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समाचार पत्रों से चयित अंश
Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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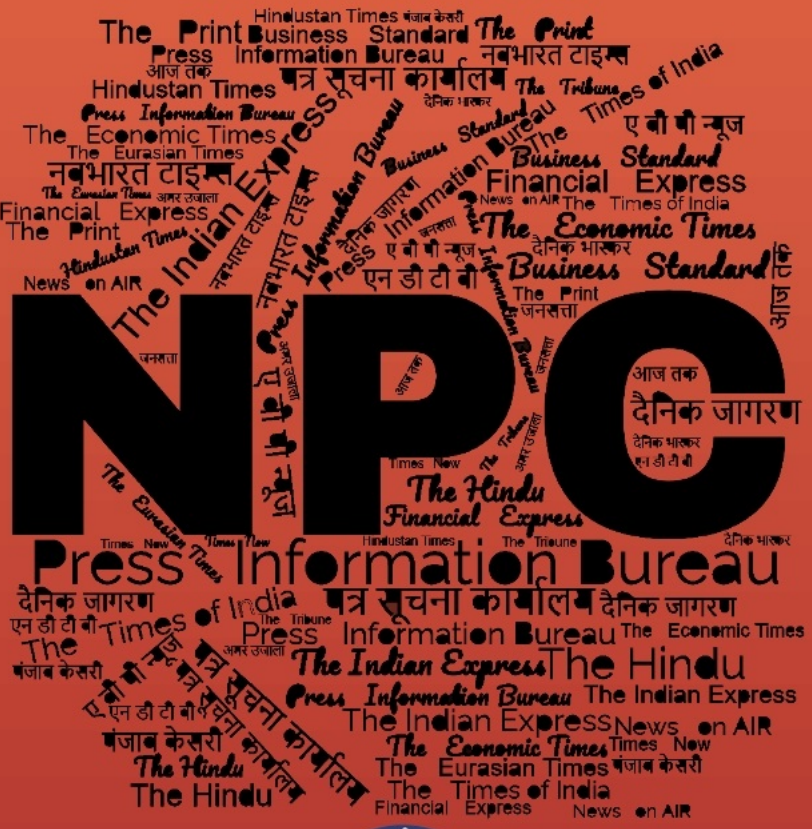

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Government of India

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Fri, 10 May 2024

DRDO organises 8th Technology Council Meeting to Review the status of induction of DRDO technologies into CAPFs, Police & NDRF

Defence Research & Development Organisation (DRDO) organised the 8th Technology Council Meeting in New Delhi on May 09, 2024. The meeting was held to review the status of induction of DRDO technologies into the Central Armed Police Forces (CAPFs), Police and National Disaster Response Force (NDRF) under the Ministry of Home Affairs (MHA).

Various DRDO laboratories from across the country participated in the meeting virtually. The meeting had active participation and was successful in consolidating the progress achieved. It also laid out a roadmap of activities for the next six months.

An exhibition of various DRDO-developed products was also organised as part of the meeting, where latest technologies across diverse domains such as Weapon systems, Communications, Internal security, VIP security, Sustenance etc were showcased.

DG (Production, Coordination & Services Interaction) Smt Chandrika Kaushik chaired the meeting, which was attended by IGs of BSF, CRPF, ITBP, SSB, NDRF, NSG, Assam Rifles, IB and Delhi Police. Advisor, MHA Smt Harcharan Kaur also participated in the meeting. Shri Sangita Rao

Director, Directorate of Low Intensity Conflicts (DLIC) Achary Addanki steered the meeting. DLIC is the nodal agency coordinating the same.

DRDO is the premier research organisation involved in development of critical and futuristic technologies for the Defence Services towards achieving self-reliance. To aid in the modernisation of Central Police and Paramilitary forces under MHA and the state police forces, an MoU had been signed between DRDO and MHA in 2012 to induct DRDO developed technologies and products into these forces.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020278

Press Information Bureau
Government of India

Ministry of Defence

Fri, 10 May 2024

DRDO celebrates National Technology Day 2024 through lectures & orations in its labs & establishments

Defence Research and Development Organisation (DRDO) celebrated the National Technology Day 2024 by organising various lectures and orations in its laboratories & establishments on May 10, 2024. On this occasion, Secretary, Department of Defence R&D and Chairman DRDO Dr Samir V Kamat presided over a special function organised by Defence Science Forum (DSF), Delhi.

In his address, the Chairman DRDO greeted the scientists & technologists and appealed to them to rededicate themselves in the service of the nation by providing cutting-edge technologies for making the country strong and self-reliant.

Former GM of Integral Coach Factory, Chennai Shri Sudhanshu Mani was the Chief Guest of the function. Chief Technologist for Amazon Web Services Smt Shalini Kapoor was the Guest of Honour. Shri Sudhanshu Mani delivered his keynote address on the topic 'Leadership and innovations in large organisations: some takeaways from Vande Bharat/Train 18 Project'. The other keynote address was given by Smt Shalini Kapoor on 'Future trends in AI and Digital Transformations'.

Convener DSF and Director General (Life Sciences) Dr UK Singh, in his welcome address, brought out the importance of AI in R&D and need of innovative leadership style in large organisation like DRDO.

A total of forty five oration papers were received from various DRDO laboratories and establishments, out of which best three papers were selected for presentation. The DRDO Technology Day Spectrum was also released on the occasion. A monograph titled 'Investigations on failures of defence hardware components: Fundamentals and case histories' authored by former Scientist 'G', Defence Metallurgical Research Laboratory Dr KP Balan was unveiled. DRDO publications namely DRDO Newsletter (2024); Defence Science Journal (May, 2024), and the Defence Scientific Information & Documentation Centre (DESIDOC) Journal of Library science and information technology were also released. In addition, Commendation Certificates were given to DRDO scientists on the occasion. National Technology Day Orators were also felicitated.

National Technology Day is celebrated on May 11 every year to remember the successful nuclear test conducted by India and recognise & honour the significant contributions of scientists and engineers who have played a crucial role in the country's technological progress. It also serves as a reminder of the importance of science and technology in nation-building.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020251

#SWARAJYA

Fri, 10 May 2024

DRDO Makes A Step Forward In Making India's Very Own 'BrahMos-like' Supersonic Cruise Missile, Tests Its Liquid Ramjet Fuel

India took a step towards developing another completely Made-in-India 'BrahMos'-like supersonic missile. Two days ago (on 8 May), the Defence Materials and Stores Research and Development Establishment (DMSRDE) Kanpur, a lab of the Defence Research and Development Organisation (DRDO), tested a domestically developed liquid ramjet fuel that can power air-breathing engines.

This liquid fuel will not only replace the Russian-imported fuel in the BrahMos missile but is also an important component in developing a completely indigenous long-range supersonic cruise missile.

Until now, the fuel for the BrahMos missile was imported from Russia. The BrahMos supersonic cruise anti-ship and land-attack cruise missile is a joint development between the DRDO of India and NPO Mashinostroyeniya of Russia, where the DRDO holds 50.5 per cent equity of the joint venture company, BrahMos Aerospace Private Limited (BAPL), while the Russians hold the remaining 49.5 per cent.

Under this agreement, India imports the ramjet engines of the BrahMos missile, and its fuel, seeker, and various other components from Russia. It is only in the last 5-10 years that India has started indigenising various components of the BrahMos and tested them successfully like its active radar homing seeker and its booster.

The BrahMos missile is capable of striking targets at ranges between 290 kilometres to 800 kilometres at a maximum speed of 2.9 Mach. There is an air-launched version called BrahMos-A in the Indian Air Force (IAF) inventory which can be fired from Sukhoi Su-30 MKI fighter jets. Another lighter variant, BrahMos-NG, which can be fired from Tejas and MiG-29 fighter jets, is under development as well.

The indigenisation of the fuel is another feather in DRDO's cap in localising the BrahMos missile. India is now working on developing an entirely Indian liquid-fuelled ramjet (LFRJ) engine which can power Supersonic Target (STAR) and a long-range supersonic cruise missile.

The supersonic target missile is a type of missile which the Indian Air Force, Indian Army and Indian Navy can use to test the efficacy of their air defence systems as well as a target for IAF's A2A missile tests. An anti-radiation and anti-AWACS missile derived from STAR will also be developed.

The long-range supersonic cruise missile is also under development, which is expected to hit targets at ranges of more than 600 kilometres, according to a poster shared by DRDO. This missile will serve alongside the BrahMos missile in the IAF inventory.

https://swarajyamag.com/defence/drdo-makes-a-step-forward-in-making-indias-very-own-brahmos-like-supersonic-cruise-missile-tests-its-liquid-ramjet-fuel

DATAQUEST

Mon, 13 May 2024

DRDO Collaborates with IIT Bhubaneswar for AI-Driven Surveillance

The DRDO has been actively working towards enhancing its technological capabilities in response to evolving global defense dynamics. DRDO has chosen IIT Bhubaneswar as its academic partner to leverage the institution's research capabilities in AI and machine learning as it recognizes the immense potential of artificial intelligence (AI) in the case of modern warfare.

The collaboration between DRDO and IIT Bhubaneswar is multifaceted, primarily focusing on electronic warfare, AI-driven surveillance, power systems, and radar systems. The institutions aim to develop sophisticated tools that can enhance the intelligence, surveillance, and reconnaissance (ISR) operations of India's defense forces with their collaborative efforts.

What are the focus areas for this collaboration?

Some of the key focus areas of this strategic partnership include:

- AI-driven surveillance to improve the accuracy and efficiency of surveillance operations, thereby enhancing the detection and identification of threats.
- Development of advanced electronic warfare systems for the protection of national security interests.
- Innovate more reliable and efficient power systems that can support various defense equipment and operations in diverse environments.
- Enhance radar technology to provide more precise and longer-range detection capabilities.

"DRDO is releasing funds under Technological Development Funds up to Rs 10 crore to promote start-ups. Besides we have a plan to give Rs 1 crore to the passing out students to set up start-ups if they come up with a plan that is feasible. We are ready to promote such start-ups in large numbers. Lots of youngsters are entering the defense research field," said Dr. G Satheesh Reddy, DRDO chairman and scientific advisor to the Union defense minister while addressing the partnership between IIT Bhubaneswar and DRDO.

Conclusion

The DRDO and IIT Bhubaneswar collaboration is a testament to India's growing emphasis on the indigenization of defense technology and highlights the role of academic institutions in national security. This collaboration is expected to yield innovative technologies that will significantly enhance the operational capabilities of India's defense forces.

https://www.dqindia.com/news/drdo-collaborates-with-iit-bhubaneswar-for-ai-driven-surveillance-4565679

The Tribune

Tue, 14 May 2024

DRDO, HAL to Integrate New Surveillance and Reconnaissance Radar with Dornier Aircraft

The integration of an aerial surveillance and reconnaissance radar (SAR), being developed by the Defence Research and Development Organisation (DRDO) with a Dornier light transport aircraft, is expected to commence soon with the industry being roped in to execute the project. DRDO's Electronics Research and Development Establishment is developing a high-resolution radar which will be retrofitted on the Dornier-228 aircraft licence-produced by Hindustan Aeronautics Limited (HAL).

The integration of the radar with the aircraft will enable evaluation and validation of the system's functionality and performance in the desired airborne operating environment, which in turn will pave the way for modifying and retrofitting the required number of platforms with SAR. The microwave-based X-band SAR will be used to provide real time intelligence inputs to decision makers. It will have all-weather, day and night capability to map static and moving targets and guide weapons to their targets.

The SAR system weighs about 230 kg, which includes its antenna that would be mounted under its belly, data processing and data transfer units and other paraphernalia like cooling systems and GPS. The project entails certain modifications to the Dornier's airframe, installation of additional frames and support structures, rewiring the electrical systems and calibrating the SAR with the aircraft's avionics and navigation system, which would be undertaken in collaboration with HAL.

Of German origin, the twin-turboprop Dornier is manufactured in India by HAL and is used by the Indian Air Force (IAF), Navy and Coast Guard for communication, survey, maritime surveillance and training. Last year, HAL delivered six upgraded Do-228 aircraft to the IAF which have new engines, composite propellers, advanced avionics and a modern glass cockpit significantly enhances their performance and usability. Recently, the HAL-made aircraft have also been certified for civilian use.

https://www.tribuneindia.com/news/india/drdo-hal-to-integrate-new-surveillance-and-reconnaissance-radar-with-dornier-aircraft-621176

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Fri, 10 May 2024

The two-day Parivartan Chintan II for Jointness & Integration of Armed Forces concludes in New Delhi

CDS Gen Anil Chauhan stresses on the need for expediting the jointness process to create Multi Domain Response capable Indian Armed Forces

The two-day "Parivartan Chintan II' was held in New Delhi on 09 – 10 May 2024, under the chairmanship of the Chief of Defence Staff, Gen Anil Chauhan. The event was attended by the officers from the three Services Headquarters, Department of Military Affairs, Headquarters Integrated Defence Staff and members of various sub-committees of the Chiefs of Staff Committee (COSC), mandated to oversee the initiatives undertaken and to generate novel ideas to give impetus to the ongoing process of Theaterisation.

Various COSC Sub-Committees gave an update on the progress of initiatives considered imperative for Jointness and Integration. There was active deliberation on the vital reforms critical towards the fruition of the goals envisioned to achieve the desired "Joint & Integrated" end state towards transformation.

The CDS initiated the 'Chintan' on both days by addressing various committees. He emphasized the need for expediting the progress of the initiatives as these were to pave the way to Theaterisation and hence creation of a Multi Domain Response capable Indian Armed Forces.

The CDS expressed confidence that such brainstorming would help the Armed Forces evolve into a theaterized force capable of Multi-Domain Operations and strengthen the resolve and capability to safeguard our territorial integrity and national sovereignty.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020296

Press Information Bureau
Government of India

Ministry of Defence

Fri, 10 May 2024

Keel Laying of 8th ASW SWC (ex-GRSE) on 10 May 24 at M/s GRSE Kolkata

Keel laying ceremony of the 8th ASW SWC (ex-GRSE) was held at M/s GRSE, Kolkata on 10 May 24. The ceremony was presided by VAdm B Sivakumar, Controller Warship Production & Acquisition in presence of Cmde PR Hari, *IN* (Retd), Chairman & Managing Director, GRSE and other Senior Officials from Indian Navy and M/s GRSE.

The contract for indigenous design and construction of 08 x ASW SWC ships was concluded on 29 Apr 19 between MOD and M/s GRSE, Kolkata. As on date six ships of the project have already been launched with delivery of first ship (Arnala) planned in Aug 24.

Arnala Class of ship will replace the in-service Abhay class ASW Corvettes of Indian Navy and are designed to undertake anti-submarine operations in coastal waters, Low Intensity Maritime Operations (LIMO) and Mine Laying Operations. Keel laying of Yard 3034, last ship of the Project is yet another significant milestone in Indian Navy's pursuit towards indigenous shipbuilding and is in consonance with 'Aatmanirbhar Bharat' and 'Make in India' initiatives of the nation.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020235

Press Information Bureau
Government of India

Ministry of Defence

Fri, 10 May 2024

Inter-Services Organisations (Command, Control & Discipline) Act notified through Gazette Notification

The Inter-Services Organisations (Command, Control and Discipline) Act has been notified through a Gazette Notification to be enforced with effect from May 10, 2024. In order to bolster effective command, control and efficient functioning of Inter-Services Organisations (ISOs), the bill was passed by both the Houses of Parliament during the Monsoon Session of 2023. The Bill received the assent of the President on August 15, 2023.

The Act empowers Commanders-in-Chief and Officers-in-Command of ISOs to exercise control over Service personnel, serving under them, for effective maintenance of discipline and administration, without disturbing the unique service conditions of each individual Service.

With the notification, the Act will empower the Heads of ISOs and pave the way for expeditious disposal of cases, avoid multiple proceedings and will be a step towards greater integration & jointness among the Armed Forces personnel.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020222

Press Information Bureau
Government of India

Ministry of Defence

Fri, 10 May 2024

ICG signs MoU with Private Sector for Manufacturing & Supply of Indigenous Marine-Grade Aluminum for Construction of Ships

Indian Coast Guard (ICG) and Hindalco Industries, on May 09, 2024, inked a Memorandum of Understanding (MoU) in New Delhi for the manufacturing and supply of indigenous marine-grade aluminium to Indian public and private shipyards for the construction of ships. The MoU will also provide benefits such as quarterly pricing, priority in supplies and Turnover discount.

The ICG fleet is presently operating 67 ships with aluminium hull with capability of operating in shallow waters. To further boost coastal security, it has planned to induct more such vessels where the indigenously manufactured marine-grade aluminium will be utilised. The MoU was signed by Deputy Director General (Materiel & Maintenance), ICG IG HK Sharma and CEO, Downstream Aluminum Business, Hindalco Shri Nilesh Koul in the presence of senior officials of the ICG.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020184

Press Information Bureau
Government of India

Ministry of Defence

Sat, 11 May 2024

Technology is driving the Revolution in Military Affairs: Chief of Defence Staff Gen Anil Chauhan

Chief of Defence Staff (CDS) Gen Anil Chauhan has stated that technology is driving the Revolution in Military Affairs, underscoring the need for amalgamation of present technologies and investment in future emerging technologies. He was addressing a gathering of scientists and engineers of the Department of Atomic Energy on the occasion of National Technology Day on May

11, 2024. CDS also inaugurated a two-day thematic programme on ‘Atoms for Society: Securing Water, Food & Health’ at BARC, Mumbai.

Gen Anil Chauhan said the theme for this year, ‘Atoms for Society: Securing Water, Food & Health,’ highlights the crucial role of science and technology in addressing the most pressing issues facing our society.

CDS accentuated the nation’s historical prowess in science and technology, encouraging the revival of the imaginative spirit to realise the technologies necessary for national security. He said it was a time to reflect on the remarkable advancements made in science and technology that have shaped our nation’s progress and also an opportunity to recognise the tireless efforts of our scientists, engineers, and innovators who work diligently to propel our nation forward.

Gen Anil Chauhan commended the DAE for its unwavering commitment to advancing science and technology for the betterment of our nation. He extended his warmest wishes to the DAE and its members on National Technology Day and wished for the efforts to continue as India marches forward on the path of progress and innovation.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020339

Press Information Bureau
Government of India

Ministry of Defence

Sun, 12 May 2024

Visit to Cam Ranh Bay, Vietnam by Indian Naval Ship Kiltan

INS Kiltan arrived at Cam Ranh Bay, Vietnam on 12 May 24 and received a warm welcome by Vietnam People's Navy and Indian Embassy. The visit is part of the Operational Deployment of the Indian Navy's Eastern Fleet. This visit is poised to further strengthen the longstanding friendship and cooperation between the two maritime nations.

India and Vietnam share comprehensive strategic partnership. Furthering the ties, the visit by Indian Naval Ship Kiltan is focused on activities including professional interactions, sporting, social exchanges and community outreach reflecting the shared values of both navies. The visit will conclude with a Maritime Partnership Exercise at sea between the Indian Navy and Vietnam People's Navy. The exercise would further enhance the interoperability and exchange of best practices.

INS Kiltan is an indigenous ASW corvette, which was designed by the Indian Navy's Directorate of Naval Design and built by Garden Reach Shipbuilders and Engineers (GRSE), Kolkata. INS Kiltan is the third of four P28 Anti-Submarine Warfare (ASW) corvettes.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020379

Press Information Bureau
Government of India

Ministry of Defence

Sun, 12 May 2024

Visit of Indian Naval Ships to Kota Kinabalu, Malaysia

Two Indian Naval ships Delhi and Shakti under the command of R Adm Rajesh Dhankhar, Flag Officer Commanding Eastern Fleet arrived at **Kota Kinabalu, Malaysia** as part of the Indian Navy's Operational Deployment. The ships were accorded a warm welcome by the Royal Malaysian Navy and the High Commission of India in Malaysia.

During the port call, personnel from Indian and Malaysian Navies will engage in a wide range of professional interactions including Subject Matter Expert Exchange (SMEE) sessions, yoga, sports fixtures and cross-deck visits aimed at further strengthening the existing mutual cooperation and understanding between the two Navies.

The Indian Navy ships, on completion of harbour visit, will also participate in a Maritime Partnership Exercise (MPX)/ PASSEX at sea with ships of the Royal Malaysian Navy. This is aimed to enhance the degree of interoperability between the two Navies, which was reiterated during the recently concluded MILAN 2024 and Ex Samudra Lakshmana 2024.

This visit will further strengthen the longstanding friendship and cooperation between the two maritime neighbours through a series of engagements and activities. The deployment of *IN* ships to this crucial region also highlights the Indian Navy's steadfast commitment to the 'Act East' and SAGAR policies of the Government of India.

INS Delhi is the first indigenously designed and built Project-15 class guided missile destroyer and INS Shakti is a Fleet Support Ship, both ships are part of the Indian Navy's Eastern Fleet.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020376

Press Information Bureau
Government of India

Ministry of Defence

Sun, 12 May 2024

Sea Training of 106 Integrated Officer Trainees Course (IOTC) Onboard First Training Squadron (1TS)

On completion of rigorous sea training, a Valedictory Dinner for the 106 Integrated Officer Trainees Course (IOTC) was held onboard First Training Squadron (1TS) on 09 May 24. VAdm V Srinivas, Flag Officer Commanding-in- Chief, Southern Naval Command was the Chief Guest for

the event. 99 sea trainees including international trainees successfully completed training from the portals of 1TS. FOC-in-C South complimented the trainees on successful completion of afloat training phase and awarded trophies to the meritorious trainees.

Telescope for the Best All Round Sea Trainee was awarded to Midshipman C Praneeth and Midshipman PPK Reddy received the Binocular for standing first in overall Order of Merit.

While addressing the trainees, the Chief Guest exhorted them to work hard towards gaining knowledge and understand the marine environment keeping abreast of ever changing warfare and dynamics of tactics, technology and strategy. He highlighted the traits of a military leader who must act with extreme professionalism and empathy towards men while maintaining speed, safety and morale. 'Seva Parmo Dharma' or 'Service Before Self' should always be the motto.

A Divisions was conducted onboard INS Tir on 11 May 24 which was reviewed by Rear Admiral Satish Shenai, CSO(TRG), Southern Naval Command. The officers will now join various frontline Naval warships and Coast Guard patrol vessels on the Western and Eastern Seaboard for consolidation of afloat training. Asst Comdt Prishita Juggamah from the Mauritius Coast Guard became the first women trainee to complete sea training from 1TS.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020372

Press Information Bureau
Government of India

Ministry of Defence

Sun, 12 May 2024

Director General Defence Intelligence Agency Lt Gen DS Rana embarks on an Official Visit to Tanzania

Director General Defence Intelligence Agency (DG DIA) Lieutenant General DS Rana has proceeded on an official visit to the United Republic of Tanzania. The aim of this visit, scheduled from 13-15 May 2024, is to further reinforce the robust defence ties between the two nations and discuss opportunities for regional security collaboration.

During his visit, the DG DIA is scheduled to interact with senior military leadership of Tanzania, including the Chief of Defence Staff of Tanzania Peoples' Defence Force, General Jacob John Mkunda, and his counterpart Maj Gen MN Mkeremy, Chief of Defence Intelligence. In his visit to the Tanzanian National Defence College, he will discuss India's Security Perspective with future leaders of the TPDF. The meetings will be aimed to foster mutual understanding and strengthening bilateral defence cooperation.

Lt Gen DS Rana will also inaugurate the newly set up Defence Wing at the High Commission of India, Dar Es Salaam. As a gesture of goodwill towards expanding military cooperation, he will

present the TPDF with Indian manufactured Bullet Proof Jackets. At the Command and Staff College CSC Arusha the DG DIA will inaugurate the Library and lay the foundation stone for gymnasium that are being facilitated through Government of India assistance.

India shares close, warm and friendly relations with Tanzania, which is bolstered by robust capacity building and avenues for defence cooperation. The visit of the Indian Military delegation is expected to further strengthen the elevated Strategic Partnership with Tanzania.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020369

Press Information Bureau
Government of India

Ministry of Defence

Mon, 13 May 2024

India-France Joint Military Exercise SHAKTI Commences in Meghalaya

The 7th edition of India- France Joint Military Exercise SHAKTI commenced today, at Umroi, in a fully developed and modern Foreign Training Node in Meghalaya. The Exercise is scheduled to be conducted from 13th to 26th May 2024. The Opening Ceremony of the joint exercise was attended by H.E. Thierry Mathou, Ambassador of France to India and Major General Prasanna Sudhakar Joshi, General Officer Commanding 51 Sub Area. Exercise SHAKTI is a biennial training event conducted alternatively in India and France. Last edition was conducted in France in November 2021.

Indian contingent comprising 90 personnel is being represented primarily by a Battalion of the RAJPUT Regiment besides personnel from other arms and services. Observers from the Indian Navy and the Indian Air Force will also form part of the exercise. The French contingent comprising 90 personnel will be represented mainly by personnel from the 13th Foreign Legion Half- Brigade (13th DBLE).

Aim of Exercise SHAKTI is to enhance joint military capability of both sides to undertake multi-domain operations in a Sub Conventional scenario under Chapter VII of the United Nations Mandate. The joint exercise will focus on operations in the semi-urban and mountainous terrain. Objectives to be achieved from the joint training are high degree of physical fitness, rehearsing and refining drills for operations at tactical level and sharing of best practices.

Tactical drills to be practiced during the Exercise will include response to a terrorist action of capturing a defined territory, establishment of a Joint Command Post, establishment of an Intelligence & Surveillance Centre, securing of a helipad/ landing site, Small Team Insertion & Extraction, Special Heliborne Operations, Cordon & Search Operations besides employment of drones and counter drone systems among others.

Exercise SHAKTI will enable the two sides to share their best practices in Tactics, Techniques and Procedures of conducting joint operations. The joint exercise will facilitate developing inter-operability, bonhomie and camaraderie between armed forces personnel of the two countries. This will also enhance the level of defence cooperation, further fostering bilateral relations between the two friendly nations.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020423

Business Standard

Tue, 14 May 2024

Indian Navy, Australian Counterpart Strengthen Maritime Ties through Talks

In a step towards bolstering maritime cooperation, the 16th Indian Navy-Australian Navy Staff Talks concluded successfully at Kochi on Tuesday.

The talks, co-chaired by Rear Admiral Nirbhay Bapna, Assistant Chief of Naval Staff (Foreign Co-operation and Intelligence) from the Indian Navy, and Rear Admiral Jonathan Earley from the Royal Australian Navy, marked a milestone in the collaboration between the two naval forces.

"16th #Indian Navy-Australian Navy, Navy-to-Navy staff talks successfully concluded at Kochi, marking a significant milestone in the maritime cooperation between India & Australia. Co-chaired by RAdm Nirbhay Bapna, ACNS (FCI) & RAdm Jonathan Earley, DCN, Royal Australian Navy, the talks focused on enhancing operational interoperability, MDA & new avenues of cooperation maritime partnership, bridging oceans and deepening ties," said Indian Navy on Tuesday.

The discussions primarily focused on enhancing operational interoperability, Maritime Domain Awareness (MDA), and exploring new avenues of cooperation in maritime partnerships. Both sides expressed commitment to deepening ties and strengthening their collaborative efforts in the maritime domain.

The talks underscored the growing strategic importance of cooperation between India and Australia in the Indo-Pacific region. By bridging oceans, the navies aim to not only ensure security and stability but also promote prosperity and peace in the region, the Indian Navy said.

Earlier, on May 12, INS Kiltan arrived at Cam Ranh Bay, Vietnam and received a warm welcome from the Vietnam People's Navy and Indian Embassy. The visit is part of the Operational Deployment of the Indian Navy's Eastern Fleet. This visit is poised to further strengthen the longstanding friendship and cooperation between the two maritime nations.

India and Vietnam share a comprehensive strategic partnership. Furthering the ties, the visit by the Indian Naval Ship Kiltan is focused on activities including professional interactions, sporting, social exchanges and community outreach reflecting the shared values of both navies. The visit will conclude with a Maritime Partnership Exercise at sea between the Indian Navy and Vietnam People's Navy. The exercise would further enhance the interoperability and exchange of best practices.

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https://www.business-standard.com/amp/external-affairs-defence-security/news/indian-navy-australian-counterpart-strengthen-maritime-ties-through-talks-124051400794_1.html

THE TIMES OF INDIA

Sat, 11 May 2024

India's Defence Sector has Opportunities for $138 Billion over Next 10 Years

India's defence sector holds a lucrative ordering opportunity of $138 billion over FY24-32 amid the escalating demand for defence equipment, technologies, and services, offering significant prospects for companies engaged in defence production and technology development, according to a report titled 'India Defence' by Nomura.

The report highlights that India's defence capital expenditure is poised to surge to 37 per cent of the total budget by FY30, marking a substantial increase from the projected 29 percent in FY25.

This equates to a cumulative capital outlay of Rs 15.5 trillion over FY24-30, indicating substantial growth compared to previous periods.

"India's government is actively supporting the defence sector through favourable policy reforms, incentives, and initiatives to promote indigenous manufacturing and technology development. We expect the share of defence capital outlay to increase to 37% of total defence budget in FY30 (FY24RE: 26 per cent). This implies cumulative capital outlay of USD186bn over FY24-30 (vs cumulative FY18-24F: USD93bn)," said the report.

The report attributes this growth to increasing defence budgets, modernization efforts, and the government's focus on indigenous manufacturing under initiatives like "Make in India."

According to the report, the defence sector presents lucrative opportunities across various segments. The defence Aerospace sector alone accounts for USD 50 billion, covering investments in aircraft, helicopters, unmanned aerial vehicles (UAVs), avionics, and related systems.

Defence Shipbuilding is another significant opportunity area, with USD 38 billion of potential for naval vessels, submarines, patrol boats, and support ships to bolster maritime security. Investments in Missiles/Artillery/Gun Systems are projected to reach USD 21 billion, aligning with India's efforts to enhance its artillery and missile capabilities.

The report also highlights a substantial growth in defence exports, totalling USD 29 billion, with momentum expected to continue. The report states that shares of Hindustan Aeronautics (HAL)have the potential upside of 28 per cent for its strong moat in fighter aircraft and helicopters, and significant capability upgrade that provides basis for the development of an indigenous engine

program, while Bharat Electronics holds the potential upside of 32 per cent, for its increased visibility on order inflows, conviction on margins delivery and expansion in returns ratios.

In the last one year the shares of HAL have grew by 156 per cent to Rs 3877 and the Bharat Electronics shares have gained 109 percent in one year to Rs 227. The Indian government is actively supporting the defence sector through policy reforms, incentives, and initiatives aimed at promoting indigenous manufacturing and technology development. This support creates a conducive environment for companies operating in the defence industry.

Additionally, the report underscores the increasing focus of India's defence industry on expanding its global presence through exports, technology transfer, and collaboration. Companies with expertise in defence manufacturing and technology development are well-positioned to capitalize on export opportunities, diversify their revenue streams, and expand their market reach.

The report states that Hindustan Aeronautics (HAL) have the potential for its strong moat in fighter aircraft and helicopters, and significant capability upgrade that provides basis for the development of an indigenous engine program, while Bharat Electronics holds the potential, for its increased visibility on order inflows, conviction on margins delivery and expansion in returns ratios.

https://timesofindia.indiatimes.com/business/india-business/indias-defence-sector-has-opportunities-for-138-billion-over-next-10-years/articleshow/110033128.cms

THE ECONOMIC TIMES

Tue, 14 May 2024

Indian Air Force tests BHISHM portable hospital for airdrop in Agra

The Indian Air Force on Tuesday tested BHISHM portable cubes at Agra for airdrops from the aircraft. This is the first time the Indian Air Force tested this portable hospital. This test was performed so that the portable hospital can be deployed to cater to emergencies anywhere.

As per the Ministry ofInformation and Broadcasting, BHISHM portable cubes are a part of the broader initiative named "Project BHISHM" - Bharat Health Initiative for Sahyog, Hita and Maitri, which is tailored to treat up to 200 casualties, emphasising rapid response and comprehensive care. Notably, the Aid Cube is equipped with several innovative tools designed to enhance disaster response and medical support during emergencies.

It also integrates Artificial Intelligence (AI) and data analytics to facilitate effective coordination, real-time monitoring, and efficient management of medical services in the field.

The whole unit contains 72 easily transportable components that can be conveniently carried by hand, cycle, or even drone, providing unmatched flexibility.

In the face of mass casualty incidents (MCIs), where requirements range from basic aid to advanced medical and surgical care, the Aid Cube stands out with its ability to be deployed within

an astonishing 12 minutes. These cubes are robust, waterproof, and light, designed for various configurations, making them ideal for diverse emergency scenarios.

From airdrops to ground transportation, the cube can be rapidly deployed anywhere, ensuring immediate response capability.

During the Pran Pratishtha ceremony held earlier this year on January 22 in Ayodhya, two Arogya Maitri Disaster Management Cube-BHISHM units were strategically deployed to enhance medical preparedness and response capabilities.

https://economictimes.indiatimes.com/news/defence/indian-air-force-tests-bhishm-portable-hospital-for-airdrop-in-agra/articleshow/110119150.cms?from=mdr

THE ECONOMIC TIMES

Sat, 11 May 2024

Aiming for Integration, India's Tri-Service Act Notification sets Stage for Theatre commands

India has officially notified the InterServices Organisations (Command, Control and Discipline) Act, a pivotal step towards the creation of unified theatre commands. This significant move represents the most substantial military reorganization in India since Independence, aimed at enhancing military efficiency and coordination.

The enforcement of the ISO Act, which received presidential assent last year and was passed by Parliament during the monsoon session, comes shortly after the BJP's commitment to establishing military theatre commands for more efficient operations. This decision, coupled with the creation of the chief of defence staff (CDS) post in December 2019, underscores India's strategic focus on enhancing its military capabilities.

CDS General Anil Chauhan recently chaired a "Parivartan Chintan" meeting, during which 12 sub-committees presented strategies for jointness and integration in preparation for the imminent theaterization. This flurry of activity indicates a significant step towards the creation of integrated theatre commands (ITCs).

The ISO Act empowers military commanders of existing tri-service organizations with full administrative and disciplinary powers over personnel from the Army, Navy, and Air Force serving under them. This consolidation aims to streamline command and control structures, enhancing synergy in planning, logistics, and operations.

India currently operates 17 single-service commands (Army 7, IAF 7, and Navy 3), which often operate independently, leading to inefficiencies. The ISO Act seeks to address these challenges by providing a unified framework for military operations.

The Ministry of Defence (MoD) highlighted that the Act will enable the expeditious disposal of cases, avoid multiple proceedings, and promote greater integration and jointness among armed

forces personnel. This move is crucial as India faces evolving security challenges, requiring a more cohesive and integrated military structure.

China reorganized its People's Liberation Army into five theatre commands in 2016 to enhance offensive capabilities and improve command-and-control structures. India's move to create unified theatre commands aligns with global military trends towards more integrated and efficient military structures

The implementation of the ISO Act and the forthcoming creation of unified theatre commands mark a significant milestone in India's military modernization efforts. This move is expected to enhance the country's war- fighting capabilities and operational effectiveness, addressing longstanding challenges in military coordination and command structure.

https://economictimes.indiatimes.com/news/defence/aiming-for-integration-indias-tri-service-act-notification-sets-stage-for-theatre-commands/articleshow/110027599.cms?from=mdr

THE ECONOMIC TIMES

Sun, 12 May 2024

US aims to stay ahead of China in using AI to fly Fighter Jets, Navigate without GPS and more

Two Air Force fighter jets recently squared off in a dogfight in California. One was flown by a pilot. The other wasn't. That second jet was piloted by artificial intelligence, with the Air Force's highest-ranking civilian riding along in the front seat.

It was the ultimate display of how far the Air Force has come in developing a technology with its roots in the 1950s. But it's only a hint of the technology yet to come.

The United States is competing to stay ahead of China on AI and its use in weapon systems. The focus on AI has generated public concern that future wars will be fought by machines that select and strike targets without direct human intervention.

Officials say this will never happen, at least not on the US side. But there are questions about what a potential adversary would allow, and the military sees no alternative but to get US capabilities fielded fast.

"Whether you want to call it a race or not, it certainly is," said Adm. Christopher Grady, vice chairman of the Joint Chiefs of Staff. "Both of us have recognised that this will be a very critical element of the future battlefield. China's working on it as hard as we are."

A look at the history of military development of AI, what technologies are on the horizon and how they will be kept under control:

From machine learning to autonomy

AI's roots in the military are actually a hybrid of machine learning and autonomy. Machine learning occurs when a computer analyses data and rule sets to reach conclusions. Autonomy occurs when

those conclusions are applied to take action without further human input. This took an early form in the 1960s and 1970s with the development of the Navy's Aegis missile defence system.

Aegis was trained through a series of human-programmed if/then rule sets to be able to detect and intercept incoming missiles autonomously, and more rapidly than a human could. But the Aegis system was not designed to learn from its decisions and its reactions were limited to the rule set it had.

"If a system uses 'if/then' it is probably not machine learning, which is a field of AI that involves creating systems that learn from data," said Air Force Lt. Col. Christopher Berardi, who is assigned to the Massachusetts Institute of Technology to assist with the Air Force's AI development.

AI took a major step forward in 2012 when the combination of big data and advanced computing power enabled computers to begin analysing the information and writing the rule sets themselves. It is what AI experts have called AI's "big bang."

The new data created by a computer writing the rules is artificial intelligence. Systems can be programmed to act autonomously from the conclusions reached from machine-written rules, which is a form of AI-enabled autonomy

Testing an AI alternative to GPS navigation

Air Force Secretary Frank Kendall got a taste of that advanced warfighting this month when he flew on Vista, the first F-16 fighter jet to be controlled by AI, in a dogfighting exercise over California's Edwards Air Force Base.

While that jet is the most visible sign of the AI work underway, there are hundreds of ongoing AI projects across the Pentagon.

At MIT, service members worked to clear thousands of hours of recorded pilot conversations to create a data set from the flood of messages exchanged between crews and air operations centres during flights, so the AI could learn the difference between critical messages like a runway being closed and mundane cockpit chatter.

The goal was to have the AI learn which messages are critical to elevate to ensure controllers see them faster. In another significant project, the military is working on an AI alternative to GPS satellite-dependent navigation. In a future war high-value GPS satellites would likely be hit or interfered with.

The loss of GPS could blind US communication, navigation and banking systems and make the US military's fleet of aircraft and warships less able to coordinate a response. So last year the Air Force flew an AI program - loaded onto a laptop that was strapped to the floor of a C-17 military cargo plane - to work on an alternative solution using the Earth's magnetic fields. It has been known that aircraft could navigate by following the Earth's magnetic fields, but so far that hasn't been practical because each aircraft generates so much of its own electromagnetic noise that there has been no way good to filter for just the Earth's emissions.

"Magnetometers are very sensitive," said Col. Garry Floyd, director for the Department of Air Force-MIT Artificial Intelligence Accelerator programme. "If you turn on the strobe lights on a C-17 we would see it."

The AI learned through the flights and reams of data which signals to ignore and which to follow and the results "were very, very impressive," Floyd said. "We're talking tactical airdrop quality."

"We think we may have added an arrow to the quiver in the things we can do, should we end up operating in a GPS-denied environment. Which we will," Floyd said. The AI so far has been tested only on the C-17. Other aircraft will also be tested, and if it works it could give the military another way to operate if GPS goes down.

Safety rails and pilot speak

Vista, the AI-controlled F-16, has considerable safety rails as the Air Force trains it. There are mechanical limits that keep the still-learning AI from executing maneuvers that would put the plane in danger. There is a safety pilot, too, who can take over control from the AI with the push of a button. The algorithm cannot learn during a flight, so each time up it has only the data and rule sets it has created from previous flights.

When a new flight is over, the algorithm is transferred back onto a simulator where it is fed new data gathered in-flight to learn from, create new rule sets and improve its performance. But the AI is learning fast. Because of the supercomputing speed AI uses to analyse data, and then flying those new rule sets in the simulator, its pace in finding the most efficient way to fly and maneuver has already led it to beat some human pilots in dogfighting exercises. But safety is still a critical concern, and officials said the most important way to take safety into account is to control what data is reinserted into the simulator for the AI to learn from. In the jet's case, it's making sure the data reflects safe flying.

Ultimately the Air Force hopes that a version of the AI being developed can serve as the brain for a fleet of 1,000 unmanned warplanes under development by General Atomics and Anduril. In the experiment training AI on how pilots communicate, the service members assigned to MIT cleaned up the recordings to remove classified information and the pilots' sometimes salty language.

Learning how pilots communicate is "a reflection of command and control, of how pilots think. The machines need to understand that too if they're going to get really, really good," said Grady, the Joint Chiefs vice chairman. "They don't need to learn how to cuss."

https://economictimes.indiatimes.com/news/defence/us-aims-to-stay-ahead-of-china-in-using-ai-to-fly-fighter-jets-navigate-without-gps-and-more/articleshow/110055807.cms?from=mdr

INDIA TV

Fri, 10 May 2024

Indian Army set to Enhance border Surveillance with first Hermes-900 Drone Delivery on May 18: Report

In a strategic move to enhance surveillance capabilities along the Pakistan border, the Indian Army is gearing up to acquire the first Hermes-900 Starliner drone, also known as the Drishti-10 drone, on May 18. The Hermes-900, termed the Drishti-10, is supplied by Adani Defence Systems to bol-

ster India's defence apparatus. Under the emergency powers granted by the Defence Ministry, the first drone will be handed over to the Indian Army on May 18 in Hyderabad.

According to the reports, the army will also procure a Very Short Range Air Defence System (VSHORADS) and a UAV-launched Precision Guided Munition (ULPGM).

What is VSHORADS?

The Very Short Range Air Defence System (VSHORADS) is a state-of-the-art, fourth-generation, man-portable air-defense system (MANPADS) designed to counter low-altitude aerial threats such as unmanned aerial vehicles, helicopters, and fighter aircraft. Developed indigenously, VSHORADS represents a significant advancement in India's ability to neutralize short-range airborne threats effectively.

What is ULPGM?

UAV Launched Precision Guided Munition (ULPGM), a sophisticated missile system tailored for deployment on drones. ULPGM marks the inaugural installment in a series of precision-guided munition (PGM) missiles specifically engineered for unmanned aerial vehicles. It is poised to become the standard PGM for India's TAPAS BH and Archer NG UAVs, positioning India at the forefront of drone-enabled precision strike capabilities.

Deployment strategy

Once acquired, the Indian Army plans to deploy the drones at its Bhatinda base, providing comprehensive coverage of the entire western border with Pakistan. The Army's acquisition is part of its ongoing efforts to bolster border surveillance and security.

Procurement pattern

The Indian Navy received the first Hermes-900 in January this year, and the second drone is slated for Army use. The third drone will be supplied to the Navy, with the fourth one earmarked for the Army, as per defence officials.

Indigenous focus

Orders for two Hermes-900 drones were placed by the Indian Army, adhering to the requirement that systems be over 60% indigenous and comply with 'Make in India' in Defence initiatives. Adani Defence has collaborated with Israeli firm Elbit for technology transfer, emphasising indigenisation efforts, with 70% of the drones already localised.

Expanded capabilities

Complementing existing drone assets like the Heron Mark 1 and Mark 2, the Indian Army continues to expand its surveillance arsenal with the Drishti-10. The Indian Navy is also set to deploy these drones in Porbandar to monitor the maritime boundary with Pakistan and cover vast stretches of the high seas, leveraging their extended flight range and endurance.

https://www.indiatvnews.com/amp/news/india/indian-army-set-to-enhance-border-surveillance-first-hermes-900-starliner-drone-delivery-may-18-drishti-10-border-security-bhatinda-base-pakistan-2024-05-10-930718

INDIA TODAY

Sat, 11 May 2024

Indian Army to get Drishti-10 drones to Boost Surveillance on Pak Border

The Indian Army is set to induct its first Hermes-900 drone in a major boost to its surveillance capabilities along the Pakistan border.

The drones, also known as the Drishti-10 drones, will be inducted at Hyderabad on May 18 in the presence of senior Army officials. It would be handed over by the Adani Defence to it, senior defence officials said.

The Indian Army has placed orders for two of these drones from the firm under emergency provisions that mandate that the systems supplied by vendors should be more than 60 per cent indigenous and should be under the 'Make in India' in Defence. The Indian Army has plans to deploy these drones at the Bathinda base in Punjab, from where it can keep an eye on a large area, including the desert sector as well as the areas north to the Punjab, military officials said.

The Indian Army is already operating the Heron Mark 1 and Mark 2 drones and has also placed orders for the Drishti-10 or the Hermes-900 drones under the last tranche of the emergency procurements approved by the government for the forces.

Adani Defence had signed a deal with the Israeli firm Elbit for the transfer of technology for the drones and stated that it has indigenised 70 per cent of the birds and will work to increase them further.

The Indian Army has also inducted more satellite communication enabled birds from Israel as it has a few Heron Mark 2 birds.

https://www.indiatoday.in/amp/india/story/indian-army-to-get-first-hermes-900-drone-will-boost-pak-border-surveillance-2537807-2024-05-11

आज तक

Tue, 14 May 2024

ऑटोट्रैकर, एंटी-थर्मल आईआर कोटिंग से लैस है टी-90 भीष्म टैंक का नया वर्जन, जंग में दुश्मनों के छुड़ाएगा छक्के

चेन्नई के अवादी में मौजूद हैवी व्हीकल फैक्ट्री से टी-90 भीष्म मार्क 3 टैंक का नया बैच निकल गया है. जल्द ही इसे भारतीय सेना के आर्मर्ड व्हीकल फ्लीट में शामिल किया जाएगा. इस टैंक में कई बड़े बदलाव किए

गए हैं. इसकी फायर पावर बढ़ाई गई है. सुरक्षा प्रणाली अपग्रेड की गई है. ऑपरेशनल कैपेबिलिटी बढ़ाई गई है.

फिलहाल इस टैंक की खासियतों को गुप्त रखा गया है लेकिन डिफेंस एक्सपर्ट्स का मानना है कि इसमें डिजिटल कम्यूनिकेशन सिस्टम लगाया गया है. ऑटोट्रैकर लगा है. टीकेएन-4एस एजीएटी-एम सीडीआर साइट लगी है. एलसीडी मॉनिटर, डिजिटल बैलिस्टिक कंप्यूटर, एंटी-थर्मल आईआर कोटिंग और इनवार जीएलजीएमएस लगाया गया है. यानी इसमें स्वदेशी यंत्रों का इस्तेमाल बढ़ा दिया गया है.

टी-90 टैंक रूस का मुख्य युद्धक टैंक है, जिसे भारत ने अपने हिसाब से बदलकर उसका नाम भीष्म रख दिया है. करीब 1200 टैंक सेवा में है. 464 का ऑर्डर दिया गया है. भारत ने रूस के साथ डील किया है कि वह 2025 तक 1657 भीष्म को ड्यूटी पर तैनात कर देगा. इस टैंक में तीन लोग ही बैठते हैं.

यह 125 मिलिमीटर स्मूथबोर गन है. इस टैंक पर 43 गोले स्टोर किए जा सकते हैं. यह 60 किलोमीटर प्रतिघंटा की गति से चल सकता है. इसकी ऑपरेशनल रेंज 550 किलोमीटर है. इस टैंक के रूसी वर्जन का उपयोग कई देशों में किया जा रहा है. इस टैंक ने दागेस्तान के युद्ध, सीरियन नागरिक संघर्ष, डोनाबास में युद्ध, 2020 में हुए नागोमो-काराबख संघर्ष और इस साल यूक्रेन में हो रहे रूसी घुसपैठ में काफी ज्यादा मदद की है.

https://www.aajtak.in/amp/defence-news/story/t-90-bhishma-mark-3-tanks-rolls-out-know-the-specification-and-fire-power-1943757-2024-05-14

ANI
South Asia's Leading Multimedia News Agency

Tue, 14 May 2024

Indian Army Introduces Hexacopter Drone Mounted with Machine Gun by Ikran Aerospace: A Revolutionary Innovation in Defense Technology

In a groundbreaking development in India's defense sector, the Indian Army has taken a monumental leap forward with the introduction of its latest innovation: a hexacopter drone armed with a machine gun.

This cutting-edge technology, developed under the 'Make in India' initiative, heralds a new era in tactical operations and promises to revolutionize soldier safety and bolster the nation's security apparatus.

Recently, the Sirin Hexadrones made by Ikran Aerospace and Technologies Pvt Ltd were put through their paces alongside newly inducted weapons during integrated small arms firing, witnessed by the esteemed General Officer Commanding Vajra Corps of the Western Command, Indian Army.

Crafted by the visionary minds at Ikran Aerospace, a startup led by seasoned veteran Capt. Vidul Kelshikar (Retired), this hexacopter drone represents the pinnacle of indigenous UAV (Unmanned Aerial Vehicle) technology. Drawing upon the wealth of experience and expertise possessed by ex-servicemen, Sirin Drones has emerged as a trailblazer in developing solutions aimed at reducing soldier fatalities and bolstering military capabilities.

On the trials, Capt. Vidul remarked "As a veteran soldier and entrepreneur, my mission has always been twofold: to give back to the organization that shaped me and to innovate in ways that could potentially save lives. It's a challenge I wholeheartedly embrace, knowing that every solution we develop has the potential to make a meaningful impact. Whether it's through advanced technology or strategic initiatives, the opportunity to contribute to something greater than myself is both a privilege and a responsibility."

Equipped with a versatile modular weapon system, the hexacopter drone can adapt to various combat scenarios, accommodating an array of armaments ranging from small firearms to grenades and mortars. Its sophisticated systems, boasting advanced target detection algorithms and stringent safety protocols, ensure pinpoint accuracy while mitigating the risk of collateral damage. Additionally, integrated safety features such as fire controls and encrypted communications fortify the drone against potential threats like spoofing and jamming. Its operational flexibility enables real-time intelligence gathering, surgical strikes, cordon and search operations, and continuous surveillance, thereby augmenting military effectiveness across diverse terrains and scenarios.

The Sirin Hexadrone represents the forefront of aerial Innovation, boasting impressive range and extended flight endurance that underscore its reliability and efficiency. Its lightweight design belies robust capabilities, making it an ideal choice for various demanding applications. Powered by environmentally friendly EV electric propulsion, the Hexadrone operates quietly and efficiently. It also features a substantial payload capacity, enhancing its versatility for uses ranging from aerial photography and surveillance to industrial inspections.

Ikran Aerospace, a prominent entity within a larger conglomerate, is at the forefront of the Unmanned Aerial Systems (UAS) sector, pushing the boundaries of aerospace innovation with state-ofthe-art technologies. Specializing in the design, development, production, and distribution of advanced, tailor-made UAVs, Ikran caters to a variety of industries, offering bespoke solutions that meet specific client needs. The company's team comprises experts in diverse engineering disciplines, including aeronautics, mechanical, electrical, and electronics engineering, as well as mechatronics. Ikran Aerospace is also a holder of significant intellectual property rights, including numerous design patents and proprietary software that enhance its UAVs' flight and camera capabilities, setting new industry standards.

As Ikran Aerospace continues to push the limits of technological advancement, the Indian Army stands firm in its commitment to safeguard the nation's sovereignty and ensure peace and security. This groundbreaking partnership between veterans, innovators, and the military showcases India's preparedness to tackle emerging challenges with creativity and resolve.

https://www.aninews.in/news/business/indian-army-introduces-hexacopter-drone-mounted-with-machine-gun-by-ikran-aerospace-a-revolutionary-innovation-in-defense-technology20240514174023/

Press Information Bureau
Government of India

Ministry of Science & Technology

Tue, 14 May 2024

The 4th Technology Innovation in Cyber-Physical Systems (TIPS) workshop organised at the Indian Institute of Technology, Bombay

The 4th Technology Innovation in Cyber-Physical Systems (TIPS) workshop organised on 13th May at the Indian Institute of Technology, Bombay. It is a bi-annual workshop wherein each of the 25 Technology Innovation Hubs TIHs demonstrates the progress and achievements made. It is a platform for all the stakeholders including the government, startups, investors, academia, and industry, to interact, exchange ideas and witness the cutting-edge technology development in Cyber-Physical Systems domain.

Prof. Abhay Karandikar, Secretary, Department of Science and Technology speaking at the inaugural ceremony said "The cyber-physical systems represent an area that is becoming more and more important in the increasingly pervasive digital world and will drive all sectors of our economy in the near future." He further highlighted that "The 25 Technology Innovation Hubs are generating disruptive technologies through unique initiatives."

The Technology Innovation Hubs are housed within premier academic institutes. Offering a flexible environment for R&D, these TIHs are dedicated to advancing technology development and translation, fostering human resource and skill development, promoting entrepreneurship and start-ups, and facilitating international collaborative research endeavours in cyber physical systems (CPS). Stellar technologies from some of the hubs were showcased in a compendium released on the occasion. These included smart IoT solutions for monitoring crop and soil health & smart patch for early warning and management of diabetes, from TIH of IIT Bombay; IT-OT Security Operation Center for 24X7 monitoring of cyber threats & Blockchain Technology-based System for secure, transparent, & tamper-proof storage and management of Development Rights Certificates (DRCs) in cities, from C3i Hub of IIT Kanpur; 5G Lab and Standardization Effect Lab & Optimized Mobile Surgical Unit for Cataract Surgeries in Remote Areas from Pravartak Technologies Foundation of IIT Madras; Autonomous Vehicles – Map-based Navigation from TiHAN Foundation of IIT Hyderabad; Biodiversity Sensor & AI - powered livestock management CPS to monitor behaviour of livestock, Of Awadh Foundation of IIT Ropar.

The hubs learnt from each other's success stories and failures through the two-day workshop. The workshop also included an investors pitch for showcasing products and technologies to venture capitalists and angel investors for funding and a tech expo in which cutting edge disruptive technologies developed by the hubs were displayed.

Secretary, DST categorically mentioned that "This unique model to bring the industry, faculty, students and investors in this area together can help catalyse an ecosystem of deep-tech startups. It can set the template for such hub and spoke models for successfully driving innovations in new & emerging areas and make India a world leader in the area,"

Dr. Kris Gopalakrishnan, Chairman, Mission Governing Board, NM-ICPS underlined the need for a cultural change to create products and technologies in the institutions so that the R&D of the industries can be shifted to these institutions. Prof Ramgopal Rao, Chairman, Scientific Advisory Committee, NM-ICPS; Prof Shireesh Kedare, Director IIT Bombay. Senior Officials of Department of Science and technology, Technology Innovation Hub along with faculty and students of IIT Bombay as well as venture capitalists also graced the inaugural ceremony of the two-day workshop.

https://pib.gov.in/PressReleasePage.aspx?PRID=2020544

THE ECONOMIC TIMES

Sat, 11 May 2024

ISRO achieves major milestone with 3D Printed Rocket Engine Test

The Indian Space Research Organisation (ISRO) announced a major achievement, stating it has successfully conducted a hot test of a liquid rocket engine manufactured using additive manufacturing (AM) technology, or 3D printing. This engine is intended for use in the PS4, the upper stage of ISRO's Polar Satellite Launch Vehicle (PSLV).

Design Innovation and Benefits ISRO redesigned the conventionally manufactured PS4 engine to make it compatible with additive manufacturing techniques, a process known as Design for Additive Manufacturing (DfAM). According to The Times of India, this innovative approach has yielded remarkable advantages.

"The Laser Powder Bed Fusion technique used in the manufacturing process reduced the number of engine components from 14 to a single piece, eliminating 19 weld joints," ISRO stated. This streamlined design not only significantly reduced raw material usage per engine from 565kg to a mere 13.7 kg of metal powder but also cut overall production time by 60%.

Development and Testing

The PS4 engine, which uses a bipropellant combination of nitrogen tetroxide as the oxidizer and monomethyl hydrazine as the fuel, was developed by ISRO's Liquid Propulsion Systems Centre

(LPSC). The manufacturing of the additively manufactured engine was carried out by the Indian industry partner, Wipro 3D. The hot testing was conducted at ISRO's Propulsion Complex in Mahendragiri.

Rigorous Testing Validates Performance

Before the successful 665-second hot test, ISRO conducted a comprehensive development program. This included detailed flow and thermal modeling, structural simulations, cold flow characterization of the proto hardware, and four successful developmental hot tests of the integrated engine for a cumulative duration of 74 seconds. These rigorous tests validated the engine's performance parameters, The Times of India reported.

Future Implications

The successful hot testing of the 3D printed PS4 engine is a significant step in leveraging additive manufacturing technology for rocket engines in the future. "This paves the way for the induction of the additively manufactured PS4 engine into the regular PSLV program, ushering in a new era of advanced manufacturing techniques for India's space endeavors," ISRO added, according to The Times of India.

https://m.economictimes.com/news/science/isro-achieves-major-milestone-with-3d-printed-rocket-engine-test/amp_articleshow/110029142.cms

The Indian EXPRESS

Sun, 12 May 2024

ISRO successfully tests 3D-printed rocket engine: What is 3D printing and how does it work?

Indian Space Research Organisation (ISRO) on Thursday (May 9) successfully tested a liquid rocket engine made with the help of additive manufacturing technology — commonly known as 3D printing.

The engine, PS4, which is used as the engine for the fourth stage of the Polar Satellite Launch Vehicle (PSLV), was redesigned by ISRO for production using 3D printing. Here is a look at what 3D printing is, how it works, and why ISRO made an engine using this technology.

What is 3D printing?

3D printing is a process that uses computer-created design to make three-dimensional objects layer by layer. It is an additive process, in which layers of a material like plastic, composites or biomaterials are built up to construct objects that range in shape, size, rigidity, and colour.

How is 3D printing done?

To carry out 3D printing, one needs a personal computer connected to a 3D printer. All they need to do is design a 3D model of the required object on computer-aid design (CAD) software and press 'print'. The 3D printer does the rest of the job.

3D printers construct the desired object by using a layering method, which is the complete opposite of the subtractive manufacturing processes. Think about the great Italian sculptor Michelangelo making his masterpiece sculpture David. He famously carved out the colossal statue from one single block of marble. This is an ideal example of the subtractive manufacturing method.

3D printers, on the other hand, build from the bottom up by piling on layer after layer until the object looks exactly like it was envisioned. "The (3D) printer acts generally the same as a traditional inkjet printer in the direct 3D printing process, where a nozzle moves back and forth while dispensing a wax or plastic-like polymer layer-by-layer, waiting for that layer to dry, then adding the next level. It essentially adds hundreds or thousands of 2D prints on top of one another to make a three-dimensional object," a report by Built In, an online tech news outlet, said.

Notably, these machines are capable of printing anything from ordinary objects like a ball or a spoon to complex moving parts like hinges and wheels.

"You could print a whole bike – handlebars, saddle, frame, wheels, brakes, pedals and chain – ready assembled, without using any tools. It's just a question of leaving gaps in the right places," The Independent said in a report.

Why did ISRO use 3D printing to build the PS4 engine?

The technology helped ISRO bring down the number of parts in the engine from 14 to a single piece. The space agency was able to eliminate 19 weld joints and saved 97% of raw material. It also reduced the overall production time by 60%.

https://indianexpress.com/article/explained/explained-sci-tech/isro-3d-printing-rocket-engine-9321975/

The Indian EXPRESS

Tue, 14 May 2024

India Space Congress 2024 to be held in June

Policymakers, representatives of space agencies from different countries, innovators and business leaders will attend the India Space Congress scheduled to be held here next month.

The theme of the three-day event, organised by Satcom Industry Association India, is 'Bridging Boundaries, Transforming Tomorrow'. The event will be held from June 26-28 and is expected to be attended by more than 800 people from across the globe.

"The recent liberalization of policies, including the Indian Government's decision to allow up to 100 per cent foreign direct investment (FDI) in select space sectors and the unveiling of space au-

thorization guidelines by INSPACe, has created vast potential and opportunities for global collaboration," Subba Rao Pavuluri, President, SIA-India, said in a statement.

ISRO Chairman S Somanath, IN-SPACe Chairman Pawan Kumar Goenka, Global Space Operations Association Director General Isabelle Mauro, Leaolabs Australia President Terry Van Haren, Co-Founder and CEO of Quantum Orbit IIST Ben Moussa Abdoulahi Dia among others are expected to attend the ISA.

"With an extensive program featuring approximately 35 thematic sessions and a special session on the Indo-Pacific coalition, the conference showcases collaborations with over 30 countries, including Australia, the Philippines, Indonesia, Singapore, Japan, Africa and the United States," Anil Prakash, Director General, SIA-India.

Prakash said from the keynote addresses to the interactive workshops and exhibitions, the India Space Congress 2024 offers unparalleled opportunities for the attendees to engage, learn and shape the future of space exploration.

https://indianexpress.com/article/technology/science/india-space-congress-to-be-held-in-june-9328994/

INDIA TODAY

Mon, 13 May 2024

A Crane, Helicopter, Comms Satellite: ISRO's Mangalyaan-2 plans revealed

The Indian Space Research Organisation (Isro) is betting big on its second mission to Mars after the historic success of Mangalyaan.

The Indian space agency, which is already working to develop the second mission to Mars, has revealed how it plans to land its mission on the Red Planet. The feat has only been achieved by the United States and China until now.

ndia aims to become the third country on Earth to land a spacecraft on another planet and join the elite club. New details were released during a presentation on National Technology Day at the Space Application Centre revealing the big plans for the next-door cosmic neighbour.

What is Isro planning for Mars?

Isro is already working on the second Mars mission, which will feature a rover and helicopter combination the same as Nasa's Perseverance rover. The presentation showed that the Indian space agency is working on developing a supersonic parachute, and a sky-crane for deploying the rover on the Red Planet.

The mission will be launched aboard the heavy-lift Launch Vehicle Mark-III (LVM3) to Mars.

he sky crane won't be the first to be used to deploy the rover, Nasa developed the sky-crane system to land its highly precise and successful Perseverance rover on Mars. This system allows for a controlled and precise landing, avoiding the need for airbags or ramps. The Sky Crane ensures that the rover lands upright and ready to begin its mission, even in challenging terrain. Isro will be developing the technology catered to the Indian rover.

Indian engineers are also working on the design and development of a fully functioning helicopter to fly in the thin Martian air. The rotorcraft is in the conceptual stage and will carry several instruments.

The UAV will carry Marble a.k.a the Martian Boundary Layer Explorer, that will have a suite of payloads for aerial exploration of Mars. The aerial vehicle will be designed to be capable of flying up to 100 meters in the thin Martian air to profile the Martian atmosphere.

Meanwhile, to ensure proper communication with the Mars mission, Isro is also planning to deploy a relay communication satellite ahead of the mission launch. The satellite will be launched aboard the Polar Satellite Launch Vehicle to act as a relay between Mars and Earth to ensure smooth uninterrupted communications.

It is worth mentioning that the time it takes for signals to travel between Mars and Earth varies based on their relative positions. At opposition, when Mars is closest to Earth, signals can take around 3 to 22 minutes to travel one way. However, during conjunction, when Mars is on the opposite side of the Sun from Earth, signals can take around 6 to 44 minutes one way.

https://www.indiatoday.in/amp/science/story/mangalayaan-2-isro-mars-mission-sky-crane-helicopter-rover-2538652-2024-05-13

Wed, 15 May 2024

Aditya L1, Chandrayaan-2 capture strongest Solar Storm in 21 years: ISRO

Aditya-L1 and Chandrayaan-2 have recorded and analysed signatures of the recent powerful solar eruptive events from the Earth, the Sun-earth L1 point, and the moon, the Indian Space Research Organisation (ISRO) said on Tuesday. A powerful solar storm impacted the earth last week, triggered by the highly active region AR13664. This region unleashed a series of X-class flares and coronal mass ejections (CMEs) directed at the Earth.

According to ISRO, the resulting geomagnetic storm was the most intense since 2003, leading to disruptions in communication and GPS systems. "This is the biggest geomagnetic storm since 2003 in terms of its strength, as the flaring region on the Sun was as big as the historically important Carrington event that took place in 1859," ISRO said in a statement.

Multiple X-class flares and CMEs have hit the Earth in the past few days, the space agency said. "This (CME) had severe effects over high latitudes where trans-polar flights are already being reported to get diverted. More events are expected in the next few days," ISRO noted.

The space agency said that the Indian sector got less affected as the main event of the storm happened in the early morning of May 11, when the ionosphere had not developed fully. "Also, being at lower latitudes, widespread outages haven't been reported in India. Ionosphere was very turbulent over the Pacific and American sectors," it said.

ISRO said it has mobilised all its observation platforms and systems to record the signatures of this event. Both Aditya-L1 and Chandrayaan-2 have made observations and signatures have been analysed.

Observations by Aditya-L1

It said that the ASPEX payload on-board Aditya-L1 has been showing high-speed solar wind, high-temperature solar wind plasma, and energetic ion flux till now. "The Solar wind Ion Spectrometer (SWIS) has captured the enhancement of the alpha particle and proton flux of the solar wind as a signature of this solar eruptive event," the ISRO said.

Aditya L1's SupraThermal and Energetic Particle Spectrometer (STEPS) also measured the flux of the solar wind ions at seven energy ranges. "A steady rise in the energetic ion fluxes during the event has been noticed," the agency added.

The X-ray payloads on-board Aditya-L1 (SoLEXS and HEL1OS) have observed the multiple X- and M-class flares from these regions during the last few days while the in-situ magnetometer (MAG) payload has also observed the events as it passed by the L1 point," the agency said.

Observations by Chandrayaan-2

While the Aditya-L1 observes the Sun from the first Sun-Earth Lagrange point, the Chandrayaan-2 orbiter has also captured the signatures of these solar eruptive events from the lunar polar orbit.

"XSM has observed many interesting phenomena associated with this geomagnetic storm. The large solar flares, manifested as spikes, are autonomously identified by the onboard logic of XSM, when the internal mechanism was activated to reduce the incident X-ray flux by bringing a filter in front of the detector, so as to prevent its saturation. While the XSM primarily monitors solar X-rays, it has also provided information about the local high energy particle environment by means of counting the events when the upper level discriminator (ULD) threshold is crossed.

The ULD event light curve over the past five days, clearly shows the enhancement of the local charge particle concentration from 9th May onwards. The dips observed in the XSM ULD light curve are due to the shadow effect arising from orbit of the spacecraft around the Moon," the ISRO said.

Spacecraft health

According to ISRO, its Master Control Facility (MCF) team was on alert and watchful of any geomagnetic activity experienced by earth-orbiting spacecrafts.

“Momentum wheel speed deviations were observed along with MTC current saturation in few spacecraft. Spacecraft with one-sided panels had predominant signature variations which required

frequent momentum dumping. Otherwise, overall operations were normal. No single event upsets were seen. Star Sensor (SS-2) in INSAT-3DS and Star Sensor (SS-3) in INSAT-3DR were turned off as per mission. Other than this there has not been any major upsets or anomaly observed in any of the 30 GEO spacecrafts so far," ISRO said.

It added that none of the earth-observation satellites of ISRO, which were visible from ISRO's ground stations, suffered any upsets. The ISRO Navigation Centre has also reportedly not noticed any significant degradation in the 'Navigation with Indian Constellation' (NavIC) service metrics so far, indicating no or negligible impact due to the solar storm.

https://www.indiatvnews.com/science/isro-aditya-l1-chandrayaan-2-captures-strongest-solar-eruptive-events-from-earth-sun-l1-point-moon-latest-updates-2024-05-15-931396