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समाचार पत्रों के चयनित 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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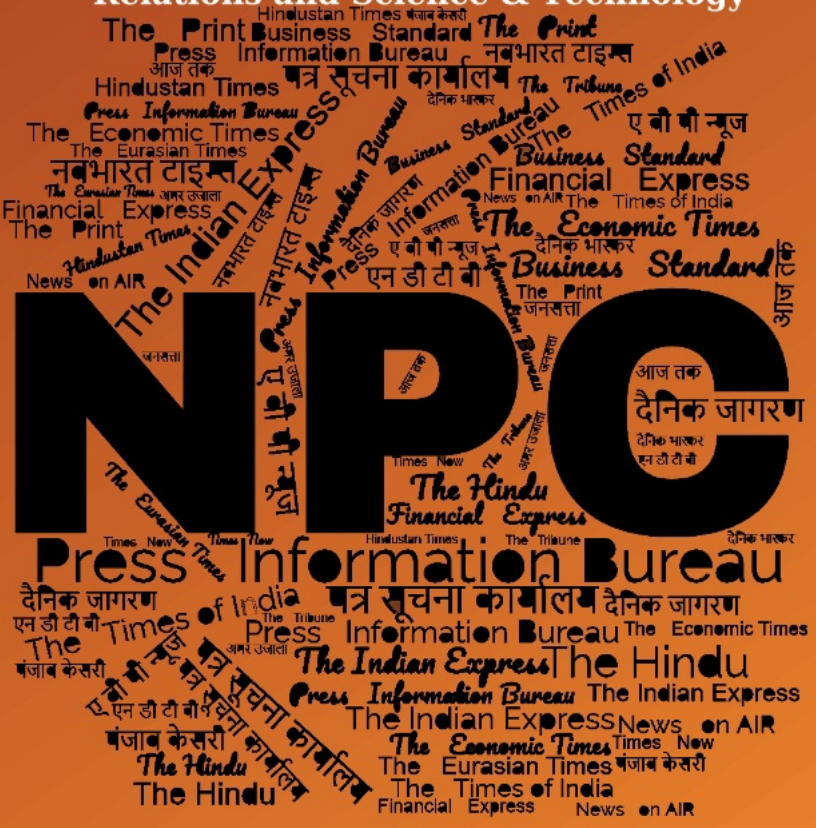

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DRDO News

india.com

Sun, 24 Nov 2024

Bad news for Pakistan, China as DRDO's new guns for India's next-generation tanks to bolster Indian Army edge, the guns are…

India's defence sector is constantly working to provide the country's armed forces with military hardware that is the latest, most potent and advanced, and at par with the global standards. In this regard, the Defence Research and Development Organisation (DRDO) is playing a crucial role.

Currently, the DRDO is working on the development of smoothbore guns for the Next Generation Main Battle Tank (NGMBT) which is a part of the Future Main Battle Tank (FMBT) project.

The Arjun Mk2 or Next Generation Main Battle Tank (NGMBT), also known as the Future Main Battle Tank (FMBT) is an upcoming fourth generation main battle tank being developed by DRDO for the Indian Army, designed to be considerably lighter than the earlier Arjun variant and equipped with advanced electro-optical sight systems and possibly a high power laser-based weapon system in addition to the main gun.

Talking about guns, the DRDO is working to produce two cutting-edge smoothbore guns for Arjun Mk2 NGMBT. They are 120mm and 125mm smoothbore gun systems.

A smoothbore gun is a firearm with a barrel that is smooth and without rifling. Smoothbore guns can be handheld, used in tanks, or used in large artillery mortars. Most modern tanks are fitted with smoothbore guns as they do not utilise rifled barrels in order to impart spin to projectiles as they are fired.

The smoothbore design of most modern tank barrels makes it easier for tanks to fire missiles through the same barrel used to fire projectiles. The gun itself is not the sole factor influencing the range of a tank as the maximum range, i.e. how far the projectile will travel depends on various conditions.

India's Future Ready Combat Vehicle (FRCV) will feature indigenous 120mm smoothbore gun while the 125mm caliber is preferred for its robust firepower and compatibility with widely available munitions in the international market. DRDO is working on both the calibres to provide Indian Armed Forces flexibility in terms of armament choice.

https://www.india.com/news/india/bad-news-for-pakistan-china-as-drdos-new-guns-for-indias-next-generation-tanks-to-bolster-indian-army-edge-the-guns-are-7418166/

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Sun, 24 Nov 2024

COAS General Upendra Dwivedi Concludes Visit To Nepal, Culminating In Stronger Defence And Bilateral Ties

General Upendra Dwivedi, Chief of the Army Staff (COAS), Indian Army, returned to India today after a resoundingly successful five-day official visit to Nepal. The visit, which exceeded all stated objectives, further solidified the robust defence cooperation, cultural ties, and mutual respect between the two nations. It underscored the shared commitment of the Indian and Nepali Armies to fostering peace, security, and partnership in the region.

During his visit, the COAS engaged extensively with Nepal's political and military leadership. He held high-level meetings with the Right Honourable President of Nepal, Shri Ram Chandra Paudel; the Right Honourable Prime Minister, Mr. K.P. Sharma Oli; and the Honourable Defence Minister, Mr. Manbir Rai. He also engaged in meaningful discussions with General Ashok Raj Sigdel, COAS, Nepali Army, along with other senior military officers. These interactions were characterised by exceptional openness and mutual respect, reflecting the shared commitment to strengthening bilateral relations.

Key Outcomes of the Visit:

- **Tribute at Bir Smarak:** The COAS in a solemn ceremony, paid his tributes to Nepal’s Bravehearts by laying a wreath at Bir Smarak, Tundikhel. Later, he reviewed an impressive Guard of Honour at the Nepali Army Headquarters.
- **Strategic Discussions with Nepali Army:** Strengthening India-Nepal ties was a central theme of the visit. General Upendra Dwivedi, COAS, called on General Ashok Raj Sigdel, COAS, Nepali Army, and discussed aspects of mutual interest and avenues to strengthen bilateral defence cooperation. The COAS was briefed by the Director General of Military Operations (DGMO) of the Nepali Army and engaged in high-level discussions with other senior military leaders. These discussions focused on enhancing military bonds, joint exercises, training cooperation, and capability development, reinforcing the shared

commitment to global peace and security. As a gesture of friendship between the two armies, the Indian Army presented Valour Mount horses and Sentinel dogs to the Nepali Army.

- **Conferment of Honorary General Rank:** General Upendra Dwivedi, COAS, was conferred the Honorary Rank of General of the Nepali Army by the Right Hon'ble President of Nepal, Shri Ram Chandra Paudel, at Sheetal Niwas, Kathmandu. This unique tradition underscores the deep-rooted historical and cultural ties between the Indian and Nepali Armies.
- **Cultural and Social Bonds:** The COAS experienced firsthand, the unique cultural and social bonds between the two countries and their armies. Increased cultural exchanges between the Indian and Nepali Armies were also discussed, recognising their importance in strengthening bilateral ties.
- **Address at the Army Command and Staff College, Shivapuri:** Enlightening the future leaders at the Nepal Army Command and Staff College in Shivapuri, the COAS delivered a lecture on “The Changing Character of War”. He emphasised on strengthening & deepening the engagements for mutually building the competencies & capabilities of both Armies.
- **Veterans Engagement:** The COAS attended an Ex-Servicemen Rally at the Pension Paying Office in Pokhara, interacting with Gorkha veterans and Veer Naris of the Indian Army. The bond between the veterans and the Indian Army was very visible and thriving, reflecting their strong ties. The COAS lauded the role of veterans in civil society, acknowledging their contributions across various fields. A heartfelt moment during the rally was his interaction with Subedar Major & Honorary Captain Gopal Bahadur Thapa (retd) of the 18th Battalion, The Jammu and Kashmir Rifles, the Subedar Major of his own unit, showcasing a personal and emotional connection with the veterans. He also reiterated the Government of India’s unwavering commitment to their welfare, including the announcement of an increase in the number of ECHS empanelled hospitals besides addition of two ECHS polyclinics, one each at Butala and Dungadhi. These initiatives is reflective of the Government of India’s and Indian Army’s resolve towards the welfare of veterans.
- **Invitation to Nepali COAS:** General Dwivedi extended a formal invitation to the Nepali Army’s COAS to visit India, aiming to build on and amplify the outcomes of the current visit.

This visit, marked by comprehensive discussions and mutual respect, has reinforced the strong partnership between the Indian and Nepali Armies. The outcomes of the visit are expected to usher in a new era of collaboration, with a greater focus on defence cooperation, cultural exchange, and regional security.

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Press Information Bureau
Government of India

Ministry of Defence

Sat, 23 Nov 2024

Delivery Of Yard 80 (LSAM 12)

Induction ceremony of the sixth Missile Cum Ammunition Barge, LSAM 12 (Yard 80) was held on 22 Nov 24 at Naval Dockyard, Mumbai. The ceremony was presided over by Cmde Abhirup Majumdar, Command Refit Officer, Headquarters Western Naval Command.

The contract for construction of eight MCA Barges was concluded with M/s SECON Engineering Projects Pvt. Ltd., Visakhapatnam, on 19 Feb 24, a MSME Shipyard. The shipyard indigenously designed these Barges in collaboration with an Indian ship designing firm and successfully model-tested them at the Naval Science and Technological Laboratory, Visakhapatnam, to ensure seaworthiness. These barges have been built in accordance with the relevant Naval Rules and Regulations of Indian Register of Shipping (IRS). These Barges are proud flag bearers of ‘Make in India’ and ‘Aatmanirbhar Bharat’ initiatives of Government of India.

Induction of these Barges will provide impetus to the operational commitments of IN by facilitating Transportation, Embarkation and Disembarkation of articles/ ammunition to IN platforms both alongside jetties and at outer harbours.

https://pib.gov.in/PressReleasePage.aspx?PRID=2076261

Press Information Bureau
Government of India

Ministry of Defence

Fri, 22 Nov 2024

Raksha Mantri meets his Japanese & Philippines counterparts on the final day of his three-day visit to Lao PDR

Raksha Mantri Shri Rajnath Singh, on November 22, 2024, met his Japan counterpart Mr Gen Nakatani and Secretary of National Defence (Defence Minister) of the Philippines Mr Gilberto Teodoro on the final day of his three-day visit to Vientiane, Lao PDR.

Meeting with Japanese Defence Minister

The two sides reiterated the importance of defence industry and technology cooperation between the two countries. Recalling the milestone event of signing of Memorandum of Implementation of

UNICORN mast in Japan last week, both sides agreed for enhanced cooperation in co-production and co-development in the defence manufacturing sector.

To further improve inter-operability between the Indian and Japanese forces, Reciprocal Provision of Supply and Services Agreement between the two countries and participation of militaries in various bilateral and multilateral exercises were discussed by both the Ministers. They also agreed to explore new areas of cooperation in the air domain.

Meeting with Secretary of National Defence of the Philippines

Raksha Mantri welcomed the Philippines as country coordinator for India in ASEAN and ASEAN Defence Ministers' Meeting (ADMM) - Plus forum for the next cycle. Both sides agreed to expand and deepen cooperation in exchange of subject matter experts, defence industry, counter-terrorism, space and maritime domain.

Prior to his departure to New Delhi, Raksha Mantri also visited the Wat Sisakat Temple (a Buddhist Temple) in Vientiane, and sought blessings from Shri Mahaveth Chittakaro, Abbot of Sisaket Temple.

During his three-day stay in Vientiane, Shri Rajnath Singh attended the 11th ADMM-Plus, and held bilateral meetings with his counterparts from Malaysia, Lao PDR, China, US, New Zealand, Republic of Korea, Australia, Japan and the Philippines.

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Press Information Bureau
Government of India

Ministry of Defence

Fri, 22 Nov 2024

Culmination Of Pan-India Coastal Defence Exercise - 'Sea Vigil 24'

The fourth edition of the Pan-India Coastal Defence Exercise Sea Vigil 24 concluded successfully on 21 Nov 24. This Exercise, conducted over a 36-hour period, demonstrated India's unwavering commitment to strengthening its maritime security and coastal defence mechanisms. Spanning the entirety of India's 11,098 km coastline and its Exclusive Economic Zone of 2.4 million sq. kms, Sea Vigil 24 witnessed the participation of over 21 agencies across six ministries. These included the Indian Navy, Indian Army, Indian Air Force, Indian Coast Guard, State Marine Police, Customs, BSF, CISF, Port Authorities and Fisheries department, among others.

The two days of exercise witnessed extensive deployment of more than 550 surface assets from various maritime security agencies and 60 air sorties with flying time of about 200 hours along the entire coastline of the country.

Coastal Defence and Security Readiness Evaluation (CDSRE) phase of the exercise, conducted for over a period of seven days prior commencement of tactical phase, witnessed a comprehensive audit of over 950 critical coastal locations. The audit included Fishing Landing Centres, Lighthouses, Major and Non-Major ports, Coastal Police Stations, offshore assets, Coastal VAs/ VPs and others. Notably, for the first time, officials from the National Security Council Secretariat participated in the CDSRE activities in Gujarat and West Bengal.

Focus and Objectives

Sea Vigil 24 focused on enhancing coastal defence of the country. Enhancing Security of vital maritime assets such as Oil Rigs, Single Point Moorings (SPMs), Cable Landing Stations, and Non-Major Ports and Nuclear installations along the coast has been one of the major focus areas during this exercise and numerous initiatives were taken towards the same.

Indian Air Force has deployed Air Defence Systems on offshore platforms/ Oil Rigs to secure offshore infrastructure. Special emphasis was provided for safety and security of merchant ships wherein, simulated hijacking, Naval Cooperation and Guidance to Shipping and re-routing of Indian merchant vessels was undertaken. Fishing communities of all states participated actively in the exercise and were enthusiastically involved in various duties with the maritime forces.

The exercise also featured an expanded community outreach program aimed at fostering grassroots awareness of maritime security in youth, especially NCC cadets, Bharat Scouts and Guides, and students of coastal areas. The initiatives were organized by the Navy to build a robust security-conscious coastal ecosystem which would reinforce nations Coastal defence.

Strengthening Inter-Agency Coordination

As a key component of India’s Coastal Defence Architecture, Sea Vigil 24 served as a platform for evaluating inter-agency coordination and identifying gaps in India’s coastal security infrastructure. The seamless collaboration between the participating agencies highlighted their readiness to counter evolving maritime threats.

Legacy and Vision

Since its inception in 2018, Sea Vigil has played a pivotal role in India’s Coastal Defence preparedness. By simulating real-time scenarios, the exercise provides valuable insights into the nation’s maritime defence capabilities. The lessons learnt from the exercise aid in making the Coastal Defence Architecture more robust and resilient to the prevailing situation.

The successful culmination of Sea Vigil 24 underscores India’s steadfast resolve to safeguard its maritime borders and Indian Navy’s commitment to handle its responsibilities of ‘Overall Maritime Security’. With enhanced inter-agency cooperation, robust preparedness, and active community engagement, the exercise marks another milestone in fortifying the nation’s Coastal Defence posture against emerging security challenges.

https://pib.gov.in/PressReleasePage.aspx?PRID=2076147

THE ECONOMIC TIMES

Fri, 22 Nov 2024

India-Russia strengthen defence ties at 22nd Working Group meeting on military technical cooperation

The 22nd meeting of the India-Russia Working Group on Military technical cooperation and defence industry was held on Friday in New Delhi. The meeting was co-chaired by Sanjeev Kumar, Secretary, Defence Production, Ministry of Defence and A Boytsov, First Deputy Director of the Federal Service for Military Technical Cooperation of Russia.

Sharing the development on X, the Ministry of Defence posted, "22nd meeting of #IndiaRussia Working Group on Military #TechnicalCooperation and #DefenceIndustry of India-Russia Inter-Governmental Commission on Military & Military Technical Cooperation (IRIGC-M&MTC) took place in New Delhi today."

"The meeting was co-chaired by Secretary (Defence Production) Shri Sanjeev Kumar and First Deputy Director of Federal Service for Military Technical Cooperation, Russia Mr A Boytsov," the post added. Defence cooperation has been a cornerstone of the India-Russia strategic partnership, guided by the Agreement on the Programme for MilitaryTechnical Cooperation.

The Agreement for the period 2021-2031 was signed during the inaugural meeting of the India-Russia 2+2 Dialogue in Delhi on December 6, 2021. The two sides also have periodic exchanges of armed forces personnel and military exercises, according to the Embassy of India in Moscow, Russia.

India and Russia have an institutionalised structure to oversee the complete range of issues of military and military-technical cooperation. The inaugural India-Russia 2+2 Dialogue (set up in 2021) was held in Delhi on December 6, 2021, on the sidelines of the Summit meeting. The Dialogue was chaired by Defence Ministers and Foreign Ministers of both sides.

The India-Russia Inter-Governmental Commission on Military Technical Cooperation (IRIGCMTC), set up in 2000, is at the apex of this structure. The 20th edition of this meeting was held in Delhi on December 6, 2021. There are two Working Groups and nine Sub-Groups under the IRIGC-M&MTC, which review and discuss an array of military and military-technical issues.

Over the years, cooperation in the military-technical sphere has evolved from a purely buyer-seller relationship to joint research, design development and production of state-of-the-art military platforms, as per the Embassy of India.

Production of the Brahmos cruise missile is an example of this trend. The joint Venture namely Indo-Russia Rifles Private Limited (IRRPL) has been established and it has started production of AK-203 rifles in India under the "Make in India" initiative.

https://economictimes.indiatimes.com/news/defence/india-russia-strengthen-defence-ties-at-22nd-working-group-meeting-on-military-technical-cooperation/articleshow/115569560.cms

THE ECONOMIC TIMES

Fri, 22 Nov 2024

Army conducts patrolling, sets up posts in upper reaches of mountain ridges: GoC White Knight Corps

Asserting that the residual terrorism in Jammu and Kashmir stems from external forces, the General Officer Commanding (GOC) White Knight Corps, Lieutenant General Navin Sachdeva, emphasised on Friday that the Army's enhanced operational capabilities and growing bond with people will continue to contribute towards achieving peace in the region.

Laying emphasis on the enhancement of security in the region, Lt Gen. Sachdeva said actions have been taken to conduct patrolling and set up posts in the upper reaches of mountain ridges.

"In recent times, all of you have witnessed that the Indian Army has significantly enhanced its operational capabilities and effectiveness. Actions have been taken to conduct patrolling and establish posts in the upper reaches of mountain ridges," the GOC said while addressing a function here.

Regarding the challenges posed by terrorism, he said, "The residual terrorism that remains here, we know very well, is due to external forces."

"In my view, it is essential to keep in mind that the Indian Army, the people of Poonch, the veterans' community, police and civil agencies desire only peace and will continue their efforts towards achieving it," he added.

He highlighted the strengthened relationship between the Army and the local population, saying, "The most gratifying aspect of this entire endeavour is the growing bond between the public and the security forces, which has reached a new level."

The GOC further said the Sadbhavana activities, medical camps, support for road construction, response to military schools and participation of youngsters in recruitment rallies are living examples of how the Army and the people of Jammu and Kashmir are progressing together. "Your participation in today's event is a shining and prominent testimony to this unity," he said.

The GOC urged everyone to spread the message of unity, saying, "I request everyone to spread the message that the Indian Army stands with the people at every step. I assure you that the Indian Army and security forces will always strive for the security and peace of this region."

At the function in Poonch, the Army, in collaboration with the War Wounded Foundation (WWF), organised an Ex-Servicemen (ESM) rally, where four modified scooters were presented to war-disabled soldiers to enhance their mobility and independence. The initiative aims at motivating and empowering differently-abled soldiers, enabling them to overcome physical challenges and pursue new opportunities, a defence spokesperson said.

To date, the WWF has distributed 22 modified scooters, three auto-rickshaws and an electric wheelchair among differently-abled ex-servicemen from Jammu, Kashmir and Ladakh, with plans

to expand the programme to Punjab, Himachal Pradesh, Haryana and Chandigarh, Brigadier (Retired) Harcharan Singh said.

"These mobility aids not only provide physical support but also boost psychological morale, encouraging soldiers to start enterprises and engage actively in the society," he said.

Brigadier Singh highlighted the WWF's extensive work, including psychological counselling, pension assistance and support for wedding expenses or entrepreneurial ventures for war-wounded soldiers.

"Regular interactions and research studies through the United Services Institution (USI), New Delhi ensure that their needs are addressed, and recommendations are made to government and Army authorities," he added.

The rally also served as a platform for soldiers to interact with welfare agencies and gain insights into government schemes, injury management and employment opportunities. Lt Gen. Sachdeva presented the scooters to the recipients, emphasising the Army's continued commitment to supporting its veterans, even in remote border areas.

The next All-India War Wounded Soldiers Rally is planned for April 2025, reinforcing the vision of integrating differently-abled soldiers into the mainstream with dignity and purpose.

https://economictimes.indiatimes.com/news/defence/army-conducts-patrolling-sets-up-posts-in-upper-reaches-of-mountain-ridges-goc-white-knight-corps/articleshow/115572822.cms

THE ECONOMIC TIMES

Fri, 22 Nov 2024

Russia says hypersonic missile strike on Ukraine was a warning to 'reckless' West

The Kremlin said on Friday that a strike on Ukraine using a newly developed hypersonic ballistic missile was designed as a message to the West that Moscow will respond to their "reckless" decisions and actions in support of Ukraine. Kremlin spokesman Dmitry Peskov was speaking a day after President Vladimir Putin said Moscow had fired the new missile - the Oreshnik or Hazel Tree - at a Ukrainian military facility.

"The main message is that the reckless decisions and actions of Western countries that produce missiles, supply them to Ukraine and subsequently participate in strikes on Russian territory cannot remain without a reaction from the Russian side," Peskov told reporters.

"The Russian side has clearly demonstrated its capabilities, and the contours of further retaliatory actions in the event that our concerns are not taken into account have been quite clearly outlined."

Peskov said Russia had not been obliged to warn the United States about the strike, but had informed the U.S. 30 minutes before the launch anyway.

President Vladimir Putin remained open to dialogue, Peskov said, but he said the outgoing administration of U.S. President Joe Biden "prefers to continue down the path of escalation".

Putin said on Thursday that Russia had fired the new missile after Ukraine, with approval from the Biden administration, struck Russia with six U.S.- made ATACMS missiles on Tuesday and with British Storm Shadow cruise missiles and U.S.-made HIMARS on Thursday.

He said this meant that the Ukraine war had now "acquired elements of a global character". Ukrainian President Volodymyr Zelenskiy has said Russia's use of the new missile amounted to "a clear and severe escalation" in the war and called for strong worldwide condemnation.

https://economictimes.indiatimes.com/news/defence/russia-says-hypersonic-missile-strike-on-ukraine-was-a-warning-to-reckless-west/articleshow/115564886.cms

THE ECONOMIC TIMES

Fri, 22 Nov 2024

What we know about Russia's Oreshnik missile fired on Ukraine

The new intermediate-range ballistic missile called Oreshnik used by Russia in a strike on Ukraine is a nuclear-capable weapon that has not been previously mentioned in public.

In an unscheduled television appearance on Thursday, Russian President Vladimir Putin said the strike on the city of Dnipro had tested in combat conditions "one of the newest Russian mid-range missile systems". He said missile engineers had christened the missile Oreshnik, or hazel tree in Russian.

Putin said it had been deployed "in a non-nuclear hypersonic configuration" and said that the "test" had been successful and had hit its target.

Speed

Air defences cannot intercept the Oreshnik, which attacks at a speed of Mach 10, or 2.5-3 kilometres per second, Putin said. Hypersonic missiles travel at speeds of at least Mach 5 -- five times the speed of sound -- and can manoeuvre mid-flight, making them harder to track and intercept.

"Modern air defence systems... cannot intercept such missiles. That's impossible," Putin said. "As of today there are no means of counteracting such a weapon," the president boasted.

Warheads

The Oreshnik missile could have three to six warheads, military expert Viktor Baranets wrote in the Komsomolskaya Pravda tabloid. Igor Korotchenko, editor of the Moscow-based National Defence journal, told TASS state news agency that based on video footage of the strike, Oreshnik

has multiple independently guided warheads. In this case they were conventional, but it could also carry nuclear warheads military experts said.

The "practically simultaneous arrival of the warheads at the target" shows the system is "very effective", Korotchenko said, calling it a "masterpiece of modern Russian solid-fuel military missile construction".

Range

The missile was reported by Ukrainian media to have been fired from the Kapustin Yar range in the Astrakhan region, around 900 kilometres (550 miles) from Dnipro. Putin described the missile in Russian as "medium-range" but Russian military experts said the English term would be "intermediate-range".

An intermediate-range ballistic missile (IRBM) has a range of 1,000-5,500 kilometres, a level below that of an intercontinental ballistic missile (ICBM). Military expert Ilya Kramnik told Izvestia newspaper that Oreshnik's range could be at the top end of intermediate, around 3,000 - 5,000 kilometres. "In any case we witnessed the first combat use in history by Russia of an intermediate-range missile," Dmitry Kornev, editor of Military Russia website, told Izvestia.

Origins

The US Department of Defense described Oreshnik as an "experimental" missile based on Russia's RS-26 Rubezh ICBM. Little is known about Rubezh, a modification of Topol ICBM. TASS state news agency reported, citing a source, in 2018 that development of Rubezh was frozen under the state weapons programme up to 2027, to prioritise another system, Avangard.

Russian weapons expert Yan Matveyev wrote on Telegram that Oreshnik probably had two stages and would be "quite expensive", heavy and not massproduced.

Threat

Its range means "Oreshnik can threaten practically all of Europe" but not the United States, weapons expert Pavel Podvig, director of the Russian Nuclear Forces Project, told Russian Telegram channel Ostorozhno Novosti.

The US and the Soviet Union in 1987 signed a treaty agreeing to give up all use of missiles with a range of 500 to 5,500 kilometres.

Both Washington and Moscow withdrew from the Intermediate-Range Nuclear Forces Treaty in 2019, each accusing the other of violations. Putin said Thursday that Russia will "address the question of further deployment of intermediate and shorter-range missiles based on the actions of the United States and its satellites".

https://economictimes.indiatimes.com/news/defence/what-we-know-about-russias-oreshnik-missile-fired-on-ukraine/articleshow/115566827.cms

THE ECONOMIC TIMES

Sat, 23 Nov 2024

Induction of private players in defence manufacturing vital in national interest

Recently, two positive developments gave the country reason to cheer--the inauguration of the C295 military aircraft manufacturing facility at Vadodara jointly by the prime ministers of India and Spain and the decision of the ministry of defence (MoD) to approve the nuclear submarine (SSN) project.

The C295 project signals the entry of India's private sector into an area which was, till recently, the exclusive domain of HAL, India's only public sector manufacturer of military aircraft.

The Tata Advance Systems Ltd (TASL), the Indian partner of this project, has done the country proud by venturing into this project which can be regarded as the harbinger of a new aerospace epoch in the country.

It should also bring cheer to the armed forces which were stuck with the antiquated AVRO 748 and AN32s.The C295s will be a game-changer not only for them but also for the aerospace eco-system in India. That India's private sector could establish such a sophisticated project as a military transport aircraft assembly is an indication of its hidden potential that is grudgingly tapped by the defence procurement bureaucracy.

The seeds of such a seemingly impossible project were sown when the former defence minister, the late Arun Jaitley, made a bold decision in 2014 to invite Indian private companies, in collaboration with reputed OEMs of their choice to participate in an RFP for the medium transport aircraft by adapting the defence acquisition procedure. But the whole process got into a deadlock when the Tata-Airbus proposal was the only bid received. Such single bids are normally unwelcome, understandably because of the difficulty in price discovery.

This led to protracted negotiations and a decision to go ahead with this project was made. The pressures of 'Make in India' also must have helped in tilting the scales in favour of clearing the project. The TASL could venture into the project because of its cautious and steady foray into the aerospace field for the manufacture of key aerospace components relating to defence offsets, that is, the domestic manufacturing of import-related sub-systems as required by the foreign suppliers.

The SSN project will be an internal project of the Navy and its arrival was long anticipated especially after India's success with the nuclear-armed SSBNs. But what is surprising is that it has taken nearly eight years for the SSN project to become a reality. Despite the dire need to replace our old conventional submarines and build nuclear submarines, our progress has been extremely slow. The P75 project for the Scorpene submarines has moved at snail's pace. The new project, P75 (India), is yet to take off. Submarines are strategically so important for India that the slow progress in building the fleet is unconscionable.

The manufacture of medium transport aircraft and nuclear submarines are long-awaited projects needed to renew our ageing fleet. The same is true of our fighter aircraft squadrons. The IAF has been toying with the idea of acquiring new fighter craft for years now but there is unnecessary ambivalence regarding the mode of acquisition. The HAL, struggling to keep deadlines for the delivery of the LCA 'Tejas', has to focus on this aircraft.

Our ability to produce military aircraft and conventional submarines in larger number is seriously hobbled by the monopoly enjoyed respectively by HAL and Mazagon Docks. Unless the production capabilities of the country are enhanced substantially, self-reliance in critical equipment will remain a pipe dream. Therefore, the induction of the private sector in the manufacture of major platforms is vital in national interest.

While TASL has emerged as a new champion for aircraft manufacturing by dint of its hard work and vision, L&T has emerged as the only company in India with rich experience in submarine building because of the successful partnerships it has been engaged in. The capabilities painstakingly built by these companies are valuable assets for the country which need to be leveraged imaginatively by the government for expanding the production base for military aircraft and submarines.

Besides, they are capable of investing deeply in R&D, product development and MRO using world-class human resources and processes. Their capacity for innovation and ecosystem building is outstanding. Its high time such companies with proven track record were taken on board as strategic partners by the MoD and conferred a status on a par with the defence public sector enterprises (DPSEs).

Together with the armed forces they could identify suitable OEMs to collaborate for manufacturing advanced systems like submarines and fighter aircraft. With the Tata-Airbus deal based on single tender taking off smoothly, entering into strategic partnerships with the private sector champions should no longer be taboo for the defence bureaucracy. Such partnerships can be made more palatable if the government were to take some equity in the special purpose vehicles to be created by them for manufacturing. Bold lateral thinking is necessary for meeting the growing national security threats.

https://economictimes.indiatimes.com/news/defence/view-induction-of-private-players-in-defence-manufacturing-vital-in-national-interest/articleshow/115576035.cms

THE ECONOMIC TIMES

Mon, 25 Nov 2024

Trump's policies may open new doors for India's defence sector: Report

The "America First" trade policy promoted by upcoming U.S. President Donald Trump has far-reaching implications for global trade and geopolitics. According to a report by Motilal Oswal, this

policy carries mixed outcomes for exporters worldwide because it is designed to prioritize U.S. manufacturing by reducing imports, particularly from China. For India, Trump's policies present both opportunities and challenges.

The Indo-Pacific defense strategy could strengthen U.S.-India collaboration, opening doors for Indian businesses in sectors such as pharmaceuticals and defense.

It said "Indian businesses in sectors such as pharmaceuticals and defense might also find new opportunities, especially if U.S.- India collaboration strengthens... Emerging markets face a mixed bag of challenges and opportunities".

Additionally, anticipated U.S. corporate tax cuts could boost IT spending, benefiting India's IT sector. However, a stronger dollar and potential tariffs on Indian exports could strain its trade balance.

Another significant concern is the impact of increased tariffs on U.S. exports. Key industries, such as agriculture and technology, risk losing competitiveness in global markets if trading partners impose retaliatory tariffs.

The report said "increased tariffs might prompt retaliatory measures from trade partners, potentially affecting U.S. exporters in sectors like agriculture and technology". The report also highlighted that India may find a silver lining in global supply chain realignments, particularly in technology areas like AI and semiconductors, driven by the "China+1" strategy.

For instance, the European Union (EU) may levy duties on American goods, potentially hampering the automotive and steel industries. These measures could not only slow growth in Europe but also disrupt global trade patterns. Emerging markets face a dual challenge.

While higher tariffs and a stronger dollar may escalate export costs for sectors like IT and pharmaceuticals, some TOP TRENDING NEWS countries, like Mexico, stand to gain by attracting manufacturing that might otherwise remain in China. The report highlighted that geopolitically, Trump's approach is likely to escalate tensions with China and reshape alliances. Countries like Japan and South Korea may reconsider their strategies, while the EU might strive for selfreliance, fostering new alliances outside U.S. influence.

https://economictimes.indiatimes.com/news/defence/trumps-policies-may-open-new-doors-for-indias-defence-sector-report/articleshow/115643493.cms

THE TIMES OF INDIA

Fri, 22 Nov 2024

Army steps on the gas for high-tech infusion for futuristic warfare, plans to induct ‘domain specialists

With rapid technological advances changing the very nature of warfare, the Army is now cranking up work on 16 specific technology clusters as well as planning to induct `domain specialists’ to

ensure it becomes a future-ready force with the requisite offensive punch for the increasingly digitized battlefields.

“The rate of change of technology is so rapid that we must keep on adapting and absorbing. We are proactively engaging industry and academia, including the IITs and IISc, in our endeavour to be in sync with the latest in the world of technology,” deputy chief of army staff (information systems and coordination) Lt-General Rakesh Kapoor said on Friday.

The Indian armed forces, of course, still have some distance to go in optimally leveraging dual-use and disruptive technologies for warfighting, including in the non-kinetic warfare domain. China is leagues ahead in space, cyberspace, hypersonics, robotics, nanotechnology, lethal autonomous weapon systems, AI, DEWs and the like, along with the People’s Liberation Army’s long-standing thrust on `informatized’ and `intelligentized’ warfare.

The Indian armed forces, however, are now focusing on such technologies in a major way to catch-up in this new strategic arena of competition. The over 11-lakh strong Army, for instance, is working on multiple programmes under technology clusters ranging from cyber, space, quantum, 5G/6G, block chain technology, artificial intelligence (AI) and augmented/virtual reality to directed energy weapons (DEWs), loitering munitions, robotics, drones and counter-drone systems.

“We have officers driving these clusters, with laid-down benchmarks, timelines and monthly reviews. A roadmap has already been approved,” Lt-Gen Kapoor said, adding that the Army was undergoing reorientation and restructuring as part of the larger “transformation” drive underway.

Towards this end, the Army is also pursuing 45 niche technologies identified for military applications, with around 120 indigenous projects underway to develop and absorb them. The Army will also begin inducting `domain specialists’ in cyber, information warfare and information technology, as also linguistics in Mandarin and other languages, from mid-2025 onwards.

“Some domain specialists have already been inducted through the Territorial Army route. Now, they will also be inducted into the regular Army. The vacancies are being worked out and advertisements will be issued next month,” Lt-Gen Kapoor said.

These specialists will need to be at least postgraduates in the domains concerned to be commissioned as officers and graduates for JCOs (junior commissioned officers) and Havildars. They will be inducted into the Army Educational Corps (AEC), which is also being re-structured and will be rechristened as the Army Knowledge & Enablers Corps, with the mandate to specially focus on cyber, infotech, perception management and linguistics, including specialization in Mandarin, Burmese and other languages, as was first reported by TOI earlier.

Parallelly, as part of the several “automation, digitisation and networking” projects underway, the Army is also going in for integrated battlefield surveillance and intelligence centres, which will get feeds from a wide array of sensors ranging from satellites and drones to radars and troops on the ground, to provide a composite operational picture for commanders on both the China and Pakistan fronts.

https://timesofindia.indiatimes.com/india/army-steps-on-the-gas-for-high-tech-infusion-for-futuristic-warfare-plans-to-induct-domain-specialists/articleshow/115574996.cms

ThePrint

Fri, 22 Nov 2024

Army identifies 16 tech clusters for modernisation, to also induct domain specialists

The Army has identified 16 technological clusters as part of its modernisation plans. This includes multiple programmes being pursued under each cluster with a review on a monthly basis by the hierarchy.

Along with this, the Army has decided to recruit domain specialists for information technology (IT), cyber, information warfare and linguistics in its Education Corps which has been reoriented now towards specialised domains.

“We have identified 16 clusters under which multiple programmes are being pursued through collaboration with government run companies and private firms to academia. Every month the Army chief is taking a review of these projects and set timelines have been set,” Lt Gen Rakesh Kapoor, Deputy Chief of Indian Army, in charge of information systems and coordination, said.

Speaking to reporters in the national capital, the senior Army officer said that the timelines set a range from 3 months to 2 years depending on various aspects.

He added that officers have been made in charge of these projects and are being held accountable for the same.

The 16 technology clusters identified by the Army include Cyber, Space, Quantum, 5G/ 6G, Internet of Things, Directed Energy Weapons, Digitisation for Applications, Augmented Reality and Virtual Reality.

They also include Artificial Intelligence, Machine learning, Deep Learning, RPA and Drones, Counter UAS, Unmanned Autonomous Systems, Block Chain Technology, Loitering Munitions, 3D Printing and Robotics.

Noting that 2024 was the year of technology absorption, he said ideally the next decade should be about the same. He added that induction of domain specialists into the Indian Army has already commenced.

Presently, some domain specialists have already been inducted through the Territorial Army (TA) route. In future, induction of domain specialists through TA route will continue.

In addition, domain specialists will also be inducted in the Indian Army through regular recruitment routes. Advertisement for the same is expected to come out soon, he said.

https://theprint.in/defence/army-identifies-16-tech-clusters-for-modernisation-to-also-induct-domain-specialists/2369130/

ANI
South Asia's Leading Multimedia News Agency

Sun, 24 Nov 2024

India starts exporting Pinaka weapon systems to Armenia

Amid growing global interest in the indigenous multi barrel rocket launchers (MBRL), India has started the supply of the highly capable Pinaka rockets to Armenia. The supplies of the DRDO-developed rocket launchers have started around the same time India has started deliveries of the Akash air defence missile system to that country.

The first lot of the Pinaka multi barrel rocket launcher systems has been supplied to Armenia, defence sources told ANI.The Pinaka rocket launchers are highly capable weapon system with variants which can strike targets over 80 Kms. The contract between Indian firms and Armenia for the supply of these weapons was signed about two years ago after extended negotiations.Armenia is one of three largest buyers of Indian weapons and equipment along with the US and France.

A number of countries from South East Asia and Europe have shown interest in the Pinaka rockets whose multiple variants have been developed in recent times and the Indian Army is looking to induct them in a big way. The DRDO recently also carried out important test of the guided Pinaka rockets which are produced by Nagpur-based Solar Industry's Economic Explosives Limited along with government-owned Munitions India Limited.

France has shown interest in the acquisition of this weapon system.Named after the Hindu god Shiva's divine bow, the French interest in the rocket system was shown during a high-level visit by Chief of Defence Staff Gen Anil Chauhan earlier this year.

India has been pushing the indigenous systems for export markets and the Centre has been able to achieve success by three times since 2014. Notably, France is the second largest importer of Indian defence equipment after the US with a lot of electronics items going there from India.

https://www.aninews.in/news/national/general-news/india-starts-exporting-pinaka-weapon-systems-to-armenia20241124182633/

Business Standard

Sat, 23 Nov 2024

India's defence MRO sector set to take off over the next five years

India’s defence maintenance, repair, and overhaul (MRO) sector is poised for transformative expansion over the next five years, as global aerospace giants and domestic players collaborate to establish world-class facilities. With companies like Lockheed Martin and Boeing partnering with

Indian firms like Tata Advanced Systems Ltd (TASL) and AI Engineering Services Ltd (AIESL), the foundation is being laid to establish India as a regional hub for military aviation maintenance.

Backed by policy reforms and a maturing industrial base, the sector's transformation over the next five years will feature new MRO facilities, increased induction of defence platforms for in-country maintenance, and a growing role of local suppliers supporting global defence original equipment manufacturers (OEMs).

The ‘prove-it’ phase

Nick Smythe, director of Air Mobility and Maritime Missions International Campaigns at Lockheed Martin, describes the coming five years as a “prove-it” phase for India's defence MRO capabilities. He also notes that the recent spate of announcements in the sector by global OEMs like Dassault Aviation, Boeing, and his own company are “lagging indicators” of years of planning and effort, aligning with the government’s ‘Make in India’ vision.

Lockheed, in partnership with TASL, plans to establish an MRO facility for the C-130J Super Hercules aircraft, with the first induction for maintenance scheduled for 2027. “This is the culmination of years of work. The conversations with the Indian Air Force (IAF) go back to 2019. Initially, it was easier to send aircraft outside India for maintenance, but the industrial setup here is now mature,” says Smythe. “The stable, consistent government vision allows us to do long-term planning. The number of assets and our throughput analysis justify the investments, making it clear that now is absolutely the right time to move forward. We are excited to partner with Tata to establish this capability.”

Lockheed's facility will also support the US government's regional support framework, ensuring military assets transiting through the Indo-Pacific theatre can undergo MRO within the region.

Boeing, too, is preparing to scale its operations in India. Salil Gupte, president of Boeing India and South Asia, emphasises the growing scope of MRO services for defence platforms. “The foundation for defence MRO expansion over the next five years is already in place. Critical and technical work, including heavy maintenance for commercial platforms like the 737 Max airliner, and defence platforms like the P-8I maritime patrol aircraft, is already being carried out in India. The focus now is on scaling these capabilities further,” he says.

Boeing in August announced a partnership with AIESL to enhance local MRO capabilities for the Indian Navy's 12 P-8I aircraft, providing in-country overhaul services for critical components. This collaboration has already achieved a milestone with the first P-8I landing gear maintenance at INS Rajali.

While precise figures are not yet available, investments in defence MRO during this period are expected to be substantial, likely in the multimillion-dollar range.

“The surge in defence MRO will enhance Indian suppliers’ capabilities for future co-production and co-development programmes. As new initiatives are launched, their role in MRO for specific systems, subsystems, and co-developed products will grow, further boosting India's contribution,” adds Gupte.

Prabhat Bhagvandas, chief executive officer (CEO) of Rosell Techsys Inc and advisor at Rossell Techsys Ltd, underscores the sector's potential, with the defence MRO market projected to expand at a compound annual growth rate (CAGR) of 8 to 10 per cent over the next five years. “With global OEMs like Boeing and Lockheed announcing plans to establish MRO facilities, Indian suppliers are well positioned to meet the rising demand for quality components, services, and local expertise,” he explains. Based in Bengaluru, Rossell Techsys supplies to leading OEMs like Boeing, Lockheed Martin, and Honeywell.

Ajay Kumar, former defence secretary, attributes the sector's current momentum to broader developments in aviation. “Growth in commercial and civil aviation MRO has helped scale up defence MRO. Along with this, tax reforms and policy support have contributed to the momentum,” he says, adding India has a chance to become a regional hub for both civil and defence aviation MRO.

India's MRO sector, spanning defence and civil aviation, is currently valued at $2 billion. On July 15, Union Civil Aviation Minister Kinjarapu Ram Mohan Naidu announced a uniform 5 per cent Integrated Goods and Services Tax (IGST) on all aircraft and engine components, effective immediately. He stated that the new policy would foster growth within the MRO sector, which he projected to grow to $4 billion by 2030.

Challenges ahead

Although the outlook is promising, some hurdles remain. Despite initiatives such as the National Civil Aviation Policy 2016, MRO Guidelines 2021, and GST rationalisation underscoring the government's commitment to developing India as a regional MRO hub, some concerns like infrastructure limitations, access to credit, streamlined licensing, and integration into global value chains still need to be addressed. Bhagvandas notes: "Resolving these issues is crucial for creating an enabling ecosystem that allows Indian MRO players to thrive on the global stage.”

Achieving the necessary scale to sustain operations is another challenge. Gupte highlights the importance of maintaining a steady base load for MRO facilities. “The next step is to further scale these capabilities, potentially through government-to-government agreements like a Reciprocal Defence Procurement agreement with the United States (US). Reaching the necessary scale will be vital for expanding MRO operations and maintaining a consistent workload for both commercial and defence sectors."

Towards a new era

Industry players highlight that the next five years will be pivotal for India's defence MRO sector as it transitions from planning to execution. Success will depend on the timely completion of facilities, efficient induction of platforms, and the ability to scale operations. Backed by strong policy support, strategic collaborations, and a growing local ecosystem, India possesses the building blocks to establish itself as a regional hub for defence aviation maintenance.

As Smythe summarises, “if we weren't confident in the cost profile, quality, and performance of these initiatives, we wouldn't be standing up this capacity. The ease of doing business and the strength of our local partnerships give us every reason to believe in the future of MRO in India.”

Recent Announcements

September 2024:

- Dassault Aviation announces it will create Dassault Aviation MRO India (DAMROI), a Noida-based subsidiary dedicated to military MRO for the IAF
- Lockheed Martin and TASL sign a teaming agreement to explore setting up an MRO facility in India for the IAF and global C-130J fleets

August 2024: Boeing and AIESL partner to provide in-country critical components MRO for the Navy's P-8I fleet

https://www.business-standard.com/external-affairs-defence-security/news/india-s-defence-mro-sector-set-to-take-off-over-the-next-five-years-124112300002_1.html

#SWARAJYA

Fri, 22 Nov 2024

A Deal For ATAGS Is The Kickstart Indian Army's Stalled Artillery Modernisation Programme Desperately Needs

For years, India's artillery modernisation programme has been a textbook example of how to delay progress despite having the right resources in place.

The much-talked-about Advanced Towed Artillery Gun System (ATAGS) seemed like the silver bullet to end the country's artillery woes, but in reality, it became emblematic of a much larger issue — an artillery jinx that simply refuses to lift.

It all started in 1986 when the Indian Army inducted the 155mm x 39 calibre Bofors FH-77B howitzers. Fast forward to 2017, and the ATAGS, hailed as an indigenous replacement for the aging artillery guns, made its grand debut at the Republic Day Parade, rolling down the Rajpath and filling the air with promises of a modernised, firepower-enhanced Indian Army. But alas, despite the fanfare, the ATAGS hasn't found its way into the Indian Army's artillery regiments.

The delay in the induction of the ATAGS isn't just a matter of misplaced priorities — it's a scandalous tale of bureaucratic lethargy, missed opportunities, and outdated thinking that has left the Indian Army's artillery regiments with a severe shortfall of modern equipment.

In 1999, the Indian Army's Field Artillery Rationalisation Plan (FARP) was conceived, with the ambitious goal of acquiring 2,800 155mm artillery guns by 2027.

Yet, as the Comptroller and Auditor General (CAG) report pointed out, the programme has been crawling along at a pace that could make a snail look like a sprinter.

As of now, only eight per cent of the total 2,800 guns have been acquired, and only 17 percent of the proposed guns have been delivered under the six proposals for the acquisition of new artillery systems. Yes, you read that correctly — a mere 17 per cent of the promised artillery pieces have been handed over to the Army.

The situation is not exactly one of quiet progress.

The Defence Research and Development Organisation (DRDO) has been ready for years, having developed the ATAGS to replace outdated guns, but the production factories were left idle. After multiple rounds of testing, trials, and even exports of the ATAGS to Armenia, the artillery guns continued to languish on the sidelines due to a lack of orders.

As late as March 2023, the Ministry of Defence (MoD) gave a half-hearted nod to procure 307 ATAGS guns. Meanwhile, various proposals, including ones for self-propelled artillery, have been dropped without a suitable replacement.

However, it seems that there might finally be some light at the end of this long tunnel of delays. Bharat Forge, one of the partners in the development of the ATAGS, has announced that it is in the final stages of contract negotiations with the MoD.

The deal, Bharat Forge has said, could be finalised before the end of the 2024-25 financial year, giving fresh hope to the artillery modernisation programme.

Bharat Forge had emerged as the lowest bidder for the Rs 7,000 crore contract, with the deal likely to be split between them and Tata Advanced Systems Limited (TASL) in a 60:40 ratio, as both companies were development partners for the ATAGS project.

The capabilities of the ATAGS are impressive — it boasts a range of 35 km with its Extended Range Sub-Bore Boat Tail (ERFB BT) ammunition and up to 45 km with its ERFB Base Bleed (BB) rounds.

In fact, in the 2017 trials, the ATAGS achieved a record-breaking range of 47 km.

It has also withstood the endless trials of the Indian Army. The ATAGS has proven its worth in firing exercises across diverse terrains — from the deserts of Rajasthan, on the border with Pakistan, to the cold heights of Sikkim, along the frontier with China.

The weapon’s ability to deliver intense rates of fire is another standout feature: it can launch 10 high-explosive shells in just 2.5 minutes and 5 rounds in 60 seconds as a burst. All of this makes it an incredibly lethal system that could give India a serious edge over its adversaries.

However, none of this matters if the procurement process continues to be stuck in the quagmire of inefficiency and endless delays.

The ATAGS could be the key to modernising the Indian Army’s artillery capabilities and finally fulfilling the promise of the FARP. But that is, of course, assuming the MoD doesn’t let it slip away into bureaucratic limbo once again.

While the CAG report may have embarrassed the MoD and the Indian Army, it has also highlighted the immense urgency of moving forward with this modernisation programme. As it stands, the country’s artillery regiments are still waiting for the full complement of new guns, leaving them dangerously under-equipped in an increasingly volatile geopolitical environment.

The reality is that the ATAGS could represent more than just a technical upgrade — it could be a turning point for the entire artillery acquisition programme.

There can't be a clearer sign of progress for India’s "Make in India" defense initiative than an indigenous system, developed through collaboration between state-owned and private sectors, making its way into the armed forces to fulfil a critical shortfall.

https://swarajyamag.com/defence/a-deal-for-atags-is-the-kickstart-indian-armys-stalled-artillery-modernisation-programme-desperately-needs

नवभारत टाइम्स

Mon, 25 Nov 2024

क्या होता है फ्रिगेट और डिस्ट्रॉयर में अंतर? इंडियन नेवी में कमीशन की तैयारी

इंडियन नेवी को इसी साल नीलगिरी क्लास का पहला गाइडेड मिसाइल फ्रिगेट नीलगिरी मिल जाएगा। इसका वजह 6670 टन है और इसमें आठ ब्रह्मोस मिसाइलें लगी हैं। इसके साथ ही अगले कुछ महीने में रूस में बन रहा तलवार क्लास के तीसरे बैच का पहला गाइडेड मिसाइल फ्रिगेट भी नेवी में शामिल हो जाएगा। दो फ्रिगेट के साथ ही नेवी को अगले कुछ महीने में एक डिस्ट्रॉयर भी मिलेगा।

विशाखापट्टनम क्लास का चौथा और आखिरी गाइडेड मिसाइल डिस्ट्रॉयर इंडियन नेवी में कमिशन होगा। यह डिस्ट्रॉयर 7400 टन वजन का है और इसमें ब्रह्मोस मिसाइल लगी हैं। जो लंबी दूरी तक मार करने वाली मिसाइल है। इसमें 32 बराक मिसाइल भी हैं, जो 100 किलोमीटर दूर तक मार कर सकती हैं। साथ ही दुश्मन की सबमरीन से निपटने के लिए रॉकेट और टारपीडो भी हैं।

दोनों ही हैं वॉरशिप

फ्रिगेट और डिस्ट्रॉयर दोनों ही वॉरशिप हैं। लेकिन फ्रिगेट और डिस्ट्रॉयर में साइज का तो फर्क है ही, इसके साथ ही क्षमता का भी फर्क है। फ्रिगेट साइज में कुछ छोटा होता है और फ्रिगेट के मुकाबले डिस्ट्रॉयर करीब डेढ़ गुना बढ़ा होता है। फ्रिगेट किसी एक तरह के रोल के लिए सबसे ज्यादा उपयुक्त होता है और बाकी रोल में इसका इस्तेमाल रक्षात्मक भूमिका में करते हैं। जबकि डिस्ट्रॉयर में एक साथ कई रोल निभाने की क्षमता है।

इसे एंटी सबमरीन, एंटी शिप या फिर एंटी एयरक्राफ्ट के तौर पर भी इस्तेमाल कर सकते हैं और यह सभी में उतना ही सटीकता से अपना रोल निभाता है।

कोरवेट साइज में फ्रिगेट से भी छोटा होता है। इससे मल्टीपल टास्क नहीं कर सकते। जैसे एक कोरवेट अगर एंटी सबमरीन है तो उसमे एंटी एयर की कैपिसिटी नहीं होगी। फ्रिगेट अगर एंटी सबमरीन है तो वह कुछ हद तक एंटी एयर का भी काम कर सकता है, लेकिन उस तरह नहीं जिस तरह डिस्ट्रॉयर काम कर सकता है।

डिस्ट्रॉयर एक साथ सभी टास्क में पूरी तरह फिट होता है। साइज के हिसाब से सबसे छोटे कोरवेट होते हैं, फिर फ्रिगेट और सबसे बड़े डिस्ट्रॉयर। नेवी के पास कमोर्ता क्लास, कोरा क्लास और खुखरी क्लास कोरवेट हैं। कमोर्ता क्लास कोरवेट पहले एंटी सबमरीन वॉरफेयर स्टेल्थ (जो दुश्मन की नजर से बच सकते हैं) कोरवेट हैं, जिसे इंडियन नेवी ने प्रोजेक्ट-28 के तहत डिजाइन किया। इसमें 90 पर्सेंट स्वदेशी कंटेंट है।

https://navbharattimes.indiatimes.com/india/indian-navy-to-get-powerful-warships-soon-nilgiri-frigate-talwar-frigate-and-visakhapatnam-destroyer/articleshow/115642180.cms

नवभारत टाइम्स

Mon, 25 Nov 2024

INS विक्रांत अब बढ़ा रहा Navy की शान,कैरियर बैटल ग्रुप के साथ जुड़ा भारत का स्वदेशी एयरक्राफ्ट कैरियर

भारत का पहला स्वदेशी एयरक्राफ्ट कैरियर INS विक्रांत अब कैरियर बेटल ग्रुप के साथ ऑपरेट कर रहा है। जब विक्रांत को इंडियन नेवी में कमिशन किया गया, तब उससे हर कंडीशन में फ्लाइट ऑपरेशन किए गए। यानी उससे फाइटर और हेलिकॉप्टर उड़ाकर और लैंड कराकर देखे गए। सारे टेस्ट के बाद INS विक्रांत ने फ्लीट जॉइन कर ली है।

क्या है फ्लीट जॉइन

फ्लीट जॉइन का मतलब होता है कि अब यह एयरक्राफ्ट कैरियर फ्लीट के साथ ऑपरेट कर रहा है और असली ऑपरेशंस में शामिल हो गया है। यह इसे फ्लीट के साथ इंटीग्रेट करने की प्रक्रिया का हिस्सा है। कैरियर बेटल ग्रुप (सीबीजी) में 5 वॉरशिप, सबमरीन से लेकर 15 वॉरशिप, सबमरीन तक होते हैं।

यह अलग-अलग ऑपरेशन के हिसाब से तय होता है। सीबीजी में एयरक्राफ्ट कैरियर के दो अहम रोल होते हैं। फाइटर जेट इसका इस्तेमाल कर दुश्मन पर अटैक कर सकते हैं। साथ ही अपनी फ्लीट को एरियल डिफेंस देते हैं।

नेवी को तीसरे एयरक्रॉफ्ट करियर की जरूरत

नेवी के पास इस वक्त दो एयरक्राफ्ट कैरियर हैं। INS विक्रमादित्य और INS विक्रांत। नेवी को तीसरे एयरक्राफ्ट कैरियर की भी जरूरत है। जिससे जब एक एयरक्राफ्ट कैरियर रीफिट के लिए जाए तो उस वक्त भी नेवी के पास दो एयरक्राफ्ट कैरियर संचालन में हों।

नेवी के दोनों एयरक्राफ्ट कैरियर में स्टोबार (शॉर्ट टेकऑफ बट अरेस्टेड रिकवरी) सिस्टम है। ये एयरक्राफ्ट को एयरक्राफ्ट कैरियर से टेकऑफ करने के लिए मदद करने वाला सिस्टम है।

जमीन पर किसी भी रनवे को ऐसे सिस्टम की जरूरत नहीं होती क्योंकि रनवे की लंबाई ज्यादा होती है और एयरक्राफ्ट का इंजन रनवे पर दौड़कर ही इतना फोर्स पैदा कर देता है कि एयरक्राफ्ट टेकऑफ हो जाता है। स्टोबार में डेक का आगे का हिस्सा उठा हुआ होता है।

इसे स्की जंप कहते हैं। इससे जब एयरक्राफ्ट डेक छोड़ता है तो यह ऊपर की तरफ जंप करता है इससे एयरक्राफ्ट को शुरू में हाइट लेने में मदद मिलती है फिर एयरक्राफ्ट का इंजन जरूरी फोर्स पैदा कर देता है और एयरक्राफ्ट आराम से टेकऑफ हो जाता है।

दूसरा सिस्टम होता है कैटोबार। इसका मतलब है कैटापुल्ट असिस्टेड टेक ऑफ बट अरेस्टेड रिकवरी। इसमें कैरियर का डेक पूरा फ्लैट होता है। कैटोबार सिस्टम एयरक्राफ्ट की पेलोड कैपिसिटी बढ़ा देता है यानी एयरक्राफ्ट कैरियर से टेकऑफ करने वाला एयरक्राफ्ट ज्यादा विस्फोटक या सामग्री साथ ले जा सकता है। अमेरिका की नेवी के पास ज्यादातर एयरक्राफ्ट कैरियर कैटोबार सिस्टम वाले हैं।

https://navbharattimes.indiatimes.com/india/ins-vikrant-boost-to-indian-nevy-power-operations-begin-with-carrier-battle-group/articleshow/115587416.cms

THE WEEK

Sat, 23 Nov 2024

Pakistan unveils 'game-changer' AM350S radar system. Is this a breakthrough or just smoke and mirrors?

At the International Defence Exhibition and Seminar (IDEAS) 2024 of Pakistan, which was held from November 19 to 22 in Karachi, a long-range air surveillance radar system, being billed as a game-changer for the country for monitoring airspace and foreseeing enemy attacks, was introduced. The event was organsied by the Defence Export Promotion Organization (DEPO) under the Ministry of Defence Production.

The domestically developed AM350S radar system, with a range of 350 kilometers is expected to help the country reduce its dependency on imported radar systems for surveillance.

According to media reports, this is a collaborative effort between the National Radio Telecommunication Corporation (NRTC) and private sector player Blue Search Pvt Ltd, headed by Awais Rauf. The radar, which is mounted on a mobile platform, allows for quick deployment anywhere.

Rauf observed that drones and ultra-high-speed missile systems have changed the modern warfare as evinced by the Russia-Ukraine war or conflicts in other parts of the world. And hence, radar becomes an important tool in anticipating missile attacks and monitoring borders.

AM350S represents a shift that Pakistan is witnessing toward self-reliance in defence sector. According to Rauf, a few "friendly" countries have already shown interest in the radar.

Currently, the design details of the radar and whether it incorporates any foreign technology are not available, leading to some skepticism regarding the announcement. Besides, the company has a scant digital presence, leading many to question if this was just another hyped project.

https://www.theweek.in/news/defence/2024/11/23/pakistan-unveils-game-changer-am350s-radar-system-is-this-a-breakthrough-or-just-smoke-and-mirrors.html

THE WEEK

Sat, 23 Nov 2024

Military might of China, Pakistan on full display at the Pak defence expo and seminar

Several high-end military equipment by Chinese companies, including HQ-16FE (LY-80B) medium- and long-range air defense missile weapon system, the GL6 active protection system, HZT24B tracked impact bridge, and CHL-906 key area protection radar reconnaissance and

jamming system were on display at the 12th International Defense Exhibition and Seminar (IDEAS 2024) in Pakistan. Defence companies and military delegates from over 50 countries attended the biennial event which took place from November 19 to 22.

The Chinese companies that were at the expo included China National Precision Machinery Import & Export Corporation, China Shipbuilding Trading Co., Ltd, China Aerospace Long March International Trading Co., China North Industries Corp, ELINC China Co., Ltd, and China National Aero-Technology Import & Export Corporation.

Delegates from the US, the UK, Iran, Italy, and Russia were among those who attended the event, organsied by Defence Export Promotion Organisation (DEPO).

Pakistani weapons at the expo

From the indigenous Haider Main Battle Tank (MBT), developed by Pakistan's Heavy Industries Taxila (HIT) in collaboration with China's North Industries Corporation, medium-altitude long-endurance Shahpar III drone to Lightweight military trainer aircraft Super Mushshak, an array of weapons owned by Pakistan were on display at the expo.

Main battle tanks (MBT) Al-Khalid and Al-Zarrar were among the weapons on display at the event. A newly developed long-range 3D surveillance radar was also among the highlights at the exhibition. Another main event at the expo was a seminar titled 'Pakistan Defence Production Potential — Challenges, Opportunities, and Way Forward'.

https://www.theweek.in/news/defence/2024/11/23/military-might-of-china-pakistan-on-full-display-at-the-pak-defence-expo-and-seminar.html

THE WEEK

Fri, 22 Nov 2024

Understanding adjusted Nuclear Deterrence Strategy of the US to counter China, Russia

The US Defense Department announced that owing to multiple nuclear competitors challenging America and its allies, the department, in partnership with the National Nuclear Security Administration, has taken steps to enhance the country's nuclear deterrence and flexibility.

According to Deputy Assistant Secretary of Defense for Nuclear and Countering Weapons of Mass Destruction Policy (N-CWMD) Richard C. Johnson, several nuclear peer adversaries are growing, diversifying and modernising their nuclear arsenals, underscoring the role that nuclear weapons play in their national security strategies.

This evolving security environment—especially with countries like Russia and China enhancing their nuclear capabilities—necessitates that the US makes adjustments to its 2022 Nuclear Posture Review (NPR) to sustain the ability to achieve nuclear deterrence, according to Johnson.

The current nuclear framework of the US is largely shaped by the 2022 NPR, and reflects a balance between deterrence, modernisation, and arms control commitments. Reiterating that the US remains committed to a safe, secure, and reliable nuclear deterrent, Johnson argued that the nuclear modernisation programme of record may be insufficient moving forward.

One of the initiatives taken by the DOD in enhancing the nuclear deterrence capability is the B61-13 gravity bomb as well as the increased readiness of nuclear armed and powered Ohio-class submarines.

The Department of Energy's National Nuclear Security Administration would produce the B61-13, which is a modern variant of the B61. The B61-13 gravity bomb, delivered by aircraft, seeks to offer enhanced military options against specific high-value targets that are deemed harder to eliminate with existing weapons.

A report submitted by the department to the Congress directs that the US:

"*Plans to deter multiple nuclear-armed adversaries simultaneously.

*Requires the integration of non-nuclear capabilities, where feasible, to support the nuclear deterrence mission.

* Stresses the importance of escalation management in US planning for responding to limited nuclear attack or high-consequence, non-nuclear strategic attack.

* Enables deeper consultation, coordination and combined planning with allies and partners in order to strengthen US extended deterrence commitments."

"To be prepared for the 2030s, we have to modernize our nuclear forces, the nuclear command and control, and the associated infrastructure that will allow us to be flexible and adjust over time as new challenges arise, whether that's new threats or potential changes or delays in our modernization," vice deputy director for strategic stability at the Joint Staff Grant Schneider said.

https://www.theweek.in/news/defence/2024/11/22/understanding-adjusted-nuclear-deterrence-strategy-of-the-us-to-counter-china-russia.html

The EurAsian Times

Sun, 24 Nov 2024

China Takes A 'Giant Leap' In Unmanned Tech; Unveils New 'Robo Lynx' That Can Perform Tough Tasks In Harsh Terrain

China has unveiled the "Lynx" advanced quadruped robot designed for rugged, off-road environments. It can navigate extreme terrain at high speeds and perform stunts like backflips and

sharp turns, enhancing its utility in real-world applications like disaster response, combat situations, and exploration.

Designed by the Chinese company Deep Robotics, the robot is significant in China's broader strategy of embracing unmanned warfare.

Lynx Robot

Deep Robotics, founded in 2017, has made a name for itself with its innovative quadruped robots. The Lynx represents a leap forward in terms of versatility and performance. Its all-terrain wheels allow it to cover uneven ground easily.

Thanks to its waterproof design, it can operate in challenging conditions, including temperatures ranging from -20°C to 55°C and even in wet environments.

The Lynx can autonomously navigate challenging environments for up to 4 hours on a single charge. This robot has garnered attention for its practical applications in search and rescue, mapping, inspection, and potential military uses.

Possible Military Application

The Lynx robot by Deep Robotics, with its rugged capabilities, mobility, and autonomous navigation of extreme terrains, presents several potential military applications.

These features make it suitable for various tactical and logistical operations in military contexts, from reconnaissance missions in complex environments to providing logistical support in combat zones.

Reconnaissance and Surveillance: The Lynx's ability to traverse complex environments— such as rough, mountainous terrain or urban rubble—makes it ideal for reconnaissance missions. Its autonomous navigation capabilities allow it to gather intelligence in areas that are too dangerous or difficult for human soldiers to access, providing real-time data without risking lives

Logistical Support: The robot's capacity to carry heavy loads and its off-road agility make it a potential asset in logistical operations, particularly in combat zones. It could transport supplies, ammunition, and equipment across uneven terrain, ensuring that military units are well-supplied in challenging environments.

Search and Rescue Operations: Given its versatility and ability to function in extreme conditions, the Lynx could be used in military search and rescue operations. It can be deployed in environments where traditional vehicles may struggle, such as collapsed buildings or hazardous zones after combat.

Explosive Ordnance Disposal (EOD): The robot's agility, ability to handle rough terrain, and precision could make it a valuable tool in EOD operations. It would allow military personnel to remotely detect and disarm explosives in hostile areas without exposing humans to danger.

The Lynx's robust design and all-terrain features lend it to military applications. As with many advanced robotic systems, its military potential could be seen as a means to reduce human casualties and enhance combat capabilities.

Future Warfare With Unmanned Systems

Unmanned systems, including unmanned aerial vehicles (UAVs) and unmanned ground vehicles (UGVs), are rapidly transforming modern warfare.

With technological advancements, these systems have moved from the periphery of military operations to the forefront, providing unprecedented surveillance, reconnaissance, logistics, and combat capabilities.

This article explores the tactical applications of unmanned systems in future warfare, illustrated with examples, insights from military experts, and a look at the implications for global security.

The Evolution Of Unmanned Systems

The concept of unmanned systems is not new; however, their application has dramatically evolved over the past two decades. Initially utilized primarily for reconnaissance missions during the Cold War, UAVs gained prominence in the 1990s and early 2000s, particularly in the U.S. military's operations in the Middle East.

The 2001 invasion of Afghanistan and the subsequent Iraq War marked a turning point where UAVs like the MQ-1 Predator and MQ-9 Reaper became integral to combat operations, enabling real-time intelligence gathering and targeted strikes without risking pilot lives.

A 2021 U.S. Defence Innovation Board report states, "Unmanned systems are reshaping how wars are fought, enabling forces to conduct operations with greater precision, efficiency, and reduced risk to personnel."

Tactical Applications Of Unmanned Aerial Vehicles (UAVs)

Surveillance and Reconnaissance: One of the primary applications of UAVs is for surveillance and reconnaissance missions. The ability to gather intelligence over vast areas without risking human life is invaluable. For example, during the 2012 conflict in Mali, French forces employed UAVs to monitor enemy movements and gather intelligence on insurgent groups. This enabled precise ground operations planning, significantly improving their forces' effectiveness.

Precision Strikes: UAVs have also become crucial in delivering precision strikes against high-value targets. The use of drones for targeted killings has been a controversial yet effective tactic. Israel's use of UAVs in conflicts, such as the 2006 Lebanon War, demonstrated the effectiveness of drones in both surveillance and combat roles. The Israeli Air Force's use of the Heron and Hermes UAVs allowed for persistent monitoring and targeted strikes, significantly impacting Hezbollah's capabilities.

Logistics and Resupply: Unmanned systems are also revolutionizing military logistics. The U.S. Army has begun to deploy UAVs for logistical support, delivering supplies to frontline troops. This capability was notably highlighted during the 2020 Nagorno-Karabakh conflict, where Azerbaijani forces utilized UAVs not only for combat but also for logistical operations, effectively resupplying troops in the field while minimizing the risk of ground convoys being attacked.

Tactical Applications Of Unmanned Ground Vehicles (UGVs)

Combat Support and Logistics: Unmanned ground vehicles (UGVs) are increasingly integrated into combat operations. These systems can perform various tasks, including surveillance, logistics, and direct enemy forces engagement.

The U.S. Army's Robotic Combat Vehicle (RCV) program exemplifies this trend, as it aims to develop UGVs that can operate alongside manned units to enhance combat effectiveness. The UGVs deployed in recent military exercises have demonstrated their ability to scout ahead of troop formations, providing critical intelligence without endangering soldiers.

Counter-Improvised Explosive Device (C-IED) Operations: UGVs are particularly effective in counter-IED operations, where they can safely detect and disarm explosive devices. The U.S. military has employed systems like the PackBot and Talon, successfully reducing casualties among dismounted troops. During operations in Afghanistan, UGVs were instrumental in clearing routes for ground convoys by detecting and neutralizing IED threats.

Humanitarian Assistance and Disaster Relief (HADR): UGVs are also involved in humanitarian assistance and disaster relief operations. In the aftermath of natural disasters, these vehicles can be deployed to assess damage, locate survivors, and deliver supplies. For instance, after the 2011 earthquake and tsunami in Japan, UGVs were used to navigate debris and assess the condition of affected areas, demonstrating their versatility beyond traditional military applications.

Future Warfare And The Role Of Unmanned Systems

As warfare continues to evolve, the role of unmanned systems will only expand. Integrating artificial intelligence (AI) and machine learning into unmanned systems will enhance their capabilities, enabling them to operate autonomously in complex environments. This shift toward autonomy presents both opportunities and challenges for military planners.

Enhanced Decision-Making: Integrating AI into unmanned systems will improve decision-making in combat scenarios. AI algorithms can analyze vast amounts of data from multiple sources, providing commanders with actionable intelligence and recommendations for operations. The future battlefield will be defined by speed and the ability to process information faster than the enemy.

Ethical Considerations: However, the increasing reliance on unmanned systems raises significant ethical questions. The use of drones for targeted killings has sparked debate over accountability and the rules of engagement. As military operations become more automated, the question of human oversight becomes critical. Experts argue that while unmanned systems can enhance operational efficiency, they must be governed by strict ethical guidelines to prevent misuse and collateral damage.

Global Security Implications: The proliferation of unmanned systems is reshaping global security dynamics. As countries like China and Russia invest heavily in their drone capabilities, the balance of power is shifting. The use of UAVs in conflicts such as the Syrian Civil War and the ongoing tensions in the South China Sea highlights the strategic importance of these systems in contemporary military strategies.

China's Investment In Unmanned Systems

China has heavily invested in unmanned systems as part of its broader goal to modernize its military and lead in technological innovation. These investments are spread across several key sectors, including unmanned aerial vehicles (UAVs), unmanned underwater vehicles (UUVs), and unmanned surface vessels (USVs). These technologies have military, commercial, and strategic implications that extend beyond China's borders.

Unmanned Aerial Vehicles (UAVs): China is a global leader in UAV technology, mainly through the success of companies like DJI, which dominate the global drone market, controlling up to 70% of the worldwide share. China's military has also developed advanced UAVs, including surveillance, reconnaissance, and strike capabilities. The Wing Loong series, for example, is a family of Chinese UAVs designed for intelligence gathering and targeted strikes. These UAVs are being developed for domestic consumption and export purposes, making China a significant player in the global defense drone market.

Unmanned Surface Vessels (USVs): China is making significant strides in developing USVs, which are used for surveillance, reconnaissance, and mine detection. These unmanned vessels are seen as cost-effective alternatives to manned naval operations, offering the ability to patrol contested waters like the South China Sea without risking human life. USVs also help maintain a constant presence in strategic maritime regions. These vessels align with China's broader naval ambitions to assert its presence and power projection capabilities in the Indo-Pacific.

Unmanned Underwater Vehicles (UUVs): China's investment in UUVs has been critical to its maritime strategy, particularly in the South China Sea and other key waterway areas. These vehicles are essential for underwater surveillance, anti-submarine warfare, and potentially offensive operations against rival naval forces. China's UUV technology has evolved to encompass various capabilities, from scientific exploration to military applications, such as the Haisi underwater vehicle series.

Strategic and Military Applications: China's investments are strategically aimed at bolstering its military capabilities, enhancing its surveillance capabilities, and reducing operational risks. By focusing on unmanned systems, China can maintain a technological edge in surveillance, reconnaissance, and potential combat operations. The country's Military-Civil Fusion policy further accelerates the integration of civilian technological advances into the military, making these unmanned systems even more pivotal for national defense and global influence.

Global Influence And Export Strategies

China's dominance in the unmanned systems market has implications for its foreign policy and international influence. While Western countries like the U.S. have stricter export controls on unmanned systems, China's more flexible approach allows it to export these technologies widely, especially to developing countries.

This has led to China's increasing presence in markets previously dominated by Western companies, positioning it as a critical player in the global defense and technology sectors. China's strategic investments in unmanned systems are part of a broader national ambition to lead in defense technology while reducing reliance on traditional military platforms.

The country's dominance in the drone market and advancements in USVs and UUVs make unmanned systems a cornerstone of China's military modernization efforts and broader geopolitical ambitions. These investments strengthen China's defense capabilities and enhance its influence across global markets, particularly in rising geopolitical tensions in the Indo-Pacific and other strategic regions.

The increasing use of unmanned systems by state and non-state actors presents a new paradigm in warfare, challenging traditional military doctrines and necessitating a re-evaluation of defense strategies.

As nations continue to develop and deploy unmanned systems, it is imperative to balance leveraging their capabilities and ensuring accountability in their use. These technologies will undoubtedly shape the future of warfare, making it essential for military leaders and policymakers to understand their implications for global security.

https://www.eurasiantimes.com/warfare-china-unveils-robot-wolves-that/

The EurAsian Times

Sun, 24 Nov 2024

AI-Powered Aircraft Set To Transform U.S. Air Force Ops; Lockheed Tests AI-Human Pairing In Simulated Mission

Lockheed Martin Skunk Works has achieved a key milestone in integrating artificial intelligence (AI) with air combat operations, successfully demonstrating a crewed-uncrewed teaming mission.

The announcement, made on November 21, demonstrated how an airborne battle manager issued real-time commands to AI-controlled aircraft through a touchscreen pilot vehicle interface (PVI).

The project, carried out in collaboration with Lockheed Martin's Demonstrations and Prototypes organization and the University of Iowa's Operator Performance Laboratory (OPL), simulated a complex offensive counter-air mission.

In these flight tests, a human battle manager aboard an L-39 Albatros assigned targets to two AI-controlled L-29 Delfin jets. The AI-powered jets worked in tandem to neutralize two mock enemy aircraft using simulated mission systems and weapons.

This success builds on Skunk Works' earlier efforts to test AI-driven autonomy for aerial missions. Earlier this year, in partnership with OPL, the team demonstrated the use of AI in air-to-air intercept scenarios.

They successfully conducted simulated-to-real transfer test objectives against a virtual adversary, showcasing AI's offensive and defensive maneuvers capabilities.

In September 2023, the teams piloted Aero Vodochody L-29 aircraft as surrogates for uncrewed systems to demonstrate AI-directed jamming support during a simulated air-to-ground mission.

Meanwhile, Lockheed Martin stated that the latest tests represent a step forward in advancing AI mission performance in operationally realistic environments. By adhering to open mission systems standards, the company ensures compatibility and adaptability with various platforms.

This latest demonstration is the third test of its kind and the first to involve real-time human oversight of AI actions. It also builds on earlier experiments that showcased AI-controlled air-to-ground jamming.

Lockheed Martin views these advancements as critical for the future of air combat, where crewed and uncrewed systems will collaborate to execute intricate missions.

With AI commanding the planes' autopilots and a human battle manager providing oversight, this milestone underscores the potential of human-AI collaboration in redefining aerial warfare strategies.

AI-Powered Aircraft Set To Transform US Air Force Operations

Artificial intelligence (AI) is emerging as one of the key breakthroughs in military aviation, rivaling the impact of stealth technology introduced in the 1990s. The US Air Force (USAF) is aggressively advancing this capability, aiming to field a fleet of more than 1,000 AI-enabled unmanned aircraft by 2028.

Multiple factors drive the transition to AI-powered systems, including heightened security concerns, cost-effectiveness, and the need for tactical advantages.

A major milestone in AI's integration occurred last year when the X-62A, a modified F-16 test jet, operated autonomously in a landmark dogfight against a piloted F-16.

The X-62A, officially called the Variable-stability In-flight Simulator Test Aircraft (VISTA), has become an essential platform for testing cutting-edge technologies.

Its unique ability to mimic the flight characteristics of various aircraft enables it to serve as a surrogate for diverse experiments. Since 2022, DARPA, working with the Air Force and Lockheed Martin, has embedded machine-learning algorithms into the X-62A.

These AI "agents" successfully directed the aircraft during autonomous flight tests, a feat first achieved in late 2022 and publicly disclosed in early 2023.

Despite these advancements, concerns remain about the extent of AI autonomy, especially in scenarios involving lethal weapon use. Critics argue that allowing AI to make life-and-death decisions without adequate human oversight could lead to unintended consequences.

In response, USAF officials have assured that human operators will maintain ultimate authority in weapon deployment and ensure ethical safeguards are in place.

The USAF's strategic shift toward unmanned systems is also influenced by budgetary constraints. The F-35 Joint Strike Fighter program has been hampered by production delays and escalating costs, now estimated at US$1.7 trillion.

AI-controlled aircraft offer a practical alternative to traditional fighter jets. Looking ahead, the USAF envisions swarms of unmanned aircraft conducting preemptive strikes against enemy defenses, creating safer and more effective pathways for crewed aircraft to follow.

This strategy minimizes risks to human pilots and provides a significant advantage in penetrating contested airspace.

The service consistently enhances AI mission performance in realistic simulated environments, utilizing open mission systems standards to guarantee wide compatibility and a swift transition to future platforms.

As the USAF advances its integration of AI, it is also seeking to balance innovation with responsibility to ensure these technologies are deployed ethically and strategically.

https://www.eurasiantimes.com/martin-tests-ai-human-teaming-in-simulated/

Science & Technology News

Press Information Bureau
Government of India

Ministry of Science & Technology

Sat, 23 Nov 2024

From being led, India in a position to lead, says S& T Minister

Dr. Jitendra Singh Honours Four Eminent Scientists with Doctorates at 8th Convocation of AcSIR

Says AcSIR only one of its kind in India, Exemplifies NEP 2020 with Revolutionary Academic Flexibility

Global Collaborations Validate AcSIR's Academic Excellence and India's Scientific Competitiveness: Dr. Jitendra Singh

Union Minister of State (Independent Charge) for Science and Technology; Earth Sciences and Minister of State for PMO, Department of Atomic Energy, Department of Space, Personnel, Public Grievances and Pensions, Dr. Jitendra Singh said here today that from being led, India is today in a position to lead others across the world and this is amply borne out by recent success stories

accomplished under PM Sh Narendra Modi including Space sector headway, Biotechnology Vaccine breakthroughs and CSIR Purple Revolution.

The Union Minister was addressing the 8th Convocation of "Academy of Scientific & Innovative Research", possibly the only one of its kind in India.

On the occasion, Dr Jitendra Singh presented Doctor of Science degrees to four renowned scientists - Dr. Raghunath A. Mashelkar, Prof. Samir K. Brahmachari, Prof. Suresh Bhargava and Dr.Thirumalachari Ramasami, during the 8th convocation of the Academy of Scientific and Innovative Research (AcSIR), recognizing their groundbreaking contributions to science and technology.

A celebrated figure in polymer science and engineering, Dr. Mashelkar was honoured for his pioneering research and exceptional leadership. Recognized as a trailblazer in genomics, Prof. Brahmachari was awarded for his work on repetitive DNA's role in health and disease. Prof. Bhargava received the honour for his groundbreaking contributions to chemical sciences and engineering. Dr. Ramasami was lauded for his seminal research in chromium chemistry, which has led to innovative products and processes in academia and industry.

Addressing graduating scholars, Dr. Jitendra Singh highlighted AcSIR's role in fostering interdisciplinary learning, promoting industry-academia collaboration, and driving India's ascent in global science and technology rankings. The Minister called the institution's futuristic academic approach a cornerstone for achieving Prime Minister Narendra Modi's vision of a "Viksit Bharat 2047."

The Minister commended AcSIR for ranking among the top 3% of global universities despite being a relatively young institution. He attributed this success to its innovative model, which blends diverse disciplines such as engineering, biosciences, and information sciences with emerging fields like medical research and agriculture.

"AcSIR is not just an academic institution; it's a torchbearer of a new academic culture in India," he said, adding that its partnerships with 82 institutions, including CSIR, ICMR, and DST, exemplify effective collaboration in research and development.

The Minister highlighted AcSIR's role in promoting India's burgeoning startup culture, particularly through its innovative Integrated PhD (iPhD) program. "iPhD links innovation, imagination, and industry right from the start of research journeys, ensuring sustainable startups," he said. He tied these efforts to India's meteoric rise in the global innovation ecosystem, moving from 81st to 40th in the Global Innovation Index under the Modi government.

Dr. Jitendra Singh also spotlighted success stories in emerging areas like space and biotechnology. India has progressed from a single-digit count of space startups to over 300, while the biotechnology sector now boasts nearly 9,000 startups, contributing significantly to the country's economy.

He celebrated the accomplishments of women in science, noting the historic appointment of CSIR's first woman Director General. "India's woman power has always been the foundation of great achievements, but it is now receiving the recognition it deserves," the Minister stated.

Dr. Jitendra Singh emphasized that AcSIR embodies the principles of the National Education Policy 2020, offering students unparalleled flexibility in their academic pursuits. He shared anecdotes of students combining unconventional subjects like biotechnology and economics, calling it a revolutionary step in Indian education.

He also linked AcSIR's mission to the government's futuristic policies, including the recent BioE3 Biotechnology policy and advancements in quantum technology. "India no longer waits to adopt global technologies; we are now leading their development," he declared.

AcSIR's collaborations with world-renowned institutions such as the University of Western Australia and AIST Japan were highlighted as benchmarks of its academic excellence. The Minister noted that these partnerships validate the global competitiveness of Indian science and education.

The convocation at AcSIR reflected India's growing scientific prowess and the government's commitment to fostering a knowledge-driven economy. By blending innovation, entrepreneurship, and academic excellence, institutions like AcSIR are not only transforming education but also shaping India's path to becoming a global leader in science and technology. Dr. Jitendra Singh's address underscored this vision, reinforcing the nation's ambition to achieve "Viksit Bharat 2047" and usher in an era of sustainable development and innovation.

The event witnessed the participation of eminent dignitaries, including Prof. Ajay Kumar Sood, Principal Scientific Advisor, Government of India; Prof. N. Kalaiselvi, Director General, CSIR & Secretary, DSIR; Prof. Rajiv Bahl, Director General, ICMR & Secretary, DHR and Prof. P. Balaram, Chancellor, AcSIR, who presided over the ceremony.

https://pib.gov.in/PressReleasePage.aspx?PRID=2076297

Press Information Bureau
Government of India

Ministry of Science & Technology

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Veil of fiery gas revealed around the disc of Milky Way

Scientists may have finally hit upon the possible mysterious sources that have pumped heat and kept alive the fiery hot gas which has been recently detected but has remained unexplained, so far. There is more gas than stars in our galaxy. The prevailing, massive gas reserve is the main source for star formation in our galaxy. The availability of such abundant gas helped sustain this process till date. However, because of its tenuous nature, astronomers have found it extremely difficult to see, let alone measure the volume of this gaseous matter.

But a few decades ago, studies established the presence of gaseous matter surrounding our galaxy, the Milky Way. It was found that the galaxy was surrounded by a large sphere of gas which was a few million degrees Kelvin hot. This sphere of gas extended to 700 thousand light years. Such high

temperatures, researchers said, could be associated with the gravity of the Milky Way, as atoms would have to constantly swirl around in order to rescue itself from falling prey to the galaxy's strong gravity. But what further intrigued the scientific community, in the more recent years, was the discovery of gaseous matter which was even hotter than what was known previously. This latest discovered gaseous matter was pitched to be around ten million degrees Kelvin. Faint X-ray emissions were found in all directions of the Milky Way that bore a strong signature of a super-hot gas. At the same time, this gas also showed up in the spectra of at least three distant quasars, as an absorbing medium.

A keenly studied research area emerged, and, since then, astronomers have been trying to find clues and links to the sources that was pumping heat and keeping alive the fiery hot gas. Scientists at the Raman Research Institute (RRI), an autonomous institute funded by the Department of Science and Technology (DST), Government of India, along with their collaborators at IIT-Palakkad and Ohio State University, have detailed about the mysterious source through their proposed model in two related studies.

They have confirmed that the gas responsible for emitting and absorbing the signals detected by astronomers were not the same. Instead, the X-ray emitting hot gas was caused by a puffed-up region around the stellar disc of the Milky Way. Since there is a continuous on-going star formation at various regions across the disk of the Milky Way, the massive stars in these regions explode as supernovae, and heat the gas around the disk to high temperatures.

"As such, explosions keep heating up the gas floating around the disc of the Milky Way and they enrich the gaseous matter with elements synthesized within massive stars," said Mukesh Singh Bisht, PhD student at RRI. As this turbulent gas is swept up from the disc and swirls around violently, it either escapes into the surrounding medium or cools and falls back onto the disc. In the case of absorption studies, along with the superhot temperatures that the vast gaseous matter possessed, its elemental composition, too, surprised the astronomers. This absorbing hot gas was found to be enriched with α-elements.

"This fiery gas, at least in a few directions, seems to be enriched with large quantities of α-elements, such as Sulphur, Magnesium, neon etc., whose nuclei are nothing but multiples of Helium nuclei. This is a vital clue of nuclear reactions occurring within the stellar core. These elements are thrown out of massive stars during supernovae explosions," explained Biman Nath, faculty, RRI, and one of the contributory authors in both the papers.

Even though there are thousands of run-away stars that get constantly ejected out of the Milky Way disc, when some of them which may hover above the stellar disc explode as supernovae, they potentially create a puff of α-enriched and fiery gas around them. "If they fall in line with the direction of distant sources of light quasars, the atoms in this hot gas would absorb and produce shadow signals, thus explaining the absorbing hot gas. At the same time, a veil of fiery hot gas keeps engulfing the Milky Way disc, as a result of the star forming activities in the stellar disc of the Milky Way which explains the hot gas seen in X-ray emission," said Bisht. The study was published in the Astrophysical Journal. The faint X-ray signals thus produced could be further studied to obtain more clues. The group plans to test the models in other frequencies.

https://pib.gov.in/PressReleasePage.aspx?PRID=2075861

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ISRO to launch European Space Agency's Proba-3 mission on December 4

The European Space Agency's (ESA) Proba-3 mission will be launched on ISRO's Polar Satellite Launch Vehicle (PSLV) from the Satish Dhawan Space Centre on December 4. According to ESA, Proba-3 is the world's first precision formation flying mission.

"A pair of satellites will fly together, maintaining a fixed configuration as if they were a single large rigid structure in space, to prove formation flying and rendezvous technologies," states ESA.

The mission will demonstrate formation flying in the context of a large-scale science experiment. Holding position to a precision of a single millimetre, one Proba-3 spacecraft will line up in front of the other, around 150 m away, to cast its shadow precisely onto the other.

"The shade provided by the first spacecraft will cover the fiery face of the Sun so that its faint surrounding 'coronal' atmosphere becomes visible. The enigmatic corona – much hotter than the Sun itself – is where space weather originates, a topic of widespread scientific and practical interest," ESA said.

It further added that on Earth, scientists must travel the world to position themselves for a brief glimpse of the Sun's corona lasting just a few minutes at a time during total solar eclipses. However, the new cutting-edge technologies applied to Proba-3 mean that the mission will be able to create 'solar eclipses on demand.'

Proba-3 instruments will peer closer to the solar rim than was previously possible in space, for up to six hours at a time during each approximately 19-hour orbit around Earth.

https://www.thehindu.com/sci-tech/science/isro-to-launch-european-space-agencys-proba-3-mission-on-december-4/article68898684.ece

THE HINDU

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Indian Institute of Science study reveals how cancer cells adapt while moving across tissues

A new study from the Indian Institute of Science (IISc) shows how inherent variations in a cancer cell and its interactions with its surroundings mould its migration.

The findings, published in Biophysical Journal, reveal that cancer cells seem to adapt their migratory pattern depending on the physical and biochemical characteristics of their surroundings,

called the microenvironment. “The spread of tumour from the primary cancer site to distant organs, called metastasis, has puzzled scientists for many years – they are only now beginning to pinpoint triggers and mechanisms that drive this process,” IISc said.

How they adapt

The researchers studied two types of ovarian cancer cells – OVCAR-3, which has a wellstructured polygonal shape, and SK-OV-3, which has a naturally elongated spindle shape. Both of these cells metastasise and invade tissues. By placing these cells on soft and stiff surfaces that mimic healthy and diseased tissues, the researchers observed how each type adapted its movement on different surfaces.

On soft surfaces, similar to healthy tissue, both cell types moved slowly in random directions. But on stiff surfaces, which mimic the tough, scarred tissue around tumours, the cells are more deformable and respond differently.

“Based on previous literature, I expected stiffness to be an important factor in aggravating cancer cell migration. However, what I did not expect was that the epithelioid ovarian cancer cells (OVCAR-3) were more migratory than the mesenchymal cells (SK-OV-3) on stiffer matrices,” said Madumitha Suresh, former MTech student at the Department of Bioengineering (BE) and first author of the study.

Shape matters

The researchers also observed a unique movement pattern in the OVCAR-3 cells, which they called slip. In most cells, the direction of movement aligns with the shape of the cell, with the cell’s front leading the way. But when the OVCAR-3 cells moved on stiff surfaces, this alignment broke down.

“Their movement became less coordinated with their shape, almost as if they were sliding or slipping instead of moving in a straight line. Motivated by these unexpected results, the researchers sought to understand the process using quantitative approaches,” IISc said.

It added that existing methods for studying how cancer cells move are either mathematical approaches that don’t capture changes over time or complex computer-based approaches, such as machine learning, that are challenging to use.

Collective dynamics

“We aim to extend our study to decipher the collective dynamics of such cancer cells, especially in more complex 3D environments. This will shed fresh light on the pathology of ovarian cancer, a disease that is characterised by rapid metastasis and high morbidity,” said Ramray Bhat, associate professor at the Department of Developmental Biology and Genetics and corresponding author of the study.

https://www.thehindu.com/news/cities/bangalore/iisc-study-reveals-how-cancer-cells-adapt-while-moving-across-tissues/article68898219.ece