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DRDO News

DRDO Technology News



Wed, 11 Oct 2023

This Helmet by DRDO can Protect Indian Soldiers from Bullets

The Indian Army needs no introduction. They are responsible for protecting the country against land-based attacks. They also lend a helping hand to other agencies in dealing with terrorism, tackling emergencies in the country and rescuing people during times of natural calamities like floods, earthquakes etc. There are different regiments in various parts of the nation. There are different uniforms for different ranks and positions.

One such part of the uniform is the patka helmet that is employed by frontline Combat Forces, Para Military and Police Forces, and Riot Control Forces. It is widely used in the Indian Army and Para Military Force as it protects the head.

According to reports, it is commonly used by Army troops deployed in Kashmir. The design provides a high degree of stability for the head and is in the shape of a toupee (cap). The patka helmet is considered quite safe by soldiers as it provides safety to their heads and protects them from headshots.

Patka helmet is quite effective as it can withstand almost all types of bullets. Most helmets fail to withstand the attack of bullets of 7.62 mm and 5.56 mm rounds, but patka ones can withstand 9 mm bullets. Reportedly, they can also protect the soldiers from the bullets of the AK-47 rifle.

It has also been found that the patka helmet is very comfortable to wear. It is not that heavy and can be easily worn for a long period. This helmet is very useful in cold weather as it keeps the head warm during the harsh winters of Kashmir. The inner part of the patka helmet is very soft and smooth, and hence, it is comfortable to wear.

It has been designed and built by the Defence Research and Development Organisation (DRDO). Due to these wonderful features, the patka helmet has been the first choice of Indian soldiers for a long time. However, now Indian soldiers are also using other types of helmets equipped with state-of-the-art technology.

https://www.news18.com/viral/this-helmet-by-drdo-can-protect-indian-soldiers-from-bullets-8612108.html



Boost to Atmanirbhar Bharat: IAF Test-Fires Surface to Surface Brahmos Missile

In a boost to Atmanirbhar Bharat campaign, the Indian Air Force on Wednesday successfully carried out a test of its Surface to Surface version of the Brahmos Missile. The testfiring was conducted near the Eastern Seaboard archipelago. The missile fire was successful and the mission achieved all its objectives.

The IAF shared images and videos of the test-firing on its official X handle. BrahMos Aerospace reiterated its commitment to strengthen the firepower of the Indian Armed Forces.

IAF's tweet:

Bull's Eye !

The #IAF recently carried out a successful test of its Surface to Surface version of the #Brahmos Missile near the Eastern Seaboard archipelago.

The missile fire was successful and the mission achieved all its objectives.#AtmanirbharBharat@BrahMosMissile pic.twitter.com/YOHi5IKr1I

— Indian Air Force (@IAF_MCC) October 11, 2023

"Congratulations @IAF_MCC for successfully carrying out the precision-strike launch of #BRAHMOS surface-to-surface variant which has hit the 'Bull's Eye' meeting all mission parameters. BrahMos Aerospace reiterates its commitment to strengthen the firepower of #IndianArmedForces and continue to be the flagbearer of #AtmanirbharBharat," BrahMos Missile tweeted.

BrahMos Missile's tweet:

Congratulations @IAF_MCC for successfully carrying out precision-strike launch of #BRAHMOS surface-to-surface variant which has hit the 'Bull's Eye' meeting all mission parameters.

BrahMos Aerospace reiterates its commitment to strengthen the firepower of #IndianArmedForces and... https://t.co/1x1CFGEHMh

— BRAHMOS Missile (@BrahMosMissile) October 11, 2023

Notably, The BrahMos is a medium-range ramjet supersonic cruise missile. It can be launched from submarines, ships and fighter aircraft. It is considered the fastest supersonic cruise missile in the world.

It is a joint venture between the Indian Defence Research and Development Organisation (DRDO) and the Russian Federation's NPO Mashinostroyeniya. Together, the joint venture is known as BrahMos Aerospace.

https://www.timesnownews.com/india/boost-to-atmanirbhar-bharat-iaf-test-fires-surface-tosurface-brahmos-missile-video-article-104344078

Defence News

Defence Strategic: National/International



Ministry of Defence

Wed, 11 Oct 2023

Admiral R Hari Kumar, Chief of the Naval Staff Addresses the Station Commanders' Workshop at Visakhapatnam

Admiral R Hari Kumar, Chief of the Naval Staff (CNS), along with Mrs Kala Hari Kumar, President Naval Welfare and Wellness Association (NWWA), arrived Visakhapatnam on a two-day visit to Eastern Naval Command on 10 October 2023. On arrival, Vice Adm Rajesh Pendharkar, FOC-in-C, ENC interacted with the CNS, and briefed him on the progress of ongoing major operational issues and projects in the Command. During the visit, the CNS addressed the Station Commanders' Workshop being held for the first time at Visakhapatnam and participated in various other engagements.

Station Commanders Workshop

The 2nd edition of the Station Commanders' Workshop (SCW 23/2), an assembly of the Station Commanders across the Navy who provide administrative and functional support to Operational units, was held at Eastern Naval Command, Visakhapatnam from 09 - 11 Oct 23. The three-day Workshop was attended by more than 100 delegates representing all naval stations, as well as officers from Naval Headquarters (NHQ) and Command Headquarters. The workshop was also attended by the Commanding Officers of various Naval Hospital, officers from Naval Armament Inspection (NAI) Units, Naval Liaison Cells (NLC) and the Material Organisations (MOs). The Key Focus Areas steered by the NHQ for SCW 23/2 were Creation of Infrastructure (Works) by Directorate of Works, Administration of Schools by Directorate of Naval Education, Medical Facilities by DGMS(N) and Civilian Administration by Directorate of Civilian Personnel. In addition, a primer on Gati Shakti by Directorate of Logistics was also conducted.

Mrs Kala Hari Kumar, President NWWA, conducted an information session on NWWA which was attended by the Station Commanders, Unit heads of MOs, NLCs, NAIs and NWWA members. She familiarized them with recent initiatives undertaken by NWWA, for the benefit of the naval community, and emphasized the role of leadership in ensuring community welfare. She also updated them about the upcoming G20ThINQ event in November at Mumbai and Delhi.

INS Kora - 25th Anniversary

During his visit to the Eastern Fleet, Admiral R Hari Kumar participated in 25th anniversary celebrations of INS Kora and interacted with the ships' company of Eastern Fleet ships and also

attended the traditional Barakhana. This event was of particular significance as both the CNS and the C-in-C, are the former Commanding Officers of INS Kora.

World Mental Health Day

On the occasion of Mental Health Day on 10th October, the CNS addressed the Naval community and Defence Civilians, emphasising upon the importance and benefits of maintaining sound mental health. The address was relayed online across all naval stations.

Interactions & Inaugurations

The CNS inaugurated a state-of-the-art Emergency Diesel Generator Facility at Naval Dockyard Visakhapatnam. This facility is capable of providing 7.5 MW of emergency power backup to all ships, submarines, industrial centres at Naval Dockyard, and critical consumers in Naval Base during natural calamities or prolonged shutdown of the Grid. He also interacted with the Defence Civilian workforce at Naval Dockyard. During his visit to INS Eksila, CNS was apprised on the 'AatmaNirbharta' initiatives of the Indian Navy in maintenance, overhaul and spare management of Gas Turbine Generators of Indian Naval Ships.

The CNS interacted with officers, sailors, and DSC Jawans and also inaugurated a Defence Civilian Accommodation block with 16 Dwelling Units at Pallava Park and an Officers' Transit Accommodation block with 36 Dwelling Units at Visakhapatnam. These newly constructed Dwelling Units equipped with state-of-the-art facilities, aligning with the "Key on Arrival" concept, would significantly improve morale among naval personnel by mitigating the shortfalls in the availability of Married Accommodation.

https://pib.gov.in/PressReleasePage.aspx?PRID=1966763



Ministry of Defence

Wed, 11 Oct 2023

Raksha Mantri Shri Rajnath Singh Meets CEOs of Top French Defence Companies in Paris

Highlights the advantages of co-development & co-production in India, including possibilities of exports to third countries

RM visits Safran Engine Division's R&D Centre at Gennevilliers; Witnesses latest developments in aero-engine technology

Raksha Mantri Shri Rajnath Singh, on October 11, 2023, visited the Safran Engine Division's R&D Centre at Gennevilliers near Paris, France during the second and final leg of his two-nation tour. During his visit to the Centre, he witnessed the latest developments in aero-engine technology. Mr Olivier Andries, Global CEO Safran welcomed the Raksha Mantri to the facility and, along with his team, gave a detailed briefing to him. Safran expressed interest in being a part of the Indian growth story by working with its counterparts on mutually agreed joint projects.

The Raksha Mantri also met with the CEOs of the top French defence companies with a focus on their plans for collaboration with India. Mr Eric Trappier, CEO Dassault; Mr Pierre Eric Pommellet, CEO Naval Group; Mr Guillaume Faury, CEO Airbus; and Mr Olivier Andries, CEO

Safran Group were present during the interaction. Shri Rajnath Singh highlighted the advantages of co-development and co-production in India, including possibilities of exports to third countries. He underlined the inherent advantages of Indian market such as a large, skilled HR base, world class infrastructure and a strong legal architecture.

Later in the day, Shri Rajnath Singh will be holding the 5th Annual Defence Dialogue with the French Minister of Armed Forces Mr Sebastien Lecornu.

The Raksha Mantri reached Paris late on October 10 and interacted with the Indian community. While addressing the sizeable Indian community at the India House, he highlighted the various achievements of India in the defence sector such as increased defence exports, increasing indigenous production of defence equipment, concerted efforts on co-development and co-production in India and an enhanced outreach in the region. The Raksha Mantri spoke about the tremendous progress achieved in India in the last nine years, an assessment which was heartily supported by the Indian community.

https://pib.gov.in/PressReleasePage.aspx?PRID=1966810



Wed, 11 Oct 2023

Defence Minister Rajnath Singh Visits Safran Engine Division's Research and Development Centre at Gennevilliers Near Paris

Defence Minister Rajnath Singh today visited the Safran Engine Division's Research and Development Centre at Gennevilliers near Paris, during the second and final leg of his two-nation tour. During his visit to the Centre, he witnessed the latest developments in aero-engine technology. CEO of Safran, Olivier Andries expressed interest in being a part of the Indian growth story by working with its counterparts on mutually agreed joint projects.

Mr. Singh also met with the CEOs of the top French defence companies with a focus on their plans for collaboration with India. During the interaction, Rajnath Singh highlighted the advantages of co-development and co-production in India. He underlined the inherent advantages of Indian market such as a large and skilled manpower, world-class infrastructure and a strong legal architecture.

The Defence Minister reached Paris yesterday and interacted with the Indian community. While addressing the sizeable Indian community at the India House, Mr Singh highlighted the various achievements of India in the defence sector such as increased defence exports, increasing indigenous production of defence equipment, and an enhanced outreach in the region. He also spoke about the tremendous progress achieved in India in the last nine years.

https://newsonair.gov.in/News?title=Defence-Minister-Rajnath-Singh-visits-Safran-Engine-Division%26%2339%3Bs-Research-and-Development-Centre-at-Gennevilliers-near-Paris&id=469269

THE MORE HINDU

Wed, 11 Oct 2023

India and Australia have Reached Tactical Interoperability, there is Opportunity to Start Coordinating Activities: Australian Officer

India and Australia have reached a stage of tactical interoperability and there is an opportunity to start coordinating activities and leverage the resources of both nations to be able to achieve better levels of situational awareness, said Lieutenant General Greg Bilton, Chief of Joint Operations, Australia talking of the significant deepening of military cooperation.

Our interests intersect initially in the Indian Ocean, and where the countries conduct naval, air and maritime activities together, the visiting Australian officer said.

"We are at a point of our relationship where we de-conflict and make each other aware of the activities we are doing, but we are not at a point where we coordinate our activities in the Indian Ocean and other parts of the Indo-Pacific. My view is that there is an opportunity to perhaps to start to coordinate our activities, leverage of the resources of both our nations to be able to achieve better levels of situational awareness," Lt. Gen. Bilton said speaking at the India Defence Conclave organised by news portal Bharat Shakti on Wednesday.

Elaborating on the bilateral military cooperation, he said one of the key factors that has helped the relationship grow is the sharing of intelligence and information. "Since November last year, my headquarters has sent 31 dossiers of intelligence relating to activities in the Indian Ocean though our Defence Attaché into the Indian military system. That's ok. I would like to get to a point where we could provide directly to an operational headquarters," Lt. Gen. Bilton stated.

What I am giving is an opportunity to "operationalise our relationship," he said stating that there was an opportunity to go a "more sophisticated level and there is the appetite as well." It's about sharing, transparency and sharing information to build trust, the Gen stressed.

Speaking in the same session on the Indo-Pacific, Vice-Admiral Dinesh Tripathi, Western Naval Commander said what we are witnessing right now is geopolitics, technology and in the security domain tactics, all are in a state of flux, concurrently. "All are in a state of flux, at the same time."

"Indian Navy is keeping a very close watch as to what is happening and we are partnering with all friendly foreign countries because we do believe that the only way forward is cooperation through collaboration, consensus and communication," he said in this regard. "We also believe no one country has the capacity and capability to keep the sea lanes of communication open at all times."

Talking of the bilateral relationship, highlighting the importance which India attaches to Australia, Vice-Admiral Tripathi noted that in August two Indian naval ships were on the East coast of Australia in Sydney for exercise Malabar, while at the same a submarine was on the West coast of Australia, the maiden deployment of an Indian submarine to the country.

On the Indo-Pacific and Australia's focus, Lt. Gen. Bilton said the strategic circumstances in their region in the Indo-Pacific have forced Australia to focus more closely here. We did have significant interests in the Middle East, contributing to operations to operations for 20 years through Afghanistan and Iraq, and it has been an absolute pivot to this region, he said. "And it's principally, China's militarisation of the region, Chinese expansion, not just in the first island chain but now deep into South East Asia and the Indian Ocean and equally into the South West Pacific. We have been quite closely focused on that..."

Further, said they are deeply interested in working with partners to uphold rules based international order. "From an Australian perspective, we can't deter major powers on our own. But we absolutely believe the formula is to have trusted, transparent relationships with partners and allies that enable us to push back on bad behaviours where they occur," Lt. Gen. Bilton said, stating it's fundamentally Australia's strategy.

India-Australia defence cooperation has been one of the fastest growing in recent years with series of exchanges, high-level visits and exercises, both bilateral and multilateral. In addition, Maritime Domain Awareness, subsurface domain awareness and Anri-Submarine Warfare have been major focus areas for the Quad group of countries comprising India, Australia, Japan and the U.S. in the backdrop of rapid expansion of Chinese naval presence in the Indian Ocean Region.

India and Australia signed a Mutual Logistics Support agreement in 2020 and the two Navies signed the 'Joint Guidance for the India – Australia Navy to Navy Relationship' document in August 2021.

https://www.thehindu.com/news/national/india-and-australia-have-reached-tacticalinteroperability-there-is-opportunity-to-start-coordinating-activities-australian-officer/ article67408615.ece



Wed, 11 Oct 2023

India, China Hold 20th Round of Military Talks; no Clear Indication of Breakthrough

India and China exchanged views in an open and constructive manner for an early and mutually acceptable resolution of the remaining issues along the Line of Actual Control in eastern Ladakh, the Ministry of External Affairs said on Wednesday, a day after the two sides concluded two days of military talks.

It said the two sides agreed to maintain the momentum of dialogue and negotiations through the relevant military and diplomatic mechanisms.

There was no clear indication of any breakthrough in the talks.

The previous round of military talks took place on August 13 and 14.

The latest round of the Corps Commander level talks was held at Chushul-Moldo border meeting point on the Indian side of the Line of Actual Control (LAC).

"The two sides exchanged views in a frank, open and constructive manner for an early and mutually acceptable resolution of the remaining issues along the LAC in the Western Sector, in accordance with the guidance provided by the national leadership of the two countries, and building on the progress made in the last round of Corps Commanders' meeting held on August 13-14," the MEA said.

"They agreed to maintain the momentum of dialogue and negotiations through the relevant military and diplomatic mechanisms," it said in a statement.

"They also committed to maintain peace and tranquillity on the ground in the border areas in the interim," the MEA added.

The Indian and Chinese troops are locked in an over three-year confrontation in certain friction points in eastern Ladakh even as the two sides completed disengagement from several areas following extensive diplomatic and military talks.

https://www.livemint.com/news/india/india-china-hold-20th-round-of-military-talks-no-clearindication-of-breakthrough-11697041446022.html



Wed, 11 Oct 2023

Denmark, Netherlands, US Spearhead Creation of Future Ukraine Air Force

Denmark, the Netherlands and the United States will spearhead a new international coalition to help Ukraine establish a future air force based on F-16 fighter jets, the Danish ministry of defence said on Wednesday.

The new coalition intends to build infrastructure around F-16s, including maintenance facilities to support the operation of the planes, the ministry said in a statement.

Denmark and the Netherlands were the first two countries to commit to donating F-16 jets to Ukraine, whose current air force has a fleet of ageing Soviet-era fighter jets, in its war with Russia.

"This is a natural move following the leading role Denmark already has in relation to the military support for Ukraine and especially in relation to the donation of F-16 fighter jets," Defence Minister Troels Lund Poulsen said.

Denmark expects to deliver the first six of out of a total of 19 F-16s to Ukraine in March or April next year, he told broadcaster TV2 on Wednesday.

https://www.reuters.com/world/europe/denmark-netherlands-us-spearhead-creation-future-ukraineair-force-2023-10-11/



Wed, 11 Oct 2023

AUSA 2023: Army to Reduce Crew Size, Explore New Engine for Redesigned Abrams

The new Abrams M1E3 main battle tank (MBT) design – with General Dynamics Land Systems (GDLS) as the prime contractor – will use various subsystem competitions to reduce the weight and sustainment tail of the tank, Doug Bush, the US Army assistant secretary for Acquisition, Logistics, and Technology, told Janes on 10 October.

While the most concrete proposed competition is one for an upgraded active protection system (APS), the army will likely hold a competition for a new engine, Bush told Janes on the sidelines of the Association of the United States Army's (AUSA's) 2023 annual conference. The acquisition and

technology choices take inspiration from the F-16 programme with the US Air Force (USAF), he noted.

The decision to forgo a clean-sheet design for a new tank was based on speed, Bush said. Former Chief of Staff General James McConville picked the option "more likely to succeed on his timeline". "Because you can start a whole new tank programme, but it might take 20 years, and he's worried about the threat over that time," Bush said.

While some investment in the fiscal year (FY) 2024 budget request was included for research, development, technology, and engineering (RDTE) of the new design, FY 2025 request is expected to include the first significant request, Bush said.

https://www.janes.com/defence-news/news-detail/ausa-2023-army-to-reduce-crew-size-explorenew-engine-for-redesigned-abrams



Wed, 11 Oct 2023

Philippine, US Navies up Complexity of Exercise 'Sama Sama' 2023 with Anti-Submarine Serial

The Philippine and US navies have increased the complexity of an annual bilateral exercise by including an anti-submarine warfare (ASW) serial in the drills.

The shore phase of the drills, known as Exercise 'Sama Sama' 2023, is being conducted off the coast of Manila from 8 to 13 October.

As part of the ASW serial on 10 October, the US Navy (USN) deployed its MK 39 Expendable Mobile Anti-Submarine Warfare Training Target (EMATT), according to a statement from the Philippine Navy's Naval Forces Southern Luzon (NAVFORSOL) that was forwarded to Janes on 11 October.

During the serial, the target mimicked the acoustic signatures of certain submarines, which allowed the Philippine Navy vessel to jointly refine its ASW tactics with assistance from the USN.

The statement did not specify the Philippine Navy vessel that was involved in the ASW serial, but a NAVFORSOL representative Janes spoke to on 11 October confirmed that it was the service's second Jose Rizal-class frigate, BRP Antonio Luna.

As part of the serial's topping off, Antonia Luna also deployed a torpedo against the target, the representative added, confirming that this is the first time such an activity has been conducted in an Exercise 'Sama Sama' drill.

Antonio Luna is one of the Philippine Navy's two South Korean-built Jose Rizal-class frigate. It has an overall length of 114.3 m, a 14 m beam, and a hull draught of 4 m.

https://www.janes.com/defence-news/news-detail/philippine-us-navies-up-complexity-of-exercise-sama-sama-2023-with-anti-submarine-serial

Science & Technology News



Ministry of Science & Technology

Wed, 11 Oct 2023

Cutting-edge Quantum-Technology Backed Green Hydrogen Production Unveiled to Power a Green Future

A new high throughput quantum backed green hydrogen production technology could boost the green hydrogen production in bulk.

The technology developed by the Green Keplerate Team from Banaras Hindu University, was inaugurated at the University in Varanasi, by Dr. Anita Gupta, Head of the Climate Change & Clean Energy Division, DST & Dr. Ranjith Krishna Pai, Scientist & Director of Climate Change & Clean Energy Division, DST and Prof. R. R. Sonde, Chairman of the expert committee, IIT Delhi in the presence of eminent domain experts drawn from all over the country.

The technology developed by the team comprising of Dr. Somenath Garai and Prof. S. Srikrishna showcased the uses of Green Hydrogen as eco-friendly energy alternatives. They introduced next-generation quantum-powered photo-catalyst with a charge transfer system coupled with high proton availability and mobility, and delivered quantum catalytic applications for energy generation.

The patent for this technology, supported under the project titled "Boosting the H2 Economy by Harnessing the Merits of Quantum Encapsulation Chemistry: Augmented Kinetics for Water Splitting Reaction Under Confinement" under Hydrogen and Fuel Cell program, Clean Energy Research Initiative, is pending.

The state-of-the-art photochemical-reactor design features built-in illumination assembly and external concave reflective panels to maximize the capture of solar energy. The team has engineered a continuous electron coupled proton supply system, propelled with an electron injector mechanism utilizing industrial metal-waste, and after rigorous optimizations, the peak rate of Green Hydrogen production at lab scale was achieved to be about 1 litre/min per 10 g of Quantum Photocatalysts.

Due to the high purity of the hydrogen gas produced, the fuel can be used without additional purification, thus enhancing the cost-effectiveness of the technology. This transformative innovation would offer wide ranging application possibilities across various sectors ranging from energy production to applications in transportation and agriculture.

The Green Keplerate Team have envisaged storage free direct hydrogen internal combustion engine technologies and have also demonstrated the same onto automobiles of varied range of engine/cylinder capacities and functionalities as a part of this ongoing project funded by the DST.

https://pib.gov.in/PressReleasePage.aspx?PRID=1966488



Thu, 12 Oct 2023

ISRO Looking to Use Optical Communications on Future Satellites

Pioneer in Light Fidelity (LiFi) technology, the Ahmedabad-based Nav Wireless Technologies Pvt Ltd (NavTech) has signed an MoU with Space Applications Centre, Indian Space Research Organization (ISRO). One of the major centers of ISRO, SAC has joined hands with Nav Wireless Technologies to use light-based high-speed communication for satellite communication in space.

Space agencies have already started using optical wireless technologies instead of Radio Frequency for space communication. SAC will use high speed secure quantum key communication using light from base station to satellite in space and terrestrial communication.

Through this technology, SAC will be able to do the quantum key distribution (QKD) and pointing acquisition and tracking (PAT) for satellite-to-satellite communications in the space. The technology is all set to be used in ISRO's upcoming space exploration programs.

The MoU singed between SAC/ISRO and Nav Wireless Technologies, has a tenure of three years. Recommended by Department of Telecom (DoT), Nav Wireless Technologies is the first company in India to provide this technology to SAC, ISRO.

Commenting on this development, Hardik Soni, co-founder and CTO of Nav Wireless Technologies Pvt Ltd. said "It is a proud moment for Nav Wireless Technologies as it will contribute to the great projects of ISRO. Very few space agencies in the world are currently using LiFi technology for secured communication between base stations and for satellite communications around the globe." Li/Fi, also known as Light Fidelity, utilizes the transmission of data through a light beam spectrum in both indoor and outdoor environments. This technology enables ultra-fast data connections and proves especially valuable in urban areas with congested radio spectra, as well as in rural regions where fiber optic cables or networks are not available.

For over a year, Nav Wireless Technologies Pvt Ltd has been at the forefront of LiFi research and development in India. The company has positioned itself as the sole registered entity in the country dedicated to exploring the potential of LiFi technology. Through their groundbreaking work, Nav Wireless Technologies Pvt Ltd has showcased the most viable and practical solution for the nationwide launch of 5G services and BharatNet rural connectivity, utilising Optical Wireless Communication (OWC).

https://www.news9live.com/science/isro-looking-to-use-optical-communications-on-future-satellites-2316889

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