

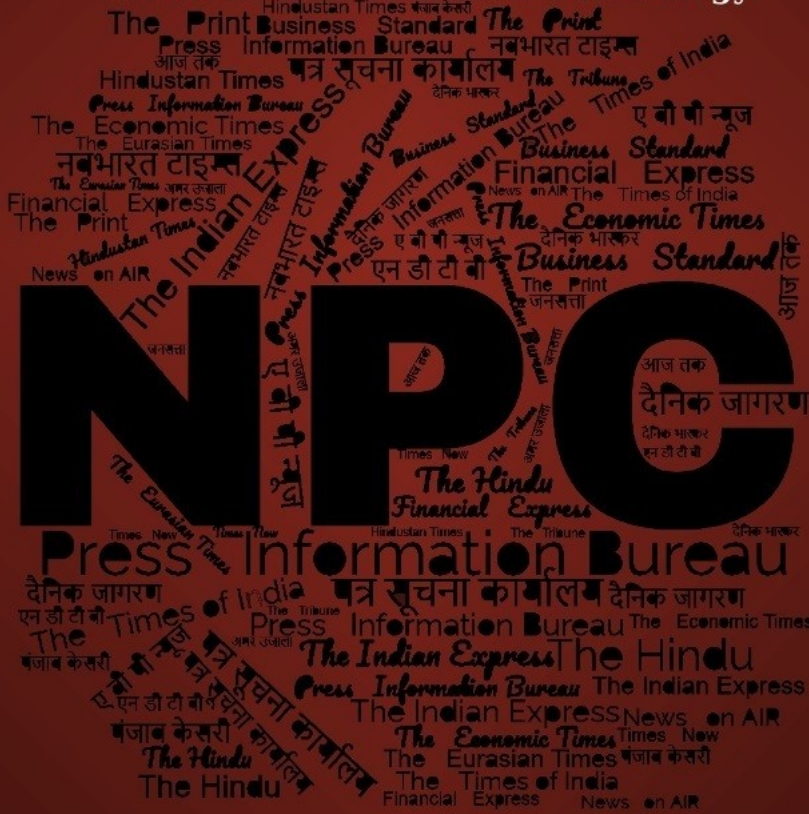
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Wed, 08 Aug 2024

India's DRDO develops PBAT-based biodegradable packaging

Scientists at the Defence Research and Development Organisation (DRDO) of India have developed a new biodegradable packaging solution using polybutylene adipate terephthalate (PBAT), a polymer derived from petroleum products or plant oils.

This technology is claimed to decompose naturally within three months without leaving harmful residue.

The DRDO team at the Advanced Systems Laboratory in Hyderabad, led by scientist Dr K Veerabrahmam, has successfully developed these biodegradable products.

The PBAT-based packaging reportedly offers strength and durability comparable to conventional plastics, providing an eco-friendly alternative that does not compromise on quality.

Environmental impact studies, including the International Organization for Standardization 17088 test, have confirmed the compostability of these newly developed products

<https://www.packaging-gateway.com/news/india-drdo-pbat-based-packaging/>

Reveal Inside

Wed, 08 Aug 2024

IIT Indore and DRDO Create Energy-Harvesting Shoes with GPS Tracking

Indore (Madhya Pradesh) [India], August 7: The Indian Institutes of Technology (IIT) Indore, in collaboration with the Defence Research and Development Organization (DRDO), has developed a groundbreaking shoe that harnesses energy from human motion to power electronic devices. These shoes also feature a satellite-based GPS module for precise live location tracking.

The Institute has successfully delivered 10 pairs of these innovative Tribo-Electric Nanogenerator (TENG) based shoe sole energy harvesting units to the DRDO under the Ministry of Defence, Government of India. This development marks a significant leap in integrating sustainable energy solutions with advanced tracking technologies.

Military Applications

Prof I A Palani, a faculty member at IIT Indore, led the development of these shoes. The Director of IIT Indore, Prof Suhas Joshi, highlighted the military applications of this technology, stating, “The real-time location tracking capabilities enhance the safety and coordination of military personnel, boosting operational efficiency and security. The TENG-powered shoes can support essential GPS and RFID systems, providing a self-sustaining and dependable solution for various military needs.”

Technological Advancements

Prof Palani explained that the TENG system in these shoes uses advanced tribo-pairs, Fluorinated Ethylene Propylene (FEP) and Aluminium, to generate power with each step. This energy is stored in a central device within the shoe sole, ensuring a reliable power source for small-scale electronic circuits. The shoes also feature sophisticated tracking technology, including RFID (Radio Frequency Identification) with a 50-metre range and a satellite-based GPS module for precise live location tracking.

Broader Applications

Beyond military use, these TENG-powered shoes hold promise for civilian and industrial applications. For families with elderly members, especially those with Alzheimer’s disease, the shoes offer peace of mind through reliable location tracking. Working parents can monitor their

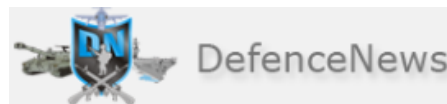
children's whereabouts throughout the school day, and schools can use RFID technology to maintain accurate attendance records. In industrial settings, the shoes are useful for attendance tracking and worker monitoring.

The athletic industry can also benefit from these shoes by analysing athletes' foot movements, which can help improve performance and training techniques. For trekking and mountaineering enthusiasts, the shoes provide reliable tracking during expeditions with their self-powered GPS feature, ensuring safety and efficient navigation.

<https://www.zeebiz.com/india/news-this-recycling-firm-collaborates-with-deal-drdo-iit-delhi-for-development-of-nano-composites-306378>

Defence News

Defence Strategic : National/International



Wed, 08 Aug 2024

HAL ASSURES TIMELY DELIVERY OF 83 TEJAS MK-1A JETS TO INDIAN AIR FORCE BY 2028-29

New Delhi: State-owned plane maker Hindustan Aeronautics Limited (HAL) is confident of supplying all the 83 light combat aircraft TEJAS MK-1A well within the timeline of 2028-29, to the Indian Air Force (IAF).

A top official in the HAL said that there is nothing to worry about as “our production line is ready and we are resolving the minute things which are left. We will deliver all aircraft well within the stipulated timeframe.

Weeks back, the Indian Air Force had flagged off the issue of delay in delivering the first TEJAS MK-1A fighter jet, which was scheduled to be handed over in February-March. Now, the HAL has assured the IAF to deliver the first one by November.

As part of the understanding, the HAL had committed to supply 16 fighter jets every year. Now, the IAF made a request of at least 8 aircraft for this year.

The official said the delay in engine supply and some developmental issues have further delayed the delivery of the aircraft to the force.

HAL and General Electric had inked a contract for 99 F404 engines. Another official said: “We have been informed that the GE would start supplying engines from September. We believe to deliver more than 8 jets by end of this fiscal (March 2025).”

On being asked about how the HAL would deliver all the aircraft within the deadline, the official said: “Currently, our two facilities at Bangalore are operational with a capacity of producing 16 aircraft. The third facility at Nashik would become operational in October and here we can make 8 jets or even more.”

In 2021, the Defence Ministry had signed a contract with HAL for 83 TEJAS MK-1A worth ₹48,000 crore for the IAF.

In August 2021, the HAL inked a deal worth USD 716 million with General Electric for 99 GE F404 turbofan engines and support services for the TEJAS MK-1A.

It must be noted that the TEJAS will be the mainstay of the Indian Air Force in the years to come which would also help in arresting the depleting strength of fighter squadrons. Currently, the IAF has 30 fighter squadrons against the sanctioned 42 squadrons.

<https://www.indiandefensenews.in/2024/08/hal-assures-timely-delivery-of-83-tejas.html>

THE ECONOMIC TIMES

Wed, 08 Aug 2024

Bangladesh unrest: BSF DG reviews preparedness at Tripura border

Guwahati: Director General Border Security Force Daljit Singh Chawdhary accompanied by ADG Ravi Gandhi arrived on a one day visit to Frontier Headquarters BSF Salbagan, Agartala, Tripura to review the security and operational preparedness of BSF on Indo-Bangladesh border.

DG BSF landed at the Agartala Airport on Wednesday where he was received by Patel Piyush Purusottam Das, IG BSF Tripura Frontier.

DG BSF was given an operational briefing by IG Tripura Frontier and further DG BSF chaired a meeting with senior officers of BSF and discussed the ongoing law and order situation in Bangladesh and its implications on the security scenario.

DG BSF while reviewing the operational preparedness, applauded the tireless efforts and dedication in safeguarding the borders and the efforts made to prevent infiltration and trans-border crimes effectively on the Indo-Bangladesh border by BSF Tripura.

He further had a meeting with DG Tripura Police Amitabh Ranjan and Anurag Dhankar ADG Law and Order on various issues pertaining to the state.

BSF is on high alert following turmoil in Bangladesh. The Indo-Bangladesh international border spans 4096 Kilometres.

https://economictimes.indiatimes.com/news/defence/bangladesh-unrest-bsf-dg-reviews-preparedness-at-tripura-border/articleshow/112363332.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

Science & Technology News



Wed, 08 Aug 2024

Sunita Williams's return from space: Nasa to provide latest Starliner update

Nasa is set to provide a crucial update on the status of the International Space Station (ISS) operations, including the Boeing Crew Flight Test and Nasa's SpaceX Crew-9 mission.

The agency will share the latest update at 10:00 pm IST on Wednesday and reveal the developments regarding astronaut Sunita Williams and Commander Butch Willmore's return from space.

The two astronauts have been aboard the ISS since June 6, 2024, following the launch of Boeing's Starliner spacecraft.

<https://www.indiatoday.in/science/story/sunita-williamss-return-from-space-nasa-to-provide-latest-starliner-update-2578251-2024-08-07>

THE ECONOMIC TIMES

Wed, 08 Aug 2024

BITS Pilani launches Centre for Research Excellence in National Security (CRENS) at Hyderabad campus

BITS Pilani Hyderabad introduced the Centre for Research Excellence in National Security (CRENS) to boost the nation's security capabilities through native technology development. This initiative aimed to collaborate with important defense and research organizations for self-reliance. CRENS focused on skill development, practical research solutions, and encouraging startups in strategic defense areas. The center utilized BITS Pilani's research infrastructure and location to address the need for.

Birla Institute of Technology & Science (BITS) Pilani Hyderabad said it has launched a new Centre for Research Excellence in National Security (CRENS), aiming to significantly enhance the nation's security capabilities through indigenous technology development by joint research, skill development and entrepreneurship.

https://economictimes.indiatimes.com/industry/services/education/bits-pilani-launches-centre-for-research-excellence-in-national-security-crens-at-hyderabad-campus/articleshow/112347919.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

