at the BSF Force HQs. A qualified Instructor for almost all streams he served as an instructor for Senior Command in the Tactical Wing at the BSF Academy Tekanpur.

He has also been on deputation to the prestigious Special Protection Group where he served for Six years with distinction. Presently, he is posted in the Operations Directorate at BSF HQs New Delhi, looking after the Western Command & the Technology Cell with has a mandate to identify new technologies and Innovations for induction in the force. He is the member secretary of Anti Rogue Drone technology committee (ARDTC), a central body constituted by MHA for the purpose of evaluating Anti Drone technology in the country.

Mr Jasbir Solanki, Veteran, CEO and Global Thought Leader in Defence & Security, Mahindra Defence



Jasbir is a distinguished veteran of the Indian Navy and the Chief Executive Officer of Mahindra Defence System Limited (Naval Systems, Homeland & Cyber Security). An accomplished business leader with over 25 years of experience in Defence, Homeland Security, and Cyber Security, he has played a pivotal role in positioning Mahindra Defence as one of India's leading providers of cutting-edge Defence & security solutions.

Under his leadership, Mahindra Defence has successfully executed landmark projects, including the world's largest Integrated Emergency Management System, serving 220 million people from a single command and control center. His unwavering commitment to customer-centric innovation continues to set new industry benchmarks.

Jasbir holds an engineering degree with distinction from Pune University, is a qualified Marine Engineer from the Indian Naval Institute, and has a Master's in Financial Management from the Jamnalal Bajaj Institute of Management in Mumbai. He has further honed his expertise through executive leadership programs at MDI Gurgaon, the Stephen M. Ross School of Business, and Harvard Business School.

A seasoned public speaker, Jasbir has delivered keynote addresses at TEDx and premier global conferences, including the Counter Terror Expo (London), Oil & Gas Summits (Singapore), Smart Cities (Delhi), Port Security (Mumbai), Cybertech (Tel Aviv), and the ISMG Cyber Security Summit.

Commodore Manjit Thomas, IN



Commodore Manjit M Thomas was commissioned into the Indian Navy on 01 Jul 1996. He is an alumnus of the National Defence Academy, Khadakwasla, JMSDF Staff College, Tokyo and National Defence College, New Delhi. He is an Anti Submarine Warfare

Specialist.

He has held several operational appointments including command of an ASW Corvette, Missile Corvette and Stealth Frigate. The Officer has tenanted the appointments of Fleet ASW Officer of Eastern Fleet and Officer in Charge of ASW School at Kechi. He has also been the Naval Assistant of FOC-in-C West and the Defence Adviser to the High Commission of India at Pretoria, South Africa with concurrent accreditation to Zimbabwe, Mozambique and Lesotho.

The Officer has taken over his current appointment as Commodore (Staff Requirements) at NHQ in Dec 23.

Mr Rajiv Mehrotra, Chairman, Shyam VNL Private Limited



Rajiv Mehrotra, a veteran of the telecom industry, is the Founder and Chairman of the Shyam Group of companies. The group has interests in a wide range of successful telecom ventures, guided by his entrepreneurial vision. In 1974, as a young electronics engineer, Rajiv pioneered the manufacture of low-cost satellite TV equipment that brought cable TV to millions of village homes in India. Inspired by this revolution, he took telecom to the masses by installing wireless telephones in over 100,000 Indian villages.

He went on to launch Shyam Telecom, the flagship of the Shyam Group and now a leading name worldwide for mobile coverage solutions. Hexacom (now Bharti Hexacom) was launched by Rajiv in the 1990's to provide GSM services in Rajasthan, the largest state in India.

Mehrotra is also the founder of Shyam Telelink Limited (now Sistema Shyam Teleservices Ltd.), one of the first operators in the world to deploy CDMA technology for fixed wireless services. His efforts established Essel Shyam as the leading name in VSAT services in India.

Rajiv founded VNL (Vihaan Networks Ltd.) in 2004. VNL is based on his vision to take telecom to the next frontier – connecting the billions of unconnected across the world. He sees VNL as a catalyst in the transformation of rural communities through telecom. His vision and wealth of experience, combined with his far-reaching contacts in the telecom industry, makes him the ideal leader for the company.

Lt Gen Vipul Shinghal, AVSM, SM, Deputy Chief of Integrated Defence Staff (Doctrine, Organisation and Training)



Lieutenant General Vipul Shinghal, a second generation army officer is an alumnus of the Doon School, Dehradun & National Defence Academy, Khadakwasla. He was commissioned into the Armoured Corps in Dec 1988.

Recognised for his strategic foresight and keen ability for thinking out of the box, he steered critical transformation initiatives during his tenure in the Perspective Planning Directorate, the Indian Army's Strategic Think Tank. The General has an abiding interest in leadership development and has mentored both cadets and officers at all levels at the Indian Military Academy, Dehradun, School of Armoured Warfare, Ahmednagar and the National Defence College, Delhi.

An expert in Mechanised Warfare, he has commanded an independent Armoured Brigade, an Armoured Division and a Strike Corps in the Desert Sector. In his current assignment as Deputy Chief in the Integrated Defence Staff Headquarters, he plays a key role in the ongoing initiatives of 'Jointness, Integration and Transformation of the Indian Armed Forces, and is responsible for all joint training in the Indian Armed Forces.

Academically accomplished he holds two M.Phil degrees in Defence and Strategic Studies and is pursuing a PhD from Madras University. He regularly addresses Armed Forces establishments and corporate entities on Leadership and related subjects. For his distinguished service, he has been awarded the Sena Medal and the Ati Vishisht Seva Medal.

Shri Mukesh Singh, IG, Indo Tibetan Border Police (ITBP)



Shri Mukesh Singh is a distinguished officer of the Indian Police Service (IPS) with extensive experience in counterterrorism, law enforcement, and national security. A graduate of the FBI National Academy (2011) and the Indian Institute of Technology, New Delhi (1992), he has served in key leadership roles, including Inspector General (IG) in the Indo-Tibetan Border Police (ITBP) and Additional Director General (Jammu Province).

His career includes critical tenures with the National Investigation Agency (NIA), where he led investigations into major terrorism cases such as the 2008 Mumbai attacks, Pathankot airbase attack,

and Pulwama CRPF attack. He also headed the Terror Funding and Fake Currency (TFFC) cell of the NIA and contributed to FATF projects on terror financing and money laundering.

Recognized for his bravery and service, he has been awarded multiple gallantry and meritorious service medals, including the Police Medal for Gallantry (2001, 2005, 2022) and the Sher-e-Kashmir Medal for Gallantry (2003).

Mr Navneet Singh (Kepler Aerospace)



Navneet Singh is the current Chief Executive Officer at Kepler Aero, where Navneet has been working since July 2018. Prior to his role at Kepler Aero, Navneet served as a System Engineer at ISRO - Indian Space Research Organization from July 2015 to April 2018, focusing on Small Satellite Development at the IRS office. Navneet Singh graduated with a Bachelor of Engineering in Aerospace, Aeronautical, and Astronautical/Space Engineering from Embry-Riddle Aeronautical University in 2015.

Maj Gen CS Mann, AVSM, VSM, ADG Army Design Bureau



Maj Gen CS Mann, AVSM, VSM, Head of the Army Design Bureau is a key facilitator of indigenization and infusion of niche technologies in the Indian Army. He was commissioned into the Armoured Corps in 1990. He commanded an Armoured Regiment and an Independent Armoured Brigade in the Western Theatre. He was GSO1 of an Independent Armoured Brigade, Colonel GS Concept/ Mech at HQ Army Training Command, Director WE-15(A) at Army HQ, BGS at Area HQ and Brigadier Capability Development at Army HQ. He has been an instructor at ACC&S and has attended the Defence Services Staff College and the Higher Defence Management Courses. He has also attended the International Disaster Management Course at Bournemouth University, United Kingdom.

Lt Gen NS Raja Subramani, PVSM, AVSM, SM, VSM, Vice Chief of Army Staff (VCOAS)



The General Officer was commissioned into The Garhwal Rifles in Dec 1985. He has graduated from the prestigious National Defence Academy and Indian Military Academy. He is an alumnus of Joint Services Command Staff College, Bracknell (UK), and National Defence College, New Delhi. He holds a Master of Arts Degree from King's College London and an M Phil in Defence Studies from Madras University.

He has in his illustrious career spanning over 39 years served across a wide spectrum of conflict and terrain profiles and has tenanted a host of Command, Staff and Instructional appointments. The General Officer has insightful knowledge and a deep understanding of operational dynamics on both the Western and Northern Borders. Prior to his current appointments the general was tenanted the appointment of General Officer Commanding in Chief, Central Command, based at Lucknow.

For his distinguished service to the Nation, the General Officer has been awarded Param Vishisht Seva Medal, Ati Vishisht Seva Medal, Sena Medal and Vishisht Seva Medal.

DIG Taha Jamal, Coast Guard



Deputy Inspector General Taha Jamal is a distinguished officer in the Indian Coast Guard, with an illustrious career. Holding a Master's degree in Aerospace Engineering from IISc, Bangalore, and Industrial Engineering from AMU, Aligarh, he has consistently demonstrated his proficiency in aviation and logistics.

DIG Taha Jamal has held multiple key positions, including Dy Director General (Aviation), Principal Director (Air Materiel), and Officer-in-Charge at CGSD Chennai & CGAIS Goa. His notable contributions include the implementation of

Performance-Based Logistics for the ICG/ALH Mk III fleet, conceptualization of CCTV networks, and introduction of a new maintenance philosophy for the Dornier fleet.

A recipient of the Tatrakshak Medal for distinguished service, DIG Taha Jamal has also been ranked First in Order of Merit in MESC and AEO.

Lt Gen Manish Erry, UYSM, AVSM, SM, Director General Strategic Planning



Lieutenant General Manish Erry, UYSM, AVSM, SM is an alumnus of the National Defence Academy, Khadakwasla. He was commissioned into 9th Battalion of JAMMU AND KASHMIR LIGHT INFANTRY (9 JAK LI) in December 1988 from Indian Military Academy, Dehradun.

He has commanded a team of 31 Rashtriya Rifles (Commando) in Counter Insurgency at Surankote (Jammu & Kashmir) and his battalion 9 JAK LI in Northern Glacier & Chushul in HIGH ALTITUDE AREA. The General Officer raised 124 Infantry Brigade in the Eastern theatre as part of Mountain Strike Corps and commanded 27 Mountain Division and Gajraj Corps in the Eastern Theatre.

The General Officer has attended the APPPA Course on Public Policy and Administration at Indian Institute of Public Administration, New Delhi and is a graduate of Higher Defence Management Course and Defence Services Staff College. He was awarded Sena Medal on 26 January 2001, Chief of Army Staff Commendation Card on 15 August 2015, Ati Vishisht Seva Medal on 26 January 2022 and Uttam Yudh Seva Medal on 26 Jan 2024.

The General officer took over as Director General of Strategic Planning at Integrated Headquarters of Ministry of Defence (Army) on 12 Aug 2024 and Colonel of The JAK LI Regiment on 01 January 2024.

Shri Jitendra Mani Tripathi



Shri Jitendra Mani, IPS is a 2001 batch DANIPS Officer. He joined Delhi Police as Assistant Commissioner of Police on 01 Feb 2002. During service of about 23 years, he was posted in many districts/ units as an ACP/ Sub Divisional Police Officer, Additional Deputy Commissioner of Police and Deputy Commissioner of Police. Besides, he was also posted at Andaman and Nicobar Island. Presently, he is posted as Deputy Director, Training/ Delhi Police Academy and Deputy Director, DPA/ Dwarka and Wazirabad.

He received many appreciations for his good work during his various postings, especially at the time of Tsunami rescue operations at Andaman and Nicobar Island from LG/ A&N Island. During his posting as Deputy Commissioner of Police, Metro more than 600 missing child/ persons were traced under his close supervision and guidance. He also received CP/ Delhi Disc for excellence in Administrative duties in the year 2023.

Air Vice Marshal PV Shivanand, AVSM, VM, ACAS AD, IAF



Air Vice Marshal PV Shivanand, AVSM, VM was commissioned in the fighter stream of the IAF in 1988. He has a cumulative flying experience of 2790 hours on all variants of MIG-21 and the IL 76 AWACS in mission role. He is a Fighter Combat Leader and Pilot Attack Instructor and a graduate of the Defence Services Staff College, Wellington. He commanded two frontline Squadrons - a MIG-21 Bison Sqdn and an AWACS Sqdn. He was COO at a forward airbase, Director Operations (Air Defence) at Air HQ, Ops-1A & Air-1 at HQ South Western Air Command and Defence & Air Attache at the Embassy of India, Washington DC, USA. Before being appointed ACAS Ops (AD), he was Air Officer Commanding, AF Station Chabua.

Mr Ashish Rajvanshi, CEO, Adani Defence & Aerospace



Mr Ashish Rajvanshi spearheads the Adani Group's philosophy of growth along with sustainability. His deep passion for nation-building and unprecedented possibilities in India's Defence & Aerospace sector conceptualised the Group's foray into the business.

Prior to joining Adani in 2014, Ashish led the Energy and Infrastructure agenda across international markets for the global management consulting firm, Booz Allen Hamilton (later Booz & Co) in London. On the academic front, Ashish has a Computer Science Engineering degree from the Delhi Institute of Technology (DIT) and an MBA from IIM Ahmedabad. He has been named amongst the Top 40 under 40 leaders by the Economic Times and Spencer Stuart.

Under his leadership, Adani Defence & Aerospace has forged strategic collaborations with credible partners, MSMEs, and startups, fostering a resilient network of capabilities and nurturing indigenous expertise. This approach not only strengthens the indigenous defence industry ecosystem but also fosters innovation and technological advancements.

Beyond his role as CEO, Ashish serves as a key member of Adani's group Executive Council and sits on the boards of Adani Connex and Adani Gas & IOC joint venture, showcasing his multifaceted leadership capabilities and strategic acumen.

adani

Defence and
Aerospace

HELPING BUILD A SECURE NATION



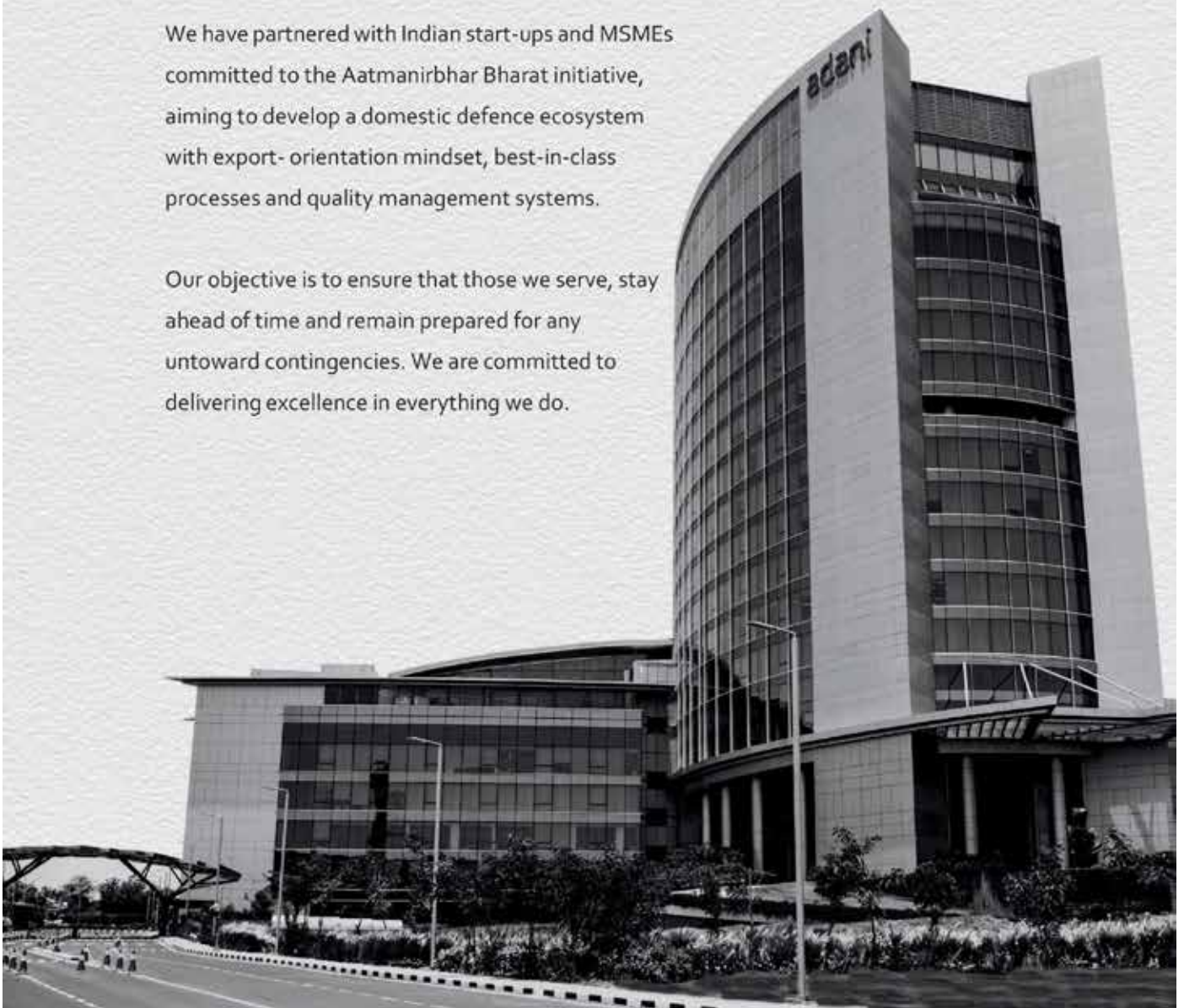
About us

Based out of its headquarters in Ahmedabad, Adani Defence & Aerospace is a pioneer in defence design, development and manufacturing.

Our products and services are trusted worldwide, ranging from small arms, ammunition, unmanned aerial vehicles, counter-drone systems, missiles, and artillery guns. We take pride in providing safety and security to people around the world.

We have partnered with Indian start-ups and MSMEs committed to the Aatmanirbhar Bharat initiative, aiming to develop a domestic defence ecosystem with export-orientation mindset, best-in-class processes and quality management systems.

Our objective is to ensure that those we serve, stay ahead of time and remain prepared for any untoward contingencies. We are committed to delivering excellence in everything we do.



adani | Defence and
Aerospace

Helping Build a Secure Nation

Adani Defence and Aerospace has set up India's first private Unmanned Aerial Vehicle design, development and manufacturing facility in Hyderabad & Bangalore.

The complex in Hyderabad is developed within Adani Aerospace Park and is the first such facility in India to manufacture strategic & long endurance UAVs, tactical & mini class of UAVs with ISR capabilities and loitering munitions.



www.adanidefence.com



A JSW Defence Initiative



JSW GROUP FORAYS INTO AEROSPACE DOMAIN

Partners with Shield AI, USA to manufacture world's best-in-class Unmanned Aerial System V-BAT with Artificial Intelligence capability in India

The US\$24 billion JSW Group is one of the fastest growing conglomerates in India with its businesses spanning across multiple sectors, including steel, energy, infrastructure, cement, paints, automobiles, e-commerce, sports, realty and venture capital, contributing significantly to India's economic progress. Over the past three decades, JSW Steel – the flagship company of the Group – has grown from a single manufacturing unit to become India's leading integrated steel company with consolidated crude steel capacity of 35.7 MTPA. With nearly 40,000 employees across India, the USA, Europe, and Africa, JSW is powered by a culturally diverse workforce. The Group is equally dedicated to social development, focusing on empowering communities near its plant and port locations.

JSW Group has established 'JSW Defence' reciprocating the Indian Government's initiative to provide impetus through private sector participation in building indigenous defence capabilities. JSW Defence is committed to delivering cutting-edge, state-of-the-art equipment to the Indian Armed Forces and establish itself as a prominent player in the global defence landscape.

JSW Defence has partnered with Shield AI, USA to manufacture Unmanned Aerial Systems (UAS) VBAT, with Artificial intelligence capability. V-BAT is a fixed-wing, vertical take-off and landing (VTOL), long endurance ISR platform, currently deployed by multiple armed forces around the world, including the United States' Marine Expeditionary Units. It provides cutting-edge ISR functionality in a highly tactical system, capable of being forward deployed in complex and adversarial territory in order to provide a range of flexible solutions to special forces, front-line infantry, armoured and artillery units. V-BAT has a unique patented ducted design with the advantage of a small logistics foot print and ease of rapid deployment.

JSW Defence through its subsidiary 'JSW Gecko Motors' also manufactures Specialist Mobility Vehicles (SMVs) namely 'ATOR NI200' at Chandigarh. The vehicles have been inducted by the Indian Army and are currently deployed in various terrains.

Features + Specifications

Airframe	
Propulsion	Heavy Fuel Engine (JP5)
Height	3.8 m
Wing Span	2.9 m
Max Gross Takeoff Weight	73 kg

Operating Performance	
Max Endurance*	13+ hrs (w/ 9kg payload)
Max Payload Capacity	18.1 kg
Max Range (MPUS)	130 km
Max Range (SATCOM)	Fuel Dependent
Flight Ceiling*	5,486 m
Normal Cruise Speed	45 - 55 kts
Landing Zone	4.6 m x 4.6 m
Min / Max Operating Temps	-20°C / 49°C
Max Winds	25 kts
Max Precipitation	6.35 mm/hr

*Performance varies with payload configuration and environmental conditions

Unassisted Landing

Slice
Comms Relay Package*

Fuselage

Air*
Max Payload
SATCOM*
Integrated Optical
Wide Area Search

Autonomy Compute
IR Sensitive
Resistant C-Band*
Vision Based Ray*

Payload/Sensor

EO/IR - Hoodtech + Tiltburst

Midwing

Fuel Tank
Oil Reserve

Wings

Integrated Winglet Antenna
Transponder*
Integrated Pilot/AUG
Aviation Lights
ENSS
Hard Point Attachments

Ducted Fan

800W Payload Power Available
(Heavy Fuel Engine (JP5))
Remote/Inflight Engine Restart

Belly Bay

Synthetic Aperture Radar*
Additional Payloads

*Optional payloads and enhancements

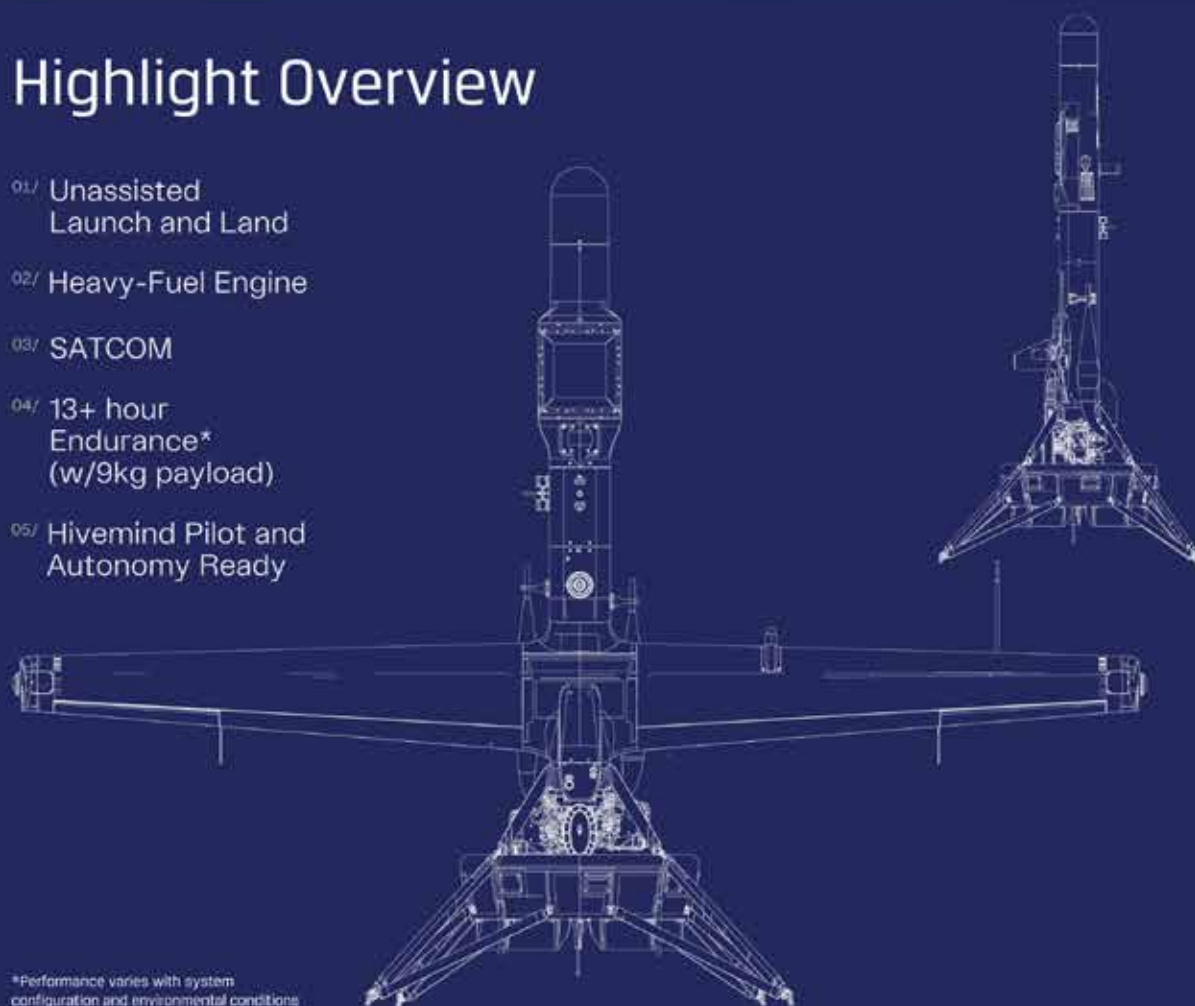
ISR + Targeting Done Differently

V-BAT delivers combat-proven, expeditionary, strategic and tactical-level ISR and targeting at a fraction of both the cost and logistical footprint of larger Group 4 and 5 drones with similar capabilities. Designed, tested, and deployed for the - electronic warfare battlefield, V-BAT has demonstrated real-world mission impact in GNSS-denied and comms-contested environments.



Highlight Overview

- 01/ Unassisted Launch and Land
- 02/ Heavy-Fuel Engine
- 03/ SATCOM
- 04/ 13+ hour Endurance* (w/9kg payload)
- 05/ Hivemind Pilot and Autonomy Ready



*Performance varies with system configuration and environmental conditions

No Runway Required

Industry-Leading Design with
Ultra-Expeditionary Logistics Footprint

V-BAT operates without a runway or bulky launch/recovery equipment. Its VTOL design enables takeoff and landing from small clearings, tactical ships, or rooftops.



Crew size	2
Assembly time	< 30 min
Launch diameter	4.6 m

Maritime UAS of Choice



V-BAT won the United States Navy and SOCOM MTUAS Increment 2 Program of Record through a highly competitive selection process. Its unique design and controls enable takeoff and landing in high winds, on crowded flight decks, and aboard moving vessels with landing zones as small as 4.6 m x 4.6 m.

Selected through a rigorous competition for the U.S. Coast Guard ISR program of record and chosen by Japan's Maritime Self-Defense Force as the country's first-ever ship-based ISR platform, V-BAT is leading the shift toward affordable intelligent drones for maritime missions. V-BAT has completed more than 20 deployments with the U.S. Navy, Marine Corps, and partner nations.



Shield AI

Contact Details: +91 2269136000



somesh.panwar@jsw.in

A JSW Defence Initiative

UAS WARFARE

10 March 2025 - Manekshaw Center, New Delhi

INDIAN INNOVATION FOR THE SAFE WORLD



RF-DDS -
RF Drone
Detection System



DDR - Drone
Detection
Radar



8 Band, 900 W
Omni Drone
Jammer



8 Band, 200 W
Vehicle Mounted Drone
Detector & Jammer



8 Band, 8,000 W
PT Mounted Drone
Detector & Jammer

INTRODUCING DRONE DETECT & JAMMING SYSTEM








AI, ML Driven Integrated HW, SW Solutions & System of Systems with 100% IPR Ownership










SHYAM
vnl

Cutting-edge Drone Detection & Jamming Solutions

INSTANT DRONE DETECT & JAMMING SYSTEMS

Omni/Directional Drone Detection & Jamming Systems - Fixed, Vehicular, Manportable, Handheld & Wearable

RF-Scanner	Radar	Wearable	Handheld	Backpack
		 5 Pre-defined Bands, Wearable Omni Drone Detector	 8 Band, 725 W Handheld Drone Gun - Mini  8 Band, 2, 750 W Handheld Drone Gun - Max	 8 Band, 550 W Omni Backpack Drone Jammer  8 Band, 1,800 W Directional Backpack Drone Jammer
RF-DDS RF Drone Detection System	DDR - Drone Detection Radar	5 Pre-defined Bands, Wearable Omni Drone Jammer	8 Band, 75 W or 6 Band, 140 W Handheld Drone Jammer	

Portable & Vehicle Mounted	Tripod Mounted
 8 Bands, High Power Portable Directional Jammer	 4/8 Band, 40/200 W Vehicle Mounted Drone Detector & Jammer
 8 Band, 200 W Portable Drone Detector & Jammer	 8 Band, 1,800 W High Power Directional Drone Jammer
 8 Band, 740 W Portable Drone Detector & Jammer	 8 Band 8,000 W PT Mounted Drone Detector & Jammer
 8 Band, 900 W Omni Drone Jammer	 8 Band, 185 W Networked Directional Drone Detector & Jammer
	 8 Band 740 W Drone Detector & Jammer (Omni / Directional)

Only for Sale to Indian Govt. Approved Specific Organizations and for Export

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Explore our comprehensive suite of solutions that empower every sector we serve to thrive in a secure and connected world.



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www.shyamvnl.com

4th March 2025 - PA 3

MAHINDRA COUNTER DRONE SOLUTION

Securing your Airspace from Drone Threats



Mahindra Defence Systems (MDSL) Profile

Company Overview:

Mahindra Defence Systems (MDSL) is a premier provider of advanced land systems, naval systems, and defence electronics for India's Army, Navy, Air Force, and Central Armed Police Forces (CAPF). MDSL is dedicated to delivering cutting-edge, reliable solutions that significantly enhance the operational efficiency and readiness of India's defence and security forces. The company's product portfolio includes a variety of high-tech armoured vehicles, underwater warfare systems, radar systems, and surveillance equipment, among others.

Key Capabilities & Offerings:

1. Land Systems:

- o MDSL designs and manufactures a broad range of armoured, tactical, and specialist vehicles tailored to the needs of India's Army and other security forces.
- o These vehicles are engineered to perform efficiently in diverse terrains and combat environments, ensuring the protection and effectiveness of defence personnel.
- o MDSL also supplies vehicles for UN peacekeeping missions, reflecting its strong global presence and commitment to international peace and security.

2. Naval Systems:

- o MDSL develops underwater naval systems and other specialized solutions for the Indian Navy, enhancing its maritime capabilities.
- o Through strategic partnerships with global Original Equipment Manufacturers (OEMs), MDSL supplies cutting-edge naval systems, serving both domestic and international defence needs.

3. Aerospace:

- o Mahindra Defence & Aerospace is an established and trusted partner in the global aerospace supply chain.
- o MDSL manufactures parts, sub-assemblies, and flight-critical assemblies for leading global aircraft OEMs, thereby contributing significantly to the global aviation industry.

4. Homeland Security:

- o MDSL is a leading player in India's private sector for homeland security solutions, providing a wide array of products & services such as:
 - Emergency response systems
 - Counter-Unmanned Aerial Systems (C-UAS)
 - Cyber Defence solutions

We are deeply committed to the **Atma Nirbhar Bharat** mission by focusing on **indigenous manufacturing** and **technological innovation**. The company plays a pivotal role in India's defence sector by focusing on indigenous manufacturing, building self-reliance, and enhancing the country's operational capabilities across land, naval, and aerospace domains. Through its focus on manufacturing within India, MDSL is empowering the nation's security forces while contributing to the growth of a robust domestic defence industry.



INNOVATING INDIGENOUS DEFENSE TECH



ZUPPA GEO NAVIGATION TECHNOLOGIES PVT. LTD.

AJEET MINI – INDIAN DRONE EQUIVALENT TO DJI

www.zuppa.io

ABOUT ZUPPA

Zuppa Geo Navigation Technologies Pvt. Ltd., is transforming the landscape of Drone Technology, driving India's Atmanirbhar Bharat vision from our headquarters in Chennai. We specialize in developing cutting-edge drones and autopilot systems for defense and commercial sectors, delivering unmatched performance and quality.

At the heart of our innovation are Zuppa's **EDGE** and **NavGati**, two proven System-On-Modules (SOMs) that power various applications, from IoT and Connected Mobility to drones and 5th Generation Defense systems.

We are one of only two companies (ZUPPA & DJI) worldwide that manufacture Proprietary Autopilots and micro-category Drones. Additionally, we are among the seven companies globally with proprietary autopilot technology, being the only one from India. Our products meet the standards of the aerospace sector, supported by AS9100D and DGCA-type certifications.



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01



PATENT OF DPCC (DISSEMINATED PARALLEL CONTROL COMPUTING) ARCHITECTURE

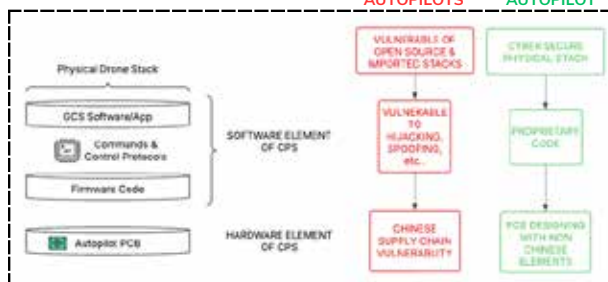
Zuppa's Patented & Proprietary DPCC (Disseminated Parallel Control Computing in Real-Time) is an AI-driven control computing architecture designed to mimic human intelligence and parallel processing in controlling unmanned vehicles like drones (UAVs).

It enables autonomous systems to navigate and make intelligent decisions without human intervention.

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OPEN SOURCE AUTOPILOTS vs ZUPPA NAVGATI AUTOPILOT



- DPCC-powered systems use **military-grade encryption (ZAIP)** to protect communication between the UAV and control centers.
- Prevents cyber threats like **spoofing, and hacking**.
- DPCC ensures **continuous communication even in electronic warfare conditions**.
- **Secure Firmware & Software Updates**
- DPCC continuously **monitors for anomalies** that might indicate a cyberattack.

02



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Connect with Us Today!

**Zuppa Geo Navigation Technologies
Private Limited**

No.86, West Wing, 4th Floor, Polyhose Tower,
Anna Salai, Guindy,
Chennai - 600032,
Tamil Nadu

Mail: askme@zuppa.io
sales@zuppa.io

Call: **+91 9952081655** (Head Office)

AVPL International

pioneering the drone ecosystem

AVPL International (AITMC Ventures Ltd.) is a global leader in drone technology, precision agriculture, geospatial intelligence, defense and other drone based solutions such as mapping, scanning, and surveillance. Established in 2016 by visionary co-founders Ms. Preet Sandhu and Mr. Deep Sihag Sisai, AVPL is committed to cutting-edge innovation, workforce empowerment, and sustainable industry transformation. With operations across 12 Indian states and a robust network of 50 Global Incubation & Skill Hubs (GISH) and 20 World Incubation & Skill Hubs (WISH), AVPL is at the forefront of technological advancements and skill development.

The company's diversified portfolio spans drone manufacturing, Drone-as-a-Service (DaaS), precision farming, defense and non-defense drone based solutions. DGCA-approved Remote Pilot Training Organization (RPTO) AVPL, is one of the largest drone and its allied sector's training institutes and has empowered over 100,000 professionals till date. With key partnerships including NSDC and state skill development missions, AVPL is bridging the gap between technology and skill development for encouraging employment, entrepreneurship and internships, driving innovation, and expanding its global footprint.

Particulars

Company Name
Registration Date
CIN Number

Information

AITMC Ventures Limited
21 December 2016
U01611HR2016PLC066758

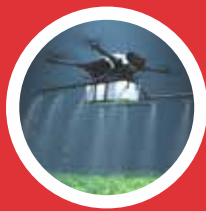
Accreditations	Central Government	State Government	Public Sector Units/ National Level Bodies
DGCA-RPTO	Ministry of Civil Aviation	Haryana	ITI Limited
Startup India	Ministry of Industry & Commerce	UK & Uttar Pradesh	EdCIL Limited
NSDC Partnership	Ministry of Skill Development	Rajasthan	TCIL
DDU-GKY	Ministry of Rural Development	Assam	NACOF
NSDC International Partner	Ministry of Agriculture	Himachal Pradesh	COSAMB & BSG

Company's Diverse Footprints

Cultivating innovation, nurturing growth



**Future-Ready
Skill Development**



**Drone as a Service
(DaaS)**



Drone Training



**Drone
Manufacturing**

Our Courses

empowering youth, enhancing skills

- ▶▶ **Drone Technician**
- ▶▶ **Drone Service Technician**
- ▶▶ **Drone Applications Training**
- ▶▶ **Drone Manufacturing and Assembly Technician**
- ▶▶ **Drone Monitoring and Maintenance Associate**
- ▶▶ **Defence Operations Orientation**
- ▶▶ **Remote Pilot Certificate (RPC)**
- ▶▶ **Remote Pilot Instructor (RPI)**
- ▶▶ **Drone Film Making**

