ATHARVA ROBOTICS CENTER

Daily News on Innovation & Technology

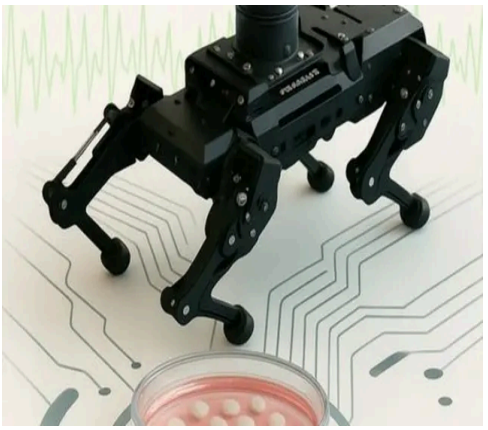
21st August, 2025

SpaceX to Launch Secret X-37B Space Plane Thursday

By David Dickinson, August 20, 2025

The U.S. Department of Defense's mini-shuttle heads to orbit once again Thursday night.The hunt will be on shortly, to once again recover a clandestine mission in low Earth orbit.SpaceX is set to launch a Falcon-9 rocket from launch pad LC-39A at the Kennedy Space Center Thursday night August 21st, with the classified USSF-36 mission. The U.S. Space Force has announced that this is the eighth mission for its fleet of two Orbital Test Vehicles (OTV-8). This is the automated 'mini-space shuttle' about the size of a large SUV, that launches like a rocket, and lands like a plane.

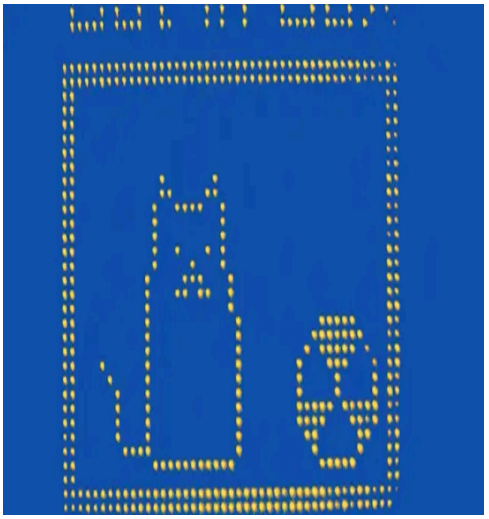
US scientists steer robot dog with graphene brain organoids in lab breakthrough



By Georgina Jedikovska, August 20, 2025

Scientists in the U.S. have used graphene and light to control a robot dog and develop new groundbreaking method that stimulates and matures lab-grown human brain organoids.The researchers from the University of California San Diego Sanford Stem Cell Institute utilized a one-atom-thick sheet of carbon to introduce a method called Graphene-Mediated Optical Stimulation (GraMOS)

Scientists create 'world's smallest cat video' to advance quantum computing



By Mrigakshi Dixit, August 20, 2025

Ateam of physicists has created a video using just 2,024 rubidium atoms, showcasing a major advance in manipulating matter at the quantum level.It has been described as "the world's smallest cat video" that depicts the famous Schrödinger's cat thought experiment. The quantum cat thought experiment, proposed by physicist Erwin Schrödinger in 1929, is a paradox designed to illustrate the bizarre concept of superposition, where a particle or object can exist in multiple states simultaneously.

India's 1st drone forensic lab to revamp policing & probe

By Pathikriit Chakraborty, August 19, 2025

Lucknow: In a first-of-its-kind initiative in the country, a drone forensic lab has been established at the Uttar Pradesh State Institute of Forensic Science (UPSIFS) in Lucknow.Inaugurated by chief minister Yogi Adityanath on Monday, the lab has been conceptualised and established by 'Drone Man of India' Milind Raj, a noted robotics and drone technology expert, who is now associated with UPSIFS as a forensic drone.

AlphaSense Launches Autonomous AI Agent Interviewer, Debuts Channel Checks to Deliver Real-Time Market Signals Across All Sectors of the Economy

By PRNewswire , August 19, 2025

The AI platform redefining market intelligence for the business and financial world, launched its AI agent interviewer and debuted Channel Checks, game-changing capabilities that expand Tegus Expert Insights, the company's comprehensive expert research offering. For the first time, users can now get a real-time pulse on the economy through Channel Check interviews, surfacing market-moving insights such as demand shifts, pricing changes, and supply chain disruptions.

MIT's next-gen AI screens millions of molecules at supercomputer speed for drug study

By Neetika Walter, August 19, 2025

The race to accelerate drug discovery has found a powerful ally.Boltz-2, a next-generation biomolecular foundation model developed by MIT's Jameel Clinic and CSAIL in collaboration with Utah-based biotech startup Recursion, the AI model is carrying out drug discovery at supercomputer speed.

Small NASA radar system tracks millimeter terrain and volcanic changes without GPS

By Neetika Walter, August 19, 2025

A collaboration between NASA and small aerospace company Aloft Sensing has produced a compact radar system capable of detecting minute changes in Earth's surface. The instrument, called HALE InSAR, is small, lightweight, and consumes less than 300 watts—roughly the power of an electric bike—yet can track millimeter-scale deformations in terrain, snowpacks, and volcanoes.

News Articles

India's space sovereignty takes flight

PROSENJIT NATH

For decades, India's space story was written by one name, ISRO. From the humble launch of Aryabhata in 1975 to the historic Chandrayaan-3 moon landing, it has been the crown jewel of Indian science. But while our scientists were conquering the cosmos, there remained a silent vulnerability: we were still dependent on foreign satellites for critical Earth Observation (EO) data.

That changes now.

In a landmark announcement, four Indian companies, PixxelSpace India, Piersight Space, Satsure Analytics India, and Dhruva Space, will join forces to build and operate India's first indigenous commercial EO satellite constellation. Over the next five years, they will invest more than ₹1,200 crore to deploy 12 state-of-the-art satellites under the EO-PPP (public-private partnership) model facilitated by IN-SPACe, the Indian National Space Promotion and Authorisation Centre under the Department of Space.

This is not just an industrial project; it is a strategic necessity. In the age of information warfare, the country that controls high-resolution Earth data controls a vast strategic advantage. From tracking enemy troop movements to monitoring illegal land grabs, from assessing crop yields to spotting disaster zones in real time, EO satellites are the eyes of a modern nation. Until now, India's 'eyes' have often relied on imported lenses. That was not just a commercial inconvenience; it was a potential national security hazard.

By developing our own EO network designed, built, and operated entirely by Indian talent, this project will slash dependence on foreign providers and ensure data sovereignty.

The satellites will feature Synthetic Aperture Radar (SAR), enabling them to map the Earth's surface day or night, in any weather. That means they will not blink during monsoons, cloud cover, or darkness, ideal for maritime surveillance, border monitoring, and infrastructure tracking. They will serve applications ranging from precision agriculture to environmental compliance, urban planning, and disaster relief. In short, these satellites will be a tool

better. The government's target is to grow India's space economy from $8.4 billion in 2022 to $44 billion by 2033. But this growth cannot come from ISRO alone; it needs a thriving private space sector. The EO-PPP framework is an ideal blend: the government provides strategic, technical, and policy support, while private firms bring innovation, agility, and risk-taking ability. This is exactly the model that allowed private players like SpaceX in the US to revolutionise global space access.

media data is weaponised, why should India leave its geospatial intelligence in foreign hands? This is why this project is more than a business: it's a shield for our sovereignty.

Critics may argue about the cost of ₹1,200 crore over five years, but that is a fraction of the strategic and economic value these satellites will generate. Every cyclone predicted more accurately, every illegal mining site detected early, and every floodplain mapped in time will save lives, resources,

manufacturing jobs—and the multiplier effect becomes obvious.

It's also worth noting that this private consortium is not a foreign investment play. These are homegrown companies, led by Indian engineers, funded by Indian capital, and aligned with Indian strategic goals.

Pixxel CEO Awais Ahmed has called this a "testament to India's vision for a vibrant space economy." Piersight co-founder Gaurav Seth has highlighted that their focus

because in modern governance, speed is security. When agencies can get actionable alerts within minutes, they can act, not just react.

From a civilisational perspective, this is a continuation of Bharat's journey from being seen as a consumer of technology to becoming a creator and exporter. Just as the IT revolution turned India into the back office of the world, the space-tech revolution can turn us into a global hub for geospatial intelligence, serving both national and

government backing, taking charge of our space-based intelligence infrastructure. This is not outsourcing our future; this is insourcing our destiny. And as these satellites take their positions in orbit, they will not just be circling Earth, they will be orbiting around the idea of a self-reliant, secure, and strategically empowered Bharat.

If we execute well, this could be the start of India's second space age, one where sovereignty is safeguarded not just by soldiers at the

Source: The Statesman, 20-08-2025
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A MADE-IN-INDIA ROBOTICS PLATFORM FOR THE WORLD

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Any workflow that is unskilled and requires mobility – that's our sweet spot," says **Runal Dahiwade**, founder of Peppermint Robotics. From modest beginnings in Pune to global deployments across North America, Europe, the Middle East, and Southeast Asia, Peppermint is quietly helping establish India's place in global robotics conversation.

Peppermint is what you could call a full-stack robotics platform company – designing, developing, manufacturing, and licensing industrial robots, especially autonomous floor cleaning robots that now run in airports, pharmaceutical units, and corporate campuses. About 50% of its revenue comes from ex-

STARTUPS GO GLOBAL

ports, the majority from the US. Another 40% comes from India, and the remaining 10% from licensing the tech stack to global OEMs. Global customers include Boston Children's Hospital, Clemson University, and Japan's Taikisha and Denso. India-based customers include Google, Amazon, Infosys, Cipla, and Adani Ports.

Going global was challenging. Runal needed to demonstrate the significance of his technology and have it validated. "Obtaining certifications in different countries and ensuring the smooth operation of the supply chain were key priorities for us," he says.

A Peppermint robot cleans a factory floor. Among Runal's customers are Boston Children's Hospital and Clemson University in the US, Taikisha and Denso in Japan, and Google, Amazon, Infosys, Cipla, and Adani Ports in India

com, an online marketplace for vehicle spare parts, which was later acquired by Mumbai-based Topwheelz. He worked there for six years, and during his last project that involved automating car wash and servicing, he realised many jobs were repetitive and mundane, often disliked by workers.

"This insight led me to explore other similar tasks like material handling, security, and cleaning – essential, but repetitive workflows. I quit my job and partnered with IIT Bombay, where I researched robotics software and got incubated by SINE (Society for Innovation and Entrepreneurship), which still supports Peppermint. Much like how washing machines revolutionised laundry in the 1950s, our mission is to transform repetitive mobile workflows through robotics," Runal says.

"It's our secret sauce – the brain of every Peppermint robot," says Runal. The OS enables precise obstacle avoidance, dynamic path planning, and intelligent autonomy in complex environments. This cloud-connected system also drives Peppermint's fleet manager system that gives customers real-time insights into performance, diagnostics, and energy usage.

Complementing the OS is also Skateboard, a modular electronics and power platform that integrates motor and sensor management with automotive-grade durability. It includes custom-designed power electronics, a self-docking charging system, and scalable components that make building new robot variants faster and more efficient. The systems meet IEC (International Electrotechnical Commission) and other international functional safety standards.

Source: The Times Of India Newspaper, 20-08-2025
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Forget Chatbots, Lace Up For The Robot Race

Future of the factory floor is smart, built on AI and robots tailored to the specific needs of each environment. With its semiconductor and AI ecosystems rising apace, India has a real chance to take the lead

Suvonil Chatterjee

After 78 years of Independence, India stands at the threshold of a technological revolution that could define her next century. The world is racing toward Physical AI: robots that think, factories that learn, supply chains that adapt in real time. Countries that master this technology won't just export products – they'll export the future itself. And if we don't build it, someone else will build it for us. Fortunately, India has everything it takes to win this race. The only question is: will we move fast enough?

I'm not exaggerating. Last month, UPI powered 1,947cr transactions worth ₹25L cr. When India decides to build something fundamental, we don't copy – we leapfrog. Now it's time to do the same with physical technology.

The foundation is already being laid. The IndiaAI mission is building a national computer grid with thousands of GPUs that any startup can rent by the hour. A Coimbatore firm accessing Silicon Valley-level computational power? That's disruption. In Dholera, Tata Electronics is constructing India's first major semiconductor fab. Chips aren't just components – they're sovereignty in silicon. BSNL's signed up for India's first industrial-grade private 5G network at Numaligarh Refinery. This is the nervous system of smart factories: machines communicating in milliseconds, robot arms coordinating with quality scanners – zero human intervention.

For years, global tech giants have treated India as their data farm. A billion Indians generating clicks, swipes, voices, images – all harvested and processed in Silicon Valley, then sold back as "AI services". We've become the world's largest unpaid data labourers. Digital colonialism, plain and simple.

Physical AI is our chance to break this cycle. India's data should train India's robots. Our factory floors generate uniquely Indian patterns: different power grids, humidity levels, worker rhythms. A robot built in China can't withstand an Indian summer. An AI trained in pristine Western factories can't handle the controlled chaos of an Indian warehouse. When we build Physical AI systems trained on Indian data, solving Indian problems, we assert digital sovereignty.

Before worrying about job losses, consider Tamil Nadu's electronics corridor: heavily automated, yet creating thousands of jobs. Automation doesn't eliminate work – it transforms it. Productive factories win more orders, expand operations, and create new roles: robot operators, AI trainers, quality analysts, maintenance specialists.

So, what's the game plan? First, we need our own

"RoboStack": open standards for Indian robotics that any entrepreneur can build on. Think UPI for machines. The govt must extend PLI incentives beyond assembly to the unglamorous essentials: motors, sensors, gearboxes. Roll out industrial 5G in every manufacturing cluster, not just showpiece refineries. And enable Robot-as-a-Service financing: small manufacturers shouldn't need crores upfront – they should pay from productivity gains.

But policy alone won't cut it. Our startups need to stop chasing the next 10-minute delivery app and start building the picks and shovels of Physical AI. Every imported sensor, servo motor, gripper is a missed opportunity. Build one critical component exceptionally well, and global supply chains will come knocking. The market doesn't need another chatbot – it needs depth cameras that work in Indian factory conditions.

Our industrial giants, sitting in massive factories, have a different role. Those production lines generate invaluable data every second. Use it to train Indian AI systems. Be the first customers for Indian robotics startups. Your early adoption gives them credibility to go global.

And for our youth: forget the obsession with becoming the next software unicorn. The real opportunity is in the real world. ITIs and polytechnics should run 12-week certifications for robot operators and automation technicians. If you're in an engineering college, go build a robot – not another app. The highest-paying jobs of the next decade won't all require computer science degrees – they'll need people who bridge the digital and physical worlds.

Most importantly, mandate data localisation for industrial AI. Every robot operating in India, every factory AI system, should contribute to a national industrial data commons. Not to spy on companies, but to build collective intelligence that benefits all Indian manufacturers. When a textile mill in Surat solves a quality problem, that learning should help a mill in Tirupur. When a pharma plant in Hyderabad optimises a process, that insight should benefit facilities in Baddi.

Here's my prediction: by Independence Day 2030, we won't be discussing why India missed the AI revolution. We'll be counting how many factories run on indigenous technology, how many young Indians operate advanced robots, how many lakhs of crores we've saved in imports, and how many global companies are buying Indian-made automation systems.

This isn't about any one company or govt scheme. It's about a choice we make as a nation. Do we want to remain consumers of someone else's future – or creators of our own? Freedom fighters gave us political independence in 1947. Engineers, entrepreneurs and workers of 2025 must secure our technological independence.

The race has begun. The infra is building. The world is watching.

The writer works in the field of AI in manufacturing

Source: The Times Of India Newspaper, 20-08-2025
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Link:https://drive.google.com/file/d/1DsSb1yfvHwTTa-7-hhkOfLGSzpEL3p4Z/view

OpenAI heats up AI race with new India offering

Supriya.Roy@timesofindia.com

Bengaluru: Global AI players are sharpening their India strategies as they compete for one of the world's fastest-growing markets.

OpenAI on Tuesday introduced ChatGPT Go, a Rs 399 per-month subscription plan built for India, directly pitting itself against rivals Perplexity, Google, and Anthropic's Claude, which have all been pushing their premium offerings in the country.

The new plan, powered by GPT-5, gives users higher message limits, image generation, file uploads, and expanded memory. It also marks the first time OpenAI subscriptions can be paid via UPI, widening accessibility in a mobile-first market. OpenAI continues to price ChatGPT Plus at Rs 1,999 a month and ChatGPT Pro at Rs 19,900. Perplexity, which partnered with Bharti Airtel last month to provide its services for free to 360 million subscribers, charges Rs 1,660 per month for its Pro plan and Rs 16,600 for its Max tier. Google's Gemini is available in India at Rs 1,950 a month for Gemini Pro and Rs 24,500 for Gemini Ultra. Anthropic's Claude is priced at Rs 1,415 a month for Claude Pro and Rs 8,300 for Claude Max.

India's growing relevance is not lost on OpenAI. CEO Sam Altman described the country as the company's second-largest market and said it may soon overtake the US. He also committed to increasing OpenAI's focus on India, including plans to visit. The company recently partnered with the govt's IndiaAI Mission to launch OpenAI Academy, aimed at providing AI education in regional languages and supporting startups, educators, and nonprofits. The contrasting approaches highlight the high-stakes battle for India's AI mindshare. OpenAI is leaning on affordability and local payment rails to broaden adoption, Perplexity is opting for scale through telecom distribution, while Google and Anthropic are maintaining global price positioning.

With millions of students, professionals, and creators experimenting with generative AI daily, India has become a critical proving ground for how consumer AI services will scale.

MORE FOR LESS

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- It directly pits itself against rivals Perplexity, Google, and Anthropic's Claude
- The new plan, powered by GPT-5, gives users higher message limits, image generation, file uploads, and expanded memory

Source: The Times Of India Newspaper, 20-08-2025
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Logistics companies gear up to meet festive rush, with AI help

Q-comm forces firms to reorient preparations

S SHANTHI
Bengaluru, August 19

LOGISTICS AND SUPPLY chain companies expect a 20-40% increase in festive sales this year, fuelled by pent-up demand. To make the most of it, many players such as Shiprocket, Porter, Hexalog, Zippee, and Shadowfax have enhanced tech capabilities, hired gig workers, and increased the fleet size. Some of them have specifically heightened their focus on Tier 2 and 3 cities that have been outpacing metros in festive e-commerce growth.

Logistics unicorn Shiprocket has upgraded its warehousing infrastructure with AI-driven inventory and demand forecasting systems. On the merchant enablement side, it is rolling out tools like Co-pilot, Shunya.ai, SenseAI, MCP, and RevProtect to help merchants capture festive demand. "This festive season, we anticipate one of the strongest demand surges in recent years, driven by rising consumer confidence & accelerated adoption of online shopping in Bharat," Atul Mehta, CEO, domestic shipping, Shiprocket, said.

Specific measures are being taken to cash in on the quick commerce demand while also continuing to focus on e-commerce delivery and direct deliveries for large enterprises, MSMEs and D2C startups. "Quick commerce is brutal. It's not like 'oh volumes went up a bit.' It literally doubles overnight. If you don't prepare, the system just collapses. At Zippee, we have learnt the hard way that you can't switch this on in October. You start in July. We open more dark stores, even if it hurts short-term margins. A 200 sq. ft. store can move more volume than a supermarket during Diwali week, but only if it exists in the first place," Madhav Kasturia, founder and CEO, Zippee, said. Since July this year, the firm has opened 45 new dark stores in 13 cities to cater to the festive rush. Zippee enables same-day and two-hour deliveries for brands such as Supertails, Clinikally, The Whole Truth, Mondelez, Traya, Ultrahuman, and Haldiram's.

Most logistics and supply chain startups are also over-hiring riders and operations executives by 20-30%. "Yes, it's expensive. But if you miss an order of Rs 1x, it will during Diwali, that customer is gone forever," Kasturia added. The firm has hired more than 700 store associates and 1,000 gig riders in recent months.

Allcargo Supply Chain has expanded its team by 30%, with over 9,000 blue-collar employees managing operations. The firm claims that it has put in place performance-linked incentives and well-being measures to ensure peak productivity. It has also created a centralised monitoring system to ensure agile and flexible resource deployment to meet sudden demand spikes across multiple locations.

Logistics startups are also making sure they stock efficiently, plan routes, and scale up backend tech to ensure real-time tracking of the process. This, they say, will help them forecast and auto-replenish before shelves go empty. "Delhi wants dry fruits, Bengaluru wants chocolates, Mumbai wants Ferrero. Also, people shop at 2 AM during Navratri and Diwali. So we go 24x7, no debate. Last year, our 1-5 AM orders grew 4x. That's a consumer unlock no supermarket can serve," Kasturia added.

Allcargo, an AI-driven supply chain firm that caters to D2C players such as Urbanic, Savanna, and Fridlo, is anticipating a significant jump in order volumes, with a target to process and deliver up to 100,000 shipments per day during peak festive weeks. The firm has implemented a detailed festive preparedness plan with hourly productivity checks across fulfilment centres, repositioning high-demand SKUs for faster picking, and strengthening last-mile delivery partnerships to support same-day deliveries in key locations. Utkarsh Tripathi, co-founder and COO, Hexalog, said it is also expanding vendor partnerships to diversify capacity and introducing team motivation programmes to maintain morale and productivity.

Porter has come up with an enterprise offering which is built to help mid-to-large enterprises navigate festive demand spikes, offering centralised visibility, transparent operations, and consolidated billing, especially during unpredictable surges. "From automating bookings through API integrations to managing ad hoc, multi-city movements, it brings agility and control to logistics, ensuring seamless, scalable delivery support throughout the season," Mohit Rathi, vice president, growth, Porter, said.

ON DEMAND

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Source: The Financial Express Newspaper, 20-08-2025
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Training AI to diagnose scans, like doctors do

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When Kalyan Sivasailam, the CEO & co-founder of 5C Network, describes his company's radiology AI product, he often reaches for an analogy from the world of superheroes. "If I had to be a little colourful, I'd say we're building an Iron Man suit for radiologists," he says. Behind that metaphor lies a full-stack platform, years in the making, that is now quietly processing nearly 1.5% of all medical scans in India each day.

Sivasailam's journey towards creating 5C began in an unlikely place — Karnataka's health and family welfare department. As a law graduate working on public health apps, he noticed how deeply technology could improve healthcare delivery. But the breakthrough came when he encountered CT machines lying unused in rural hospitals simply because there were no radiologists available to interpret the scans. At the same time, advances in computer vision — like ResNet and DenseNet architectures — suggested to him that AI might have the potential to fill that gap. "I had this thesis: if autonomous cars can learn to navigate every street in Phoenix, why couldn't AI learn the world of radiology?" he recalls.

That idea became the foundation of 5C Network, which he co-founded in 2017. The company, now 140 people strong, operates as a "full-stack radiology AI" provider.

AI's impact on radiology is well known, as is the com-

"What makes us different is that we are full-stack. We don't just build AI models; we collect and annotate our own data, design our own machine learning pipelines, and then deploy them directly into hospitals. That control lets us push accuracy to the level where radiologists can trust it. With vision-language models and massive datasets, I believe a universal vision model for radiology is within reach.
Kalyan Sivasailam | CEO & CO-FOUNDER, 5C NETWORK

load is so much they need support. Smaller hospitals often don't have anyone full-time," Sivasailam noted. "Plugging into 5C makes it easy for both." Today, 5C works with five of India's top ten hospitals and more than 2,000 smaller hospitals and diagnostic centres, supported by a network of over 500 active radiologists.

The company also has customers in the US and is actively expanding to countries in Southeast Asia and Africa.

Source: The Times Of India Newspaper, 20-08-2025
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Link:https://drive.google.com/file/d/1DsSb1yfvHwTTa-7-hhkOfLGSzpEL3p4Z/view

India's Path to Self-Reliance in Semiconductors

India is fast emerging as a global semiconductor hub, driving innovation across industries, building swadeshi chip ecosystems, empowering youth with industry-ready skills, and fuelling economic growth through cutting-edge research, manufacturing, and startup initiatives for a self-reliant Viksit Bharat@2047

FIRST Column

T SENTHIL SIVA SUBRAMANIAN

In today's era, semiconductor chips form the foundation of contemporary technological innovation that finds potential application in drones, electric vehicles, smartphones, high-performance computers (HPC), quantum computers, super computers, robots, high-power semiconductor lasers and across different sectors, starting from aerospace and defense, agriculture, healthcare, telecom and automotive sectors. India's chip market is a boon and boosts many diversified sectors which includes local and global markets.

India is already aiming to make a big move in the semiconductor technologies through building Vocal for Local Semiconductor Chips in motherland that allows to capture data in real time and send data with ultra high-speed communication and high bandwidth. In order to meet the demands of the semiconductor industry, there are variety of industry ready skill program in India which are offered through various platforms like futureskills prime, Swayam NPTEL, Virtual Labs, Electronics and ICT Academy, NASSCOM for reskilling young talent pool and make India a semiconductor savvy nation. India is aiming to build its own submicron and deep submicron affordable technology – Swadeshi System on Chip (SoC) thereby able to accomplish optimisation in space, energy consumption and cost as well.

From Cleanroom to Customer

India has boldly begun its successful journey in semiconductor domain through the launch of India Semiconductor Mission that led to the ongoing establishment of world's largest and prestigious cutting-edge semiconductor industrial powerhouse / Units across PAN India which includes the state of Uttar Pradesh. India slowly, steadily and gently made a transition from Indus valley to Semiconductor valley in the 21st century through several initiatives like National Semiconductor Mission, National Quantum Mission, National Mission for Cyber Physical Systems, Digital India, Make in India and Startup India. India's semiconductor transformation and revolution is creating big impact on economy and thereby creating enormous opportunities for young talented engineers. The establishment of semiconductor units will further enhance the employability of semiconductor talent pool across India and escalate the semiconductor economy of our nation as well.

INDIA HAS BOLDLY BEGUN ITS SUCCESSFUL JOURNEY IN SEMICONDUCTOR DOMAIN THROUGH THE LAUNCH OF INDIA SEMICONDUCTOR MISSION

The writer is the Head of the Institute Industry Interface Program and Assistant Professor in Electronics and Instrumentation Engineering Department

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Indian scientists and startups have built indigenous Swadeshi semiconductor products like Shakti processor and Digital RISC-V that showcase the strength of India's swadeshi semiconductor ecosystems. The in-house designed and developed semiconductor systems have led to ambitious achievement of national space mission and defence systems as well.

Programs for Semiconductor Technologies in India

The in-house research institutions in India like Semiconductor Complex LaboratoMarket semiconductorstry of Electronics and Information Technology, Government of India, Centre for Flexible Electronics, IIT Kanpur, ChipIN Centres across different academic institutions enhanced several innovations that led to design, development and fabrication of in-house Lab to Market semiconductor products which further influenced our nation to be self-reliant and also placing our nation in global map of Global Innovation Index and spearheading in intangible investments as well.

The variety of academic learning programs such as online / short term / certification / vocational program / blended learning on semiconductor technologies offered by different institutions like Chip-design centre of National Institute of Electronics and Information Technology, under MeitY, Centre for Development of Advanced Computing (C-DAC), Indian Nanoelectronics User Program (INUP - i2i), Electronics Sector Skill Council, NASSCOM IT-ITeS and MOOC courses have opened several avenues to the academic institutions thereby allowing the students from socio-economically disadvantaged groups) (clause 3.5 of NEP 2020) to undergo hands-on practice and experiential learning to improve and upskill their knowledge in the semiconductor domain. The best practices of the program offered by institutions and industries under National Skill Qualification Framework (NSQF) and National Credit Framework (NCrF) are in line with National Education Policy 2020 which facilitates achieving the Sustainable Development Goals (SDG 4).

The student and faculty members get exposure to interact with subject matter experts, visit the clean room facilities in Indian Institute of Science, Bangalore, Indian Institute of Technology, IIT Bombay and Nano-research facility (NRF) at Indian Institute of Technology, IIT Delhi. NIELIT Calicut has in-house Skilled Manpower Advanced Research and Training (SMART) facility or Virtual Prototyping Lab which is under the flagship program of Chip to Startup (C2S) of MeitY that facilitates to impart training in advanced design training, research, and design and development of electronics systems across the country.

The Government of Tamil Nadu in collaboration with IIT Madras and Ministry of Electronics and Information technology has planned to establish School of Semiconductor to train young talents who aspire to acquire semiconductor skills.

The training in custom designed industry ready EDA (Electronics Design Automation) tool would further enable young budding engineers to fetch job opportunities in different manufacturing industries which are exponentially growing in India through Make in India and Aatma Nirbhar program. Industry partners like Lam Research have partnered with Indian Institute of Science, Bengaluru to train students with direct learning simulation tools and semiconductor fabrication.

The Centre of excellence on semiconductor technologies like Vinod Dham Centre of Excellence for Semiconductor and Microelectronics (VDSemiX) was established in Delhi Technological University, New Delhi thereby making a bold step to cater for the semiconductor industry by equipping the students with direct simulation and fabrication training and experiential learning in emerging semiconductor technologies.

India's digital decade provides hand-on practice and experiential product-based learning for students to undergo summer internships / project-based learning in the semiconductor technologies.

Semiconductor mission initiative

India has already set a semiconductor roadmap and strong base to break the barriers with bold beginning through various pioneering schemes like like Design Linked Initiative (DLI), Production Linked Initiative (PLI), National Manufacturing Mission have boosted the semiconductor industries like Sahasra Semiconductor, Noida, RRP Electronics, Mumbai to develop cutting-edge semiconductor products which are boon to different domains like space satellites, healthcare imaging and diagnosis, smart farming, defense systems. The mission will play a vital role in increasing the roles and responsibilities of Indian MSMEs as well to enter the domain through semiconductor industrial clusters. The primary focus of the semiconductor industries is to bridge the gap between innovation and incubation of ideas, thereby leading to custom design product development and protecting the intellectual property rights (IPR).

India is poised to reach greater heights to market the vocal for local chips through the MSMEs pioneering digital platform like Government e Market Place (GeM) and Open Network for Digital Commerce (ONDC) as well.

UP: A Semiconductor Hub

The state university of Uttar Pradesh, Dr. A.P.J Abdul Kalam Technical University, Lucknow has introduced a course curriculum for the students to convert major projects in their undergraduate program to startup that could be recognised under DPIIT registration. The recently launched Chips to Startup (C2S), MeitY and Swavalambini acts as catalyst for the female students to start their own ventures through women entrepreneurship development supported by Ministry of Skill Development and Entrepreneurship, Government of India.

The students can interact with startup founders, scientists, and industry experts as well This will further boost the Uttar Pradesh IT Startup Policy and startup ecosystem of the state. The state of Uttar Pradesh is marching towards Semiconductor Viksit Bharat@2047 through several initiatives like establishing India's first semiconductor park in Noida which would escalate the state of Uttar Pradesh to achieve one-trillion-dollar economy by 2030.

Source: The Pioneer Newspaper , 20-08-2025
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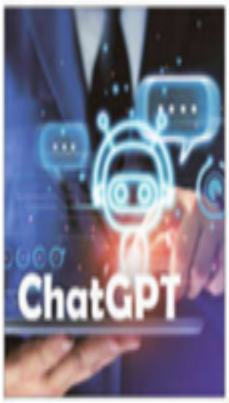
Link:https://drive.google.com/file/d/1UBLJH7mXmVxYlrYe9945-OZyI7cIE7Oz/view

ChatGPT joins low-cost AI rush

OTHER GENAI SERVICES companies are not too far behind. OpenAI, the creator of ChatGPT, joined hands with Grammarly, the AI-based English correction platform, last month to launch sharply reduced subscription plans for Indian users.

Grammarly cut its subscription price to ₹250 a month (billed annually), nearly three-fourths lower than its global rate.

Perplexity, another rising challenger to ChatGPT and Google's Gemini, struck a deal with Bharti Airtel earlier this month to offer its premium services free to subscribers. Normally priced at around ₹17,000 a year, the chatbot is now accessible to Airtel customers at no additional cost—an aggressive play that has set off a new "volume game" in the sector.



Google has also rolled out free access to some of its premium AI tools—including Google AI Pro, Deep Research and NotebookLM—along with 2TB of cloud storage. The bundle, usually priced at nearly ₹19,500 a year, is now being offered at no cost to Indian users, underscoring the high stakes. Industry watchers say these price wars reflect the growing recognition that India, with its young, digitally native Gen Z population, cannot be monetised at Western subscription levels. Netflix, Spotify and Microsoft previously adopted similar strategies to grow their user bases in the country.

OpenAI's newly introduced ChatGPT Go plan sits between its free and Plus tiers. The free plan offers limited GPT-5 access, slower image generation, and minimal memory. The Go tier, at ₹399, upgrades this to faster image creation, longer memory, and greater file and query limits. The Plus plan remains priced at ₹1,999, bundling advanced reasoning with GPT-5, access to Sora video generation, Codex agent tools, and expanded research features. At the top end, OpenAI's Pro subscription costs ₹19,900 per month, offering unlimited GPT-5 access, advanced research capabilities, and early experimental features.

OpenAI currently claims 700 million global users, with India accounting for its second-largest consumer base. Analysts expect the company to cross 1 billion active monthly users soon, with India contributing the lion's share. With China largely closed off, India has become the largest market for global consumer tech. Both Instagram and YouTube count India as their biggest audience base. AI services, experts argue, are likely to follow the same pattern. "Generative AI is no longer a premium novelty here—it's becoming a productivity essential," said a Delhi-based startup founder. "But the single biggest driver of adoption is affordability. Whoever cracks that balance will dominate the market."

Krishna Khandelwal, CEO of Hunar.ai, said: "In India, the cost of labour—especially in knowledge work—remains remarkably low. A software engineer in Bengaluru earns about $12,000 annually, barely one-tenth of the $125,000 average in Silicon Valley. This disparity underpins the rise of Global Capability Centres (GCCs), where organisations leverage labour-cost arbitrage to drive efficiency. For AI adoption in India, pricing models must reflect this reality. If AI services cost more than human labour without delivering clear efficiency gains, adoption will stall. But when priced right, AI does not compete with labour; it complements it—enhancing output while preserving the cost advantages that make India attractive.

Source: The Financial Express Newspaper, 20-08-2025
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Link:https://drive.google.com/file/d/1Hrl3fqlxJvKxAwnEqio5bYWOsnDwxHFF/view

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