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THE HINDU

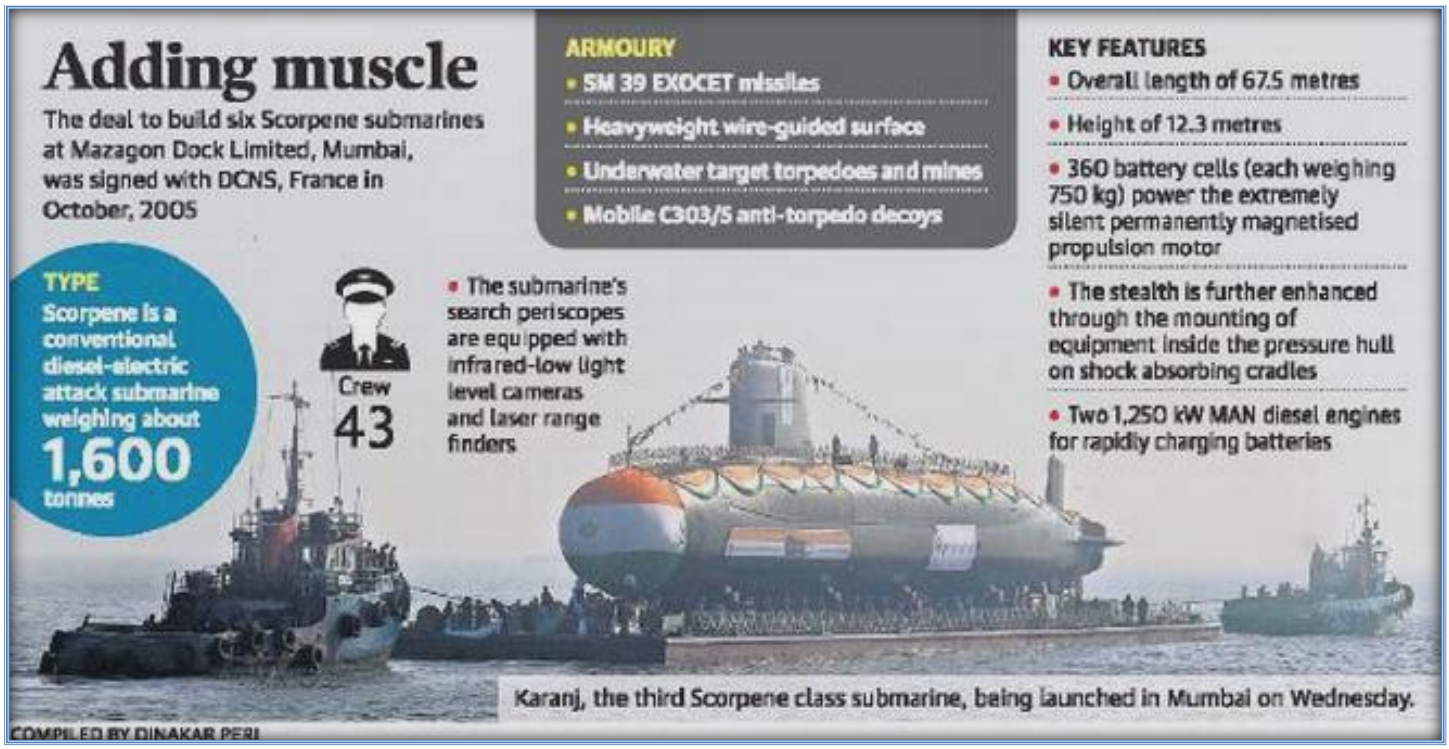
Thu, 01 Feb, 2018

INS Karanj boosts Navy's firepower

By Ajeet Mahale

Third Scorpene class submarine joins Naval fleet

The Navy's third state-of-the-art Scorpene class submarine, *INS Karanj*, was launched by Reena Lanba, wife of Chief of Naval Staff Admiral Sunil Lanba, here on Wednesday. The new submarine is named after the earlier Kalvari class *INS Karanj*, which was decommissioned in 2003.



Six Scorpene class submarines are being built under Project 75 by the Mazagon Dock Shipbuilders Limited (MDSL), Mumbai, under a $3.75 billion technology transfer signed in October 2005 with the Naval Group of France. However, the programme has been delayed by four years due to construction delays. On Tuesday, the Prime Minister's Office conveyed its annoyance to the Defence Ministry for not taking stringent action against the Naval Group and MDSL for the delay.

Admiral Lanba said, "MDSL and the Naval Group have put their houses in order and we have seen seen quick launches of the first three boats. I am quite confident that they have learnt from the experience of building and commissioning the first boat. I do not foresee any more delays in the programme."

The Scorpene class is the Navy's first modern conventional submarine series in almost two decades, since *INS Sindhushastra* was procured from Russia in July 2000.

"*INS Karanj* saw action in the 1971 War and I am sure that this new incarnation will live up to its legendary namesake," the Navy chief said, adding that he expected the new *Karanj* to be commissioned by the end of the year.

Wednesday's launch follows the launch of the first two Scorpene submarines — *INS Kalavari* and *INS Khanderi*.

INS Kalvari, the first to be launched, was commissioned in December 2017 by Prime Minister Narendra Modi. *INS Khanderi*, which was launched in January 2017, is currently undergoing deep dive trails and is expected to be commissioned later this year, according to Navy officials .

'Speedy delivery'

Admiral Lanba said he expects timely construction and speedy delivery of the remaining three submarines — *Vela*, *Vagir* and *Vagsheer*. "The three submarines are in various stages of outfitting. The entire project is expected to be completed by 2020," a defence official said.

"Today's launch should mark an eventful 2018," said MDSL's chairman and managing director Rakesh Anand. He also said that MDSL is in the process of upgrading and would soon have the capability to build and launch two lines of submarines.

INS Kalvari, manned by a team of eight officers and 35 sailors, carries sea-skimming SM39 Exocet missiles and the heavyweight wire-guided Surface and Underwater Target (SUT) torpedoes. For self-defence, it has mobile anti-torpedo decoys. *(With inputs from Dinakar Peri in Delhi)*

Business Standard

Thu, 01 Feb, 2018

Light Combat Helicopter gets cheaper with crucial indigenous AFCS

HAL carried out the first flight of LCH with its own designed and developed Automatic Flight Control System for the first time in the country

By Ajai Shukla

The indigenous Light Combat Helicopter, which is already a success story that has been ordered by the Indian Air Force (IAF) and the army, logged an important breakthrough today by flying with an "automatic flight control system" (AFCS) designed and developed by Hindustan Aeronautics Ltd (HAL).An AFCS is a powerful computer that keeps a helicopter flying stably, by sensing any deviation from level flight in microseconds, and sending flight controls the correctives needed to revert to stable flight.So far, the LCH had been flying with an expensive, imported AFCS."The development of indigenous AFCS is a HAL-funded project and will replace the high value imported system," said T. Suvarna Raju, the chief of HAL.HAL's mission control systems R&D centre (MCSRDC), which has developed this system, is credited with a string of software development successes – notably the Jaguar fighter's DARIN navigation-attack system that guides the aircraft with pinpoint accuracy to deliver bombs on a target hundreds of kilometers away.HAL also announced on Wednesday that it had "indigenised the Cockpit Display System on LCH, namely the Integrated Architecture Display System (IADS) with the participation of Indian private industries." This system, which is being flight tested, also replaces an expensive imported system.These import-substitution measures are expected to cumulatively bring down the cost of the LCH from the Rs 231 crore per chopper that has been negotiated for the first 15 helicopters that the military ordered in December.The LCH is one of HAL's four major success stories in helicopter development. It started with the Dhruv advanced light helicopter (ALH), which is the mainstay of the army aviation corps. That was followed by an armed version of the Dhruv, called the Rudra, which participated in the Republic Day flypast last week.

Undergoing testing is the eponymous Light Utility Helicopter, which is in a race with the Russian Kamov-226T to enter production.The LCH was accorded Initial Operational Clearance (IOC) on August 26, in the presence of the defence minister.For the army, the LCH is a crucial force multiplier – by providing fire support at extremely high altitudes to Indian infantrymen, who can carry only limited weaponry in those rarefied altitudes. With an LCH at hand, they will benefit from its 20-millimetre turret gun, 70-millimetre air-

to-ground rockets, and air-to-air and air-to-ground guided missiles.The LCH, which is a 5.8-tonne, twin-engine helicopter will cost less than half the price of the AH-64E Apache, which the IAF has bought from Boeing, USA. The Apache is more heavily armed and armoured and has the sophisticated Longbow fire control radar. The LCH does not yet have radar, but HAL is in the process of developing one before mass production begins.

MAIL TODAY

Thu, 01 Feb, 2018

IAF officer suspected of spying detained

In A possible case of espionage and virtual honeytrap, an Indian Air Force (IAF) officer of the rank of Group Captain has been detained after he was found exchanging classified documents with an unknown woman whom he had befriended on the social media.

The Group Captain is from the navigation branch and is a Para Jump Instructor. His son recently joined the IAF as a fighter pilot. Sources said the intelligence agencies detected his suspicious activities over social media with a suspected ISI spy, who was using a woman's profile photo, recently and then he was also found to be sharing sensitive documents related to military exercises with the same person over WhatsApp.

"Soon after he was found to be indulging in these activities, the officer was put under house arrest and his questioning is continuing by the authorities concerned," sources said. This is not the first time that the service personnel have been trapped virtually by foreign spies as recently, one airman from the Bathinda air base was caught for providing information to a spy pretending to be a journalist in London and working on a story related to Indian defence forces.

A Facebook profile by the name of Sheeba was also found to be engaging with a large number of officers and men of Indian armed forces in a bid to honeytrap them and get classified in return. *Mail Today*

THE ASIAN AGE

Thu, 01 Feb, 2018

India's first AR headset to help professionals

The AjnaLens headset works like a Microsoft Hololens but aims to be more accessible to professionals.

Since Microsoft's Hololens AR headset rolled for the world to use a few years ago, augmented reality has gone viral with both the manufacturers and the consumers. AR is predicted to be the next big thing and is expected to revolutionise the way we use computers. However, predicting the future is one thing and working towards it to increase its accessibility requires pretty considerable efforts, especially when you consider the immense costs required to make it reach the common man in various fields. However, India is known for making affordable alternatives to expensive solutions and one startup from IIT Bombay has come up with an AR headset to promote this next generation of computing.

Indian startup Dimension NXG has come up with AjnaLens, which is claimed to be India's first home-grown AR headset. The headset is currently under development but has already achieved lots of accolades, one of which is the Graham Bell innovation Award. It will be some time before AjnaLens makes it to the hands of users, but the company claims that it will help improving certain sectors such as automobile, aerospace, manufacturing, healthcare, architecture and many more. They already got few pre-orders from India & USA.

The AjnaLens basically displays holograms on the display, thus integrating AR objects with reality. Users will able to see virtual objects in 3D and interact with them in intuitive ways. AjnaLens will allow the

user to interact with the AR objects using hand gestures, voice commands and gaze controls (which is next-gen cursor control technology). For example, users will able to interact with virtual furniture and adjust their size by pinching on the edges to adjust it to desired levels. With gaze controls, all you would need to navigate inside the interface is simply look at various UI elements.

On the hardware front, AjnaLens will come with the ability to 'see the world', i.e. it will scan the world in real-time using depth-sense technologies. The headset will be able to create a 3D map of the environment and measure AR elements accordingly to deliver the most realistic experience.

On top of that, the software will take into account the presence of Artificial Intelligence and will work to improve the experience over time. The team working on the graphics of the AR headset is ensuring that AR objects will not merely remain cartoon figures in the real world — all the AR objects will blend with the environment by using ambient light shades on them. The team will be working on the VFX to make it look more real, i.e. an AR car will have shadows on the other side when being viewed directly under the sunlight. The team is also working on realistic shaders to ensure the headset tries its best to blur the lines between all the realities.

Given the aims that AjnaLens is expected to achieve; we expect the headset to use some really potent hardware underneath. In the coming days, it will be challenging for the company to commercialise the product in a country obsessed with efficient economics, considering the advanced technology that has gone under its hood.

Therefore, it won't be long before you will be having your personal JARVIS assistant at your disposal, telling you more about your surroundings than what your eyes can see. The future of technology is surely going to be exciting.

hindustantimes.com

Wed, 31 Jan, 2018

NASA satellite maps global distribution of cloud ice

NASA scientists pioneered the use of submillimeter wavelength bands, which fall between the microwave and infrared on the electromagnetic spectrum, to sense ice clouds.

A bread loaf-sized satellite has produced the first map of the global distribution of atmospheric ice in the 883-Gigahertz band, an important frequency for studying cloud ice and its effect on Earth's climate, NASA said on Wednesday.

IceCube - the diminutive spacecraft that deployed from the International Space Station (ISS) in May, last year - has demonstrated-in-space a commercial 883-Gigahertz radiometer capable of measuring critical atmospheric cloud ice properties at altitudes between five to 15 kilometres.

NASA scientists pioneered the use of submillimeter wavelength bands, which fall between the microwave and infrared on the electromagnetic spectrum, to sense ice clouds.

However, until IceCube, these instruments had flown only aboard high-altitude research aircraft. This meant scientists could gather data only in areas over which the aircraft flew.

"With IceCube, scientists now have a working submillimeter radiometer system in space at a commercial price," said Dong Wu, a scientist and IceCube principal investigator at NASA's Goddard Space Flight Center.

"More importantly, it provides a global view on Earth's cloud-ice distribution," said Wu.

Sensing atmospheric cloud ice requires scientists deploy instruments tuned to a broad range of frequency bands.

However, it is particularly important to fly submillimeter sensors.

This wavelength fills a significant data gap in the middle and upper troposphere where ice clouds are often too opaque for infrared and visible sensors to penetrate.

It also reveals data about the tiniest ice particles that cannot be detected clearly in other microwave bands.

IceCube's map is a first of its kind and bodes well for future space-based observations of global ice clouds using submillimeter-wave technology.

The Indian EXPRESS
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Wed, 31 Jan, 2018

Long lost 'IMAGE' satellite still alive, confirms NASA

NASA has been able to confirm connecting to the IMAGE satellite after over 12 years. They stated that the spacecraft's main system controls are operational.

NASA on Wednesday said that at least the main control system of its IMAGE satellite, which was re-discovered by an amateur astronomer on January 20, is operational. Launched on March 25, 2000, IMAGE, short for Imager for Magnetopause-to-Aurora Global Exploration, was designed to image Earth's magnetosphere and produce the first comprehensive global images of the plasma populations in this region.

After successfully completing and extending its initial two-year mission in 2002, contact was unexpectedly lost on December 18, 2005. After an amateur astronomer recorded observations of a satellite in high Earth orbit on January 20, 2018, his initial research suggested it was the IMAGE satellite. NASA has now confirmed the identity of the satellite.

"On the afternoon of January 30, the Johns Hopkins Applied Physics Lab in Laurel, Maryland, successfully collected telemetry data from the satellite. The signal showed that the space craft ID was 166 – the ID for IMAGE," NASA said. The NASA team was been able to read some basic housekeeping data from the spacecraft, suggesting that at least the main control system is operational.

NASA said it will continue to try to analyse the data from the spacecraft to learn more about the state of the spacecraft. "This process will take a week or two to complete as it requires attempting to adapt old software and databases of information to more modern systems," the statement added.

The Indian EXPRESS
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Wed, 31 Jan, 2018

Vitamin D3 may heal or prevent damage to your heart

Several diseases, including high blood pressure, build-up of fats, cholesterol in and on the artery walls, and diabetes, can cause damage to the cardiovascular system thus increasing the risk of heart attack.

Are you suffering from heart disease? A treatment with Vitamin D3 might help restore damage to your cardiovascular system, finds a study.

Vitamin D3 is produced naturally when skin is exposed to the sun or through over-the-counter pills.

Several diseases, including high blood pressure, build-up of fats, cholesterol in and on the artery walls, and diabetes, can cause damage to the cardiovascular system thus increasing the risk of heart attack.

However, taking Vitamin D3 — associated with the bones — at doses higher than those currently used for the treatment of bone diseases may be highly beneficial for the treatment of the dysfunctional cardiovascular system, the study showed.

"Generally, Vitamin D3 is associated with the bones. However, in recent years, in clinical settings, people recognise that many patients who have a heart attack will have a deficiency of D3. It doesn't mean that the deficiency caused the heart attack, but it increased the risk of heart attack," said Tadeusz Malinski, a graduate student at Ohio University.

The team, in a paper published in the International Journal of Nanomedicine, used nanosensors, which are about 1,000 times smaller in diameter than a human hair, to track the impact of Vitamin D3 on single endothelial cells — a vital regulatory component of the cardiovascular system.

The dysfunction of endothelium is a common denominator of several cardiovascular diseases, particularly those associated with ischemic events, the researchers said.

"There are not many, if any, known systems which can be used to restore cardiovascular endothelial cells which are already damaged, and Vitamin D3 can do it," Malinski said.

"This is a very inexpensive solution to repair the cardiovascular system. We don't have to develop a new drug. We already have it."

Vitamin D3 may also be of clinical importance in the restoration of dysfunctional cardiac endothelium after heart attack, capillary endothelium after brain ischemia (stroke), hypovolemia, vasculopathy, diabetes and atherosclerosis.