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SNUG India 2025: AI, Modular Chips, and India's Semiconductor Future

By Yashasvini Razdan, July 30, 2025

The first half of 2025 marked the close of one of the biggest acquisitions in the global electronics industry: Synopsys' $35 billion purchase of Ansys. While the deal grabbed headlines, Synopsys' ambitions in the EDA market run deeper.

World's thinnest VR glasses project true 3D holograms in stunning new display tech

ByAamir Khollam, July 30, 2025

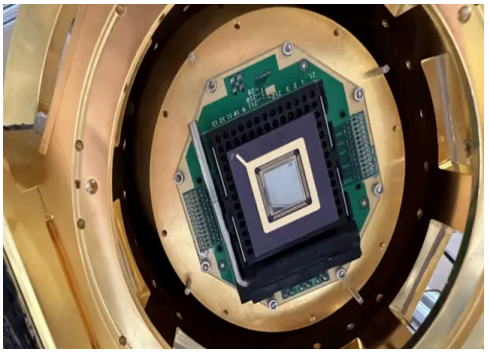
The future of virtual reality is shrinking, literally.Once confined to bulky headsets and limited fields of view, VR is now being designed for seamless integration into everyday wearables.Researchers and companies across the world are racing to move immersive 3D visuals out of the headset and into slim, lightweight devices.

Ultra-fast charging EVs: New battery anodes deliver high performance after 2500 cycles

By Prabhat Ranjan Mishra, July 30, 2025

Scientists have developed high-performance anodes for lithium and sodium-ion batteries with an exceptionally high charging speed and stability. The innovation can lead to safer and longer-lasting energy storage systems.

Atomic gold shield solves quantum chip noise problem without killing speed



By Aamir Khollam, July 30, 2025

Quantum computing's ability to solve problems that would take classical computers millennia has captured global interest.But the path to functional, scalable quantum machines has been riddled with fundamental challenges.At the heart of the problem lies the qubit, the quantum version of a digital bit.

NISAR a milestone in Indo-US space ties; space minister says sat will be a 'game changer in disaster management'

By Surendra Singh, July 31, 2025

The successful launch of the world's most expensive and unique earth observation satellite NISAR, jointly developed by US and Indian scientists over a decade, has given a big push to Indo-US space cooperation and has been hailed as a milestone in space collaboration between the two countries under the leadership of US President Donald Trump and Prime Minister Narendra Modi.

News Articles

'2-eyed' NISAR to scan every piece of Earth

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Nasa's dy associate administrator Casey Swails, in presence of Isro chief V Narayanan, addresses scientists after launch at Sriharikota

New Delhi: The NASA-ISRO Synthetic Aperture Radar (NISAR) programme cost the US and India over $1.5 billion. But there is an important question to be asked: What was the need for such a huge investment when hundreds of earth observation satellites are already in space? The answer is that the world had never developed a dual-frequency band satellite.

NISAR has two synthetic aperture radars of different bands that will operate in tandem. It will be a 'satellite with two eyes in space" keeping a hawk's eye on the Earth and scanning every piece of our planet for minute details.

"Our planet surface undergoes constant and meaningful change. Some change happens slowly. Some happens abruptly. Some changes are large, while some are subtle," Karen St Germain, director of Nasa's Earth Science division, explained. Calling NISAR "the most sophisticated radar we've ever built", Germain said, "We'll see land substance and swelling, movement, deformation and melting of mountain glaciers and ice sheets covering both Greenland and Antarctica, and, of course, we'll see wildfires". Congratulating Isro and Nasa, space minister Jitendra Singh called the NISAR mission a "game changer in precise management of disasters".

L-band SAR, provided by Nasa, uses higher wavelength microwaves and can penetrate tree cover for vegetation, sand and ice. S-band SAR, provided by Isro, has a shorter wavelength & will capture larger features like crop fields & water bodies. Putting two radars of different bands on the same satellite was therefore the biggest engineering challenge, which Nasa and Isro managed to overcome, though it took them 10 years to develop the 2,392-kg marvel.

Source: The Times of India Newspaper, 31-07-2025
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Link: https://drive.google.com/file/d/1HrwDpBP8EBfHlJ2MEPmmNol5ClNVqlGE/view

Isro-Nasa's NISAR Satellite Lifts Off from Sriharikota

Our Bureau

Bengaluru: In the works for over a decade, the Indian Space Research Organisation (Isro) and Nasa launched their first joint weather satellite on Wednesday at 5:40 pm from Satish Dhawan Space Centre, Sriharikota. Nasa-Isro Synthetic Aperture Radar (NISAR) will track movements in polar ice, forest biomass, wetlands, and changes in the Earth's crust.

The data generated from the satellite will be made freely available to researchers and governments worldwide, making it a global asset for climate research, disaster response, and natural resource management. This is the first such collaboration between the two space agencies.

The NISAR satellite will orbit Earth for at least three years, using its sophisticated radar systems to scan nearly all the planet's land and ice surfaces twice every 12 days.

"Separation confirmed. Each stage, precisely. Cryo ignition and Cryo stage performance flawless. GSLV-F16 delivered NISAR to orbit," Isro said in a statement post the launch.

The satellite has been developed at a cost of $1.5 billion, one of the most expensive weather satellite and Indo-US space collaborations. It is also the world's first radar imaging satellite to use both Nasa-developed L-band and Isro's S-band SAR technology, allowing for high-resolution monitoring of land and surface changes. "It will support monitoring of infrastructure, such as dams, bridges, and roadways. The satellite's cloud-penetrating ability will help urgent-response communities during weather disasters such as hurricanes, storm surges, and floods," Nasa explained.

KEEPING TRACK

NISAR to track movements in polar ice, forest biomass, wetlands and changes in Earth's crust

Source: The Times of India Newspaper, 31-07-2025
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Link: https://drive.google.com/file/d/1HrwDpBP8EBfHlJ2MEPmmNol5ClNVqlGE/view

NISAR will revisit each point on Earth every 12 days

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Developed over a decade, NISAR carries the world's first dual-frequency radar imaging system using 'L' and 'S' band radar to detect changes of just a few centimetres on Earth's surface and help early warning systems.

Isro scientists applauded as the mission crossed every landmark with textbook precision, while staff at Nasa mission control in California watched the launch, munching their "lucky peanuts". "During their Feb meeting in Washington, President Trump and PM Modi underscored space cooperation as a priority ... As NISAR begins its journey to unlock new insights about the planet, it's a testament to this collaboration," said US embassy charge d'affaires Jorgan K Andrews.

Isro chairman V Narayanan confirmed all systems performed as planned and the satellite achieved an orbit within 3km of the target (20km is the permissible range). "It is the first joint development project undertaken by the two major spacefaring nations. Over the years, the mission has brought our agencies closer, enriching both sides through continuous interaction," Narayanan said.

Nasa deputy associate administrator Casey Swails said the mission was about more than technology or science.

"It's about partnership. It's about what we can achieve when we bring together diverse expertise and perspectives for a shared goal," he said.

Chaitra Rao, NISAR project director from Isro, confirmed the deployment of solar panels while Nasa confirmed that its mission controllers "have received full acquisition of signal from the spacecraft".

NISAR will revisit every point on Earth every 12 days and help monitor sea-level rise, groundwater, floods, seismic activity, volcanoes and landslides, aiding disaster response and early warning systems. Its primary objectives include tracking land and ice deformation, monitoring ecosystems, biomass, crop extent, and studying polar regions, wetlands, glaciers and aquifer activity. It'll support research into earthquakes, volcanoes, and landslides, while also helping disaster-response agencies deal with storms, floods, and coastal surges.

In orbit, NISAR will now need 90 days before sending the first set of data. Its 12m-wide mesh reflector — the main radar antenna — was too large to launch fully extended. At present, it is folded and will be deployed in space through a series of manoeuvres beginning on the 10th day post-launch.

LANDMARK STEP

The deployment sequence spans several days. On Deploy Day 1, engineers begin pre-checks and unlock six restraints. Additional locks are released on Day 2, activating the "wrist hinge" to start the boom's extension. The shoulder hinge swings out on Day 3, followed by the elbow hinge on Day 4. By Day 5, the root hinge completes the boom's extension. Day 6 is reserved for system checks, and Day 7 is a buffer. On Day 8, the satellite performs a manoeuvre to orient itself and unfurls the circular radar reflector. After this, NISAR enters the commissioning phase, during which all systems, from radar electronics to instruments built by Isro and JPL, are tested and calibrated. The satellite is expected to start sending data from the 90th day.

Source: The Times of India Newspaper, 31-07-2025
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Link: https://drive.google.com/file/d/1HrwDpBP8EBfHlJ2MEPmmNol5ClNVqlGE/view

Landslide-hit Himachal eyes AI-based early warning system

TIMES NEWS NETWORK

File photo

Over 250 roads are blocked in Himachal. The death toll in state stood at 170 on Wednesday, and total losses rose to nearly Rs 1,600 crore

Kullu: Himachal Pradesh govt is working on an artificial intelligence-based early warning system that can provide timely evacuation alerts in the event of a disaster, PWD minister Vikramaditya Singh said Wednesday after visiting flood-hit Mandi town, a day after three members of a family were swept to their deaths.

"State govt is prioritising disaster preparedness. A comprehensive roadmap is being developed in collaboration with the Centre to install an AI-based early warning system," said Singh, warning strict action would be taken against uncontrolled excavation during road construction.

"Unscientific cutting of hills during highway constructions must be avoided. State govt is serious about this issue and has raised it with NHAI. Development should not cause destruction. There should be sustainable development," he added.

Himachal continued to be battered by flash floods and landslides, triggered by heavy rain, for second consecutive day. Over 250 roads are blocked, large areas are in darkness, and water supply lies disrupted.

The death toll in Himachal stood at 170 on Wednesday, and the total loss rose to nearly Rs 1,600 crore. The Met department has issued an alert for heavy rainfall in Kangra, Kullu, Mandi, Shimla districts on Thursday.

Source: The Times of India Newspaper, 31-07-2025
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