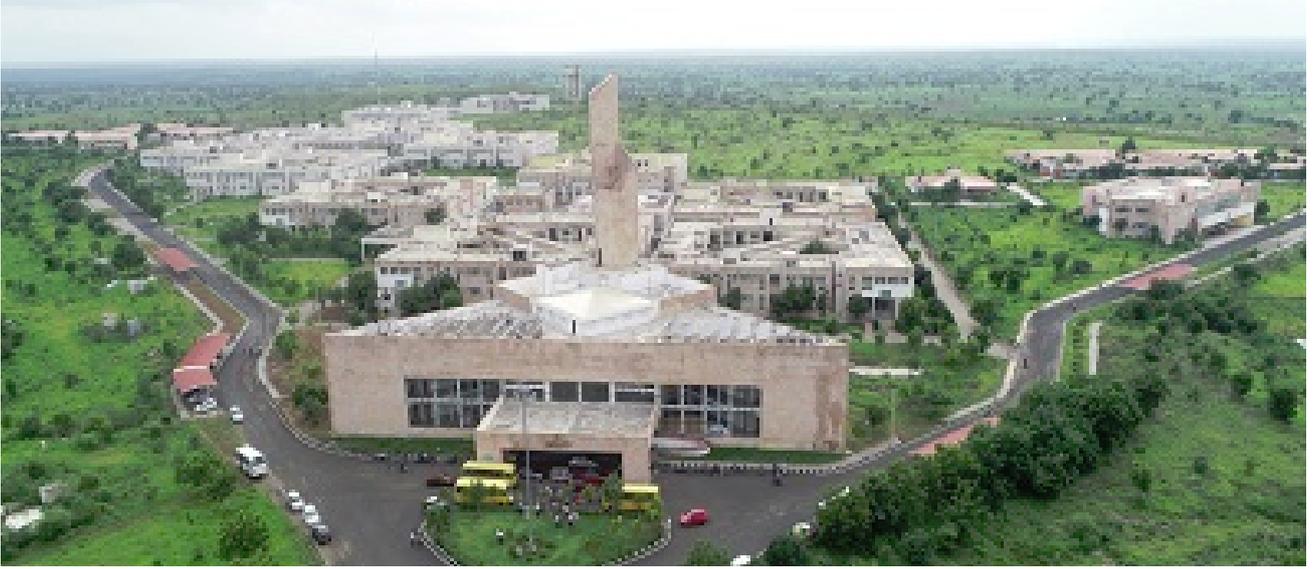




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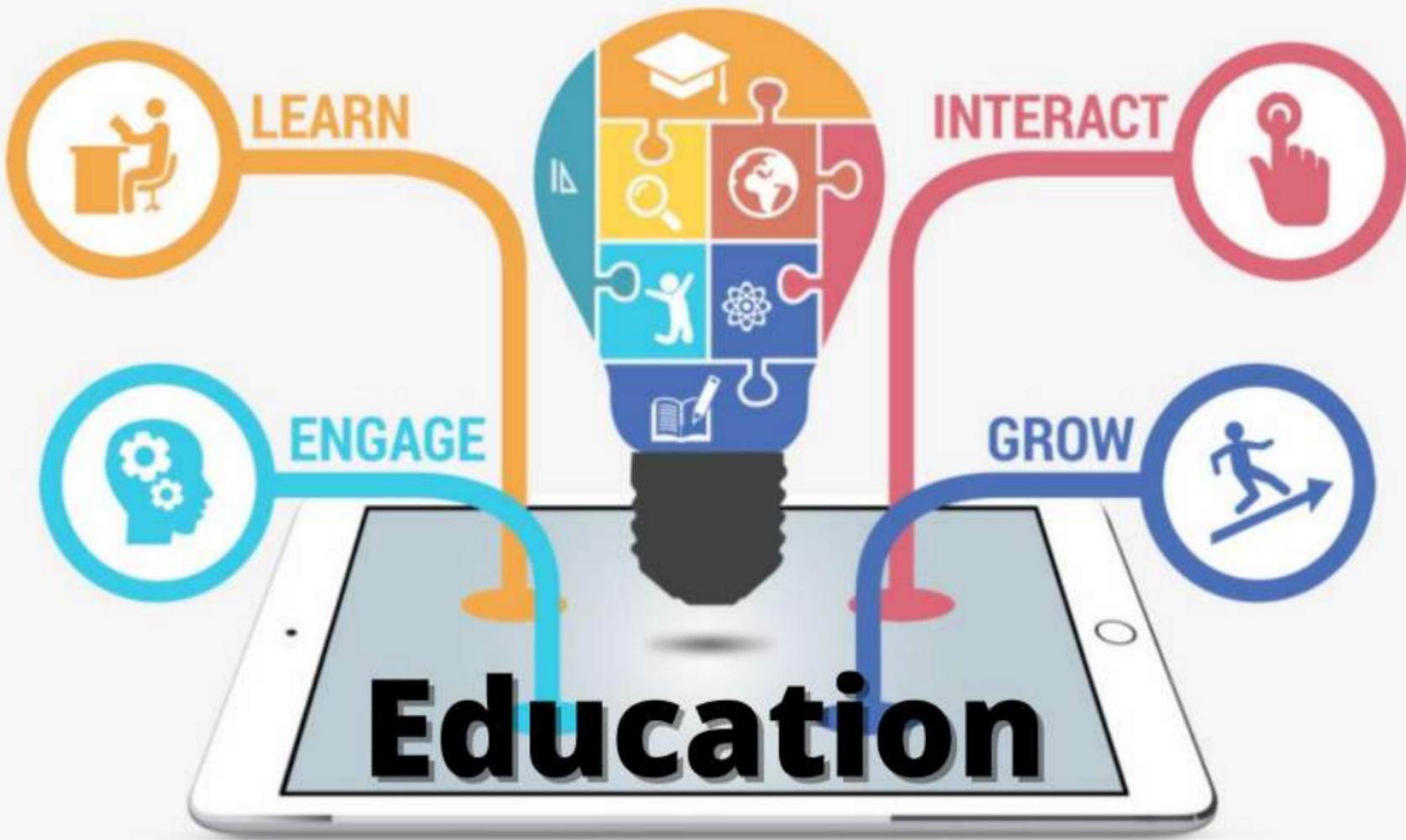
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Govt to develop 10 engg colleges as 'Institutes of Eminence'

To borrow loan from World Bank for funding the project

RASHMI BELUR
BENGALURU, DHNS

(KIT), on the lines of the Indian Institute of Technology (IIT). It has decided to upgrade 10 government engineering colleges as 'Institutes of Eminence.'

For this purpose, the Higher Education department has decided to borrow a soft loan from the World Bank. Con-

firmed this to *DH*, Minister for Higher Education Dr M C Sudhakar said that the proposal has been submitted to the Finance department for the concurrence to take a loan from the World Bank.

"It was just an announcement made by the previous government to develop colleges into an IIT model, but funds were not released or earmarked for the purpose. We have dropped that plan and decided to upgrade 10 government engineering colleges as Institutes of Eminence," said Sudhakar.

"It is not that we have discontinued the project by the previous government. Actually the twinning programme for polytechnic students was their project and we have continued it," the minister said.

'Not an easy task'

As explained by the minister, it is not easy to develop colleges as IIT model. "The curriculum, examination system, governance and everything is different in the IITs. Our aim is to improve the quality by providing importance to faculty and infrastructure," he said.

"We will not stress only on improving the infrastructure of our engineering colleges. The loan amount will be distributed region-wise for the colleges," he added.

The idea of the department is to get Rs 1,740 crore soft loan from the World Bank for the period of 20 years and allocate Rs 30 crore per government engineering college (total 10 selected), Rs 20 crore per degree college in 15 districts and upgrade them as model colleges and also to establish polytechnics in every district utilising the funds.

Sudhakar said the department is trying to bring in some changes in the engineering curriculum also. The BJP government had announced to upgrade seven government engineering colleges to KITs on the lines of IITs. It had constituted a task force headed by founder director of Indian Institute of Information Technology, Bengaluru, Prof S Sadagopan.

As per the announcement, the task force was supposed to select two departments in seven engineering colleges, study the needs and submit reports on upgrading them as KITs.

How about tasty chow at hostels?

Students raise concerns about quality of food in hostel mess and how it affects their well being

CAMPUS NOTES

In the era of food reviews, restaurants experience a surge in visitors after popular vloggers share their insights. However, a growing demand from students is calling for vloggers to review not just fancy eateries but also college hostels. Many students argue that the food quality in college hostels is often subpar, and they feel the need for online exposure to shed light on the reality of hostel canteen food.

Despite paying higher amounts, students find themselves compelled to consume substandard meals, prompting a call for attention to this aspect of college life. Students say that as college campuses strictly bar the outsiders without a valid identity card, the management should take up the challenge and openly invite the vloggers to give their fair and frank opinion.

"Hostel mess food has always been



PIC FOR ILLUSTRATIVE PURPOSES ONLY

Quality is only good when there's a new intake of students into the hostel. There's variety, sure, the quality is not up to the mark

a problem for students. Many students raise concerns about the quality of food in hostel mess facilities and how it affects their overall well being and justification for the expensive hostel fees.

In fact, students from different hostels have raised their voices against the quality and taste of meals provided by hostel mess facilities. It was found that food is sometimes tasteless and undercooked. Some stu-

dents also mentioned that they've seen rats and cockroaches in the kitchen which makes them order food from outside. But this burns holes in their pockets", said Anju Naidu, a college student.

Students mention that colleges charge an exorbitant fee but don't provide basic facilities and it affects their well being. They are also concerned about the hygiene standards with which the food is prepared. A hostelite said "The quality is only good when there's a new intake of students into the hostel. There's variety, sure, but the quality is not up to the mark. A lot of students face stomach issues that last for weeks. We've also found insects in our food, that makes us question what really goes behind the scenes."

Another hostel resident shared her experience and said, "The food quality in the hostel mess has deteriorated over time. It's frustrating to pay for meals that are tasteless and unappetizing. We deserve better."

The frustration has led to calls for improved quality control, increased transparency in food procurement, and

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a greater say for students in determining the menu. Students are also seeking clear avenues for lodging complaints about food quality and safety.

Students say that for a long time hostel food has been a debate of bad taste and the time has come where students studying in college campus are served yummy and hygienic food.

—Sanjana Rao

MBA: The key to unlocking unprecedented career growth

For those with entrepreneurial aspirations, an MBA course helps them acquire relevant knowledge, skills and valuable insights

IN LIGHT of reports suggesting that 80 per cent of Master of Business Administration (MBA) graduates land a job within three months of completing their education and 79 per cent of the students of MBA programmes go on to work for established organisations, the competitive advantage that MBA degree holders have in the job market over their non-MBA counterparts becomes apparent.

Owing to the benefits of doing an MBA being numerous and far-reaching, pursuing a programme in any of its wide spectrum of disciplines, ranging from the traditional specialisations — finance, operations, marketing and human resources — to the emerging ones like AI, sports management and data analytics, among others has emerged as a popular choice to enhance career prospects and personal development.

One of the primary benefits of earning an MBA degree is access to enhanced career opportunities alongside better compensation packages and higher earning potential. Whether one is aiming for a leadership role or seeking to switch industries, an MBA can quickly open the door to accelerated career growth by helping one gain knowledge and skills pertaining to general management and expertise in one's chosen domain of MBA specialisation. This ensures that graduates emerge with a diverse skill set and honed competencies in strategic thinking, analysis, problem-solving, leadership, and effective communication that enable them to adapt to changing and challenging business landscapes globally alongside confidently taking on leadership roles.

In addition to providing an excellent opportunity for building a strong professional



One of the primary benefits of earning an MBA degree is access to enhanced career opportunities alongside better compensation packages and higher earning potential

network comprising a diverse group of individuals from different backgrounds and industries that can prove invaluable throughout one's career, MBA programmes usually have a global focus, offering opportunities galore for international experi-

ences and exposure to different business cultures. This global perspective is a significant asset in an increasingly interconnected and globalised business world.

Furthermore, for those with entrepreneurial aspirations, a relevant MBA course helps them acquire the knowledge, skills, valuable insights and access to resources needed to launch and successfully manage their own business.

Whether one aims to start a business, explore new opportunities and start-up ideas or climb the corporate ladder, an MBA — as a significant investment in one's future that yields substantial financial returns throughout one's career — is bound to be a transformative step towards attaining one's career aspirations while accelerating personal growth.

Allahabad University students to learn management mantras of Lord Krishna, top biz honchos

Rajeev Mani

Prayagraj: The faculty of commerce of Allahabad University (AU) has started a five-year integrated BBA-MBA course from the current academic session, in which students are being taught the management mantras of Lord Krishna through the Bhagavad Gita, of the Ramayana and the Upanishads, as well as those of Chanakya.

Also, for the first time, students will study the smart managerial decisions of top industrialists like JRD Tata, Azim Premji, Dhirubhai Ambani, N R Narayana Murthy, Sunil Mittal and the Birlas.

Besides, they will also be taught Ashtanga Yoga that will help them remain calm in adverse situations.

The department started the course last month with



26 students. It will have 10 semesters with multiple entry and exit systems.

This means, those who leave the course in the first year will get a one-year certificate, diploma in the second year, BBA degree in third year and MBA degree in the

fifth year.

Course coordinator Shefali Nandan said in the paper 'Indian management thought and practices', students would be imparted with the traditional knowledge along with spirituality and management, cultural ethos,



human values and management, Ashtanga Yoga, holistic view of life and meditation and stress.

Artificial intelligence and startup management had also been included prominently in the curriculum, Shefali added.

Scientists are helping starfish that face extinction

Over the past decade, the sunflower sea star has gone from a predator of the Pacific Ocean to nearing extinction. The Nature Conservancy estimates that 5.75 billion sunflower sea stars died over three years, a 94% global decline. The cause,

scientists say, is largely climate change and warming waters, spurred by sea star wasting disease. Hope is slowly on the horizon. The Birch Aquarium at Scripps Institution of Oceanography near San Diego successfully spawned three

sunflower sea stars recently, the latest success story in a sprawling collaborative effort. TBA has five sunflower stars, one of the largest populations of sunflower sea stars in captivity in California. But until recently it did not know their gender. To

determine the sex, researchers induced spawning. After further testing, they can determine whether offspring could survive disease or parasites. Once that's done, the aquarium will be able to begin the fertilization process. NYT

WHAT STUDENTS WANT

Good stationery, gadgets and college gear

All college-goers have that one thing that they cannot do without. Check out some must-haves for the academic world

It is usually at the start of the academic session that city markets are flooded with anything students would like to stock up on, from stationery to gadgets and college wear. Here is a low-down on what students want.

Stationery

Be it school or college, stationery items like pens, notepads and folders are must-haves for students. Neha Gupta, a second year engineering student, says, "Once the session starts, we get busy with our routine and other than Sunday, there isn't any other time to buy these. While working on assignments and projects, things like sticky tape, a stapler, pens and sketch pens come handy. I have already purchased a sufficient stock of all these. I also maintain notes for every subject and that helps me revise properly during the semester exams. I also have a collection of highlighters to mark important details." Engineering student, Manali Sharma, prefers maintaining separate registers for her notes.

"We have educational tours and visits from time to time, so a notepad is essential. Also, instead of just jotting down notes in one register, I maintain separate ones for each subject. Buying stationery in one go is cost effective."

Monsoon essentials and gadgets

The market is flooded with fancy raincoats and umbrellas and students are wisely picking up rain wear to see themselves through the monsoon. Prakriti Mehta, a BCA student, says, "I picked up a threefold umbrella that is easy to carry. It also fits in my hand bag." Besides this, pen drives and headphones are topping youngsters' college shopping lists. Ritesh Parihar, who is studying journalism, says, "For my first year, I will be travelling via public transport. A pair of headphones will be a good companion till I make new friends."

Accessories and bags

College time is when youngsters like to look their

best, and if your college isn't one of those that mandates a uniform, the possibilities to dress are endless.

Looking for items ranging from shades to bracelets, youngsters are busy with their last-minute shopping before college reopens. Sheetal Gangrade, a BBA student, however says, "In a way, it is good to have a dress code as it cuts down on a lot of expenses. I don't have to waste time wondering what to wear or buying matching accessories to go with my casual wear. However, I love carrying fancy backpacks. I have bought three trendy ones. I also have a pair of monsoon footwear that will suit anything I wear."

Besides accessories, backpacks are another essential. There are plenty of backpacks that have flooded the market. They can be found in the range of `200 to `600. Nihar Parihar, a BCom student, adds, "A watch is a must-have for me. I am not brand conscious, but a good and presentable one is all I need on my wrist."

(Femina)

NIMHANS, University of Liverpool sign MoU

The Hindu Bureau

BENGALURU

NIMHANS and the University of Liverpool, U.K., on Tuesday, signed a new memorandum of understanding (MoU) to expand their long-standing research partnership. This research collaboration will be funded by Pratiksha Trust through which Kris Gopalakrishnan, Chairman of Axilor Ventures and co-founder of Infosys, has pledged £1.5 million in support.

The collaborative partnership between NIMHANS and the University of Liverpool, established in 2002, has attracted substantial external funding, totalling £10 million, from various prominent organisations like the Wellcome Trust, the U.K. Medical Research Council, the Indian Council for Medical Research, and the Gates Foundation, according to a statement from NIMHANS.

Research areas

NIMHANS director Pratima Murthy said on the renewed partnership, "Together, we have achieved remarkable progress in the fields of maternal and child mental health, epilepsy, and brain infections. We stand poised to uncover even more, to change lives, and to make a significant impact on the world's healthcare landscape with the generous funding by the Pratiksha Trust."

The partnership has three core research

The partnership has three core research strands – brain infections, child and maternal mental health, neuro-imaging and epilepsy research

strands – brain infections, child and maternal mental health and neuro-imaging and epilepsy research. Each of these will be led by experts from University of Liverpool and NIMHANS.

The partnership also includes a dual PhD programme, and joint workshops held annually to set research priorities and explore new avenues of research. "With the generous support of Kris Gopalakrishnan, the partnership will expand across four key components: Dual PhD programme, Early Career Researcher Exchange programme, Senior Researcher Exchange programme, and joint Annual Symposia," she said.

Tim Jones, Vice-Chancellor, University of Liverpool, said, "This MoU and the generous donation from Mr. Gopalakrishnan will allow us to further our research work."

Mr. Gopalakrishnan, said his Trust is glad to contribute to the joint efforts of NIMHANS and University of Liverpool to tackle complex health challenges. "We believe that this collaboration will have far-reaching positive consequences for the well-being of individuals worldwide," he said.



Science & Technology

ADITYA-L1 CAPTURES FIRST GLIMPSE OF SOLAR FLARES

EXPRESS NEWS SERVICE

@ Bengaluru

ADITYA-L1, India's maiden mission to the Sun, has captured the first high-energy X-ray glimpse of solar flares, the Indian Space Research Organisation (ISRO) announced on Tuesday.

"During its first observation period from approximately 12:00 to 22:00 UT on October 29, 2023, the High Energy L1 Orbiting X-ray Spectrometer (HEL1OS) on board Aditya-L1 has recorded the impulsive phase of solar flares. The recorded data is consistent with the X-ray light curves provided by NOAA's GOES," said the space agency on platform X.

This feat was achieved by the payload onboard Aditya-L1 High-Energy L1 Orbiting X-ray Spectrometer (HEL1OS), which was developed by ISRO's Space Astronomy Group of the

UR Rao Satellite Centre in Bengaluru. The payload was commissioned on October 27, and has been monitoring the Sun for hard X-ray activities ever since.

A solar flare is a sudden brightening of the solar atmosphere, which involves 10^{27} – 10^{32} ergs of energy release in tens of minutes. Flares produce enhanced emission in all wavelengths across the electromagnetic spectrum – radio, optical, UV, soft X-rays, hard X-rays and gamma-rays.

According to scientists, studying solar flares can be crucial to understanding how they affect the Earth. These flares can reportedly have an impact on communication systems, radios and power systems in general.

In a statement, ISRO explained, "Though solar flares have been studied in X-rays and gamma-rays for decades, the

initial impulsive emission is very difficult to characterise and understand. The impulsive hard X-ray emission has multiple spectral components which are highly time variable. Further, the spectrum is very steep, the emission above 20 keV is typically several orders of magnitude (about a million times) lower than that of the emission below 10 keV."

Scientists said HEL1OS aims to overcome these difficulties by having a set of detectors specifically tuned to cater to different energy ranges and also provides very high spectral and time resolution measurements. Currently, the instrument is set to monitor the Sun's high-energy X-ray activity with fast timing and high-resolution spectra.

The mission was launched on September 2, 2023, from the Satish Dhawan Space Centre (SDSC) in Sriharikota.

WHILE PLANTS HAVE LIFE, THEY HAVE ALSO EVOLVED WAYS TO COMMUNICATE, EXPRESS THEMSELVES AND RESPOND TO SITUATIONS

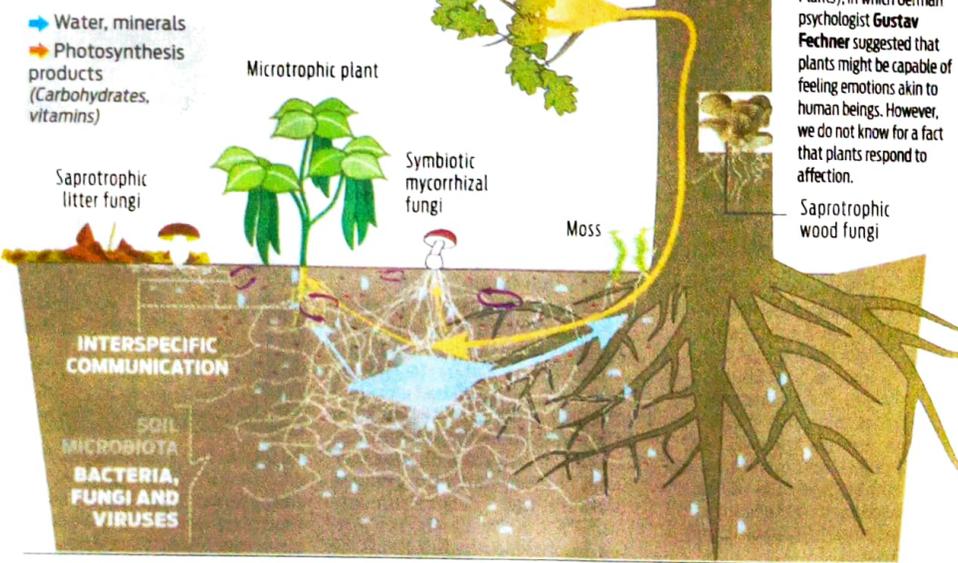
SONIA SALI

In Lewis Carol's *Through the Looking Glass and What Alice Found There*, when Alice loses her way in a magical flower garden, she turns to a tiger lily and says, "I wish you could talk." To her astonishment, it replies, "We can talk when there's anybody worth talking to." The excerpt though a fantasy, science has proved otherwise, clarifying to the human world that plants can communicate, act, react and send signals, making them more living than just beings with no physical brains. Tracing back in time, the concept of plants having emotions was first discovered in 1848 by Gustav Fechner, an experimental psychologist, who claimed that plants have emotions and can grow better when talked to, given attention and affection. However, life reads differently in a jungle full of trees where they grow together.

The Wood Wide Web

While in the human world, we rely on the internet to communicate with our fellow beings, Peter Wohlleben, a German forester says trees communicate through the Wood Wide Web. He says trees are connected to each other through an underground fungal network. These fungi known as mycorrhizas help share water, nutrients and communicate with other trees about distress signals, diseases, droughts and insect attacks. Besides, trees also identify the similarities and differences in their microbial makeup to recognise trees from their own species and prefer sharing nu-

WORDS WITHIN THE WOODS



HUMAN-LIKE EMOTIONS?

Experts believe that the Soul-life Theory dates back to 1848 in a book called *Nanna* (Soul-life of Plants), in which German psychologist **Gustav Fechner** suggested that plants might be capable of feeling emotions akin to human beings. However, we do not know for a fact that plants respond to affection.

change of energy that creates an electric field that the bee feels. Thus, this connection implants the flower on the bee's memory, encouraging it to return. Moreover, plants can also listen and respond likewise. Researchers found that pea plants direct their roots towards the sound of moving water, even if it is just a recording and no actual water present. Primrose flowers automatically produce sweeter nectar by the very sound of bees buzzing -- artificial or natural.

Mothering the young

Suzanna Simard from the University of British Columbia who is best known for her research on 'mother trees' says these trees are the oldest and biggest in a forest that has a much-advanced fungal network. Though not female trees always, they play the role of a supportive, maternal figure owing to their deep roots that help them draw water to shallow rooted seedlings. They share their excess nitrogen and carbon through mycorrhizal networks with understory seedlings, thus increasing their chances of survival. They also reinforce their neighbour trees by supplying them nutrients, and when one of them is struggling, mother trees detect the distress signals and supply nutrients accordingly, more like an old mother backing up her young daughters. Mother trees are the central hub in a forest and are connected to hundreds of other trees. However, research makes it clear that kin seedlings receive more carbon from mother trees than stranger seedlings.

From the light of the above findings, it is evident that plants do communicate with each other. Scientists argue that trees do not have any will or intention of their own, but they are living beings like us. Therefore, though science still does not completely agree with the consciousness of plants, we can at least let them grow old with dignity and die at a ripe old age.

trients with them. Scientists call this the 'Kin Recognition'. In a paper published in 1997 in *Nature*, it is suggested that plants do not compete, but cooperate with each other to help the other thrive. Alarm and distress are the prime tree conversations.

Monica Gagliano from the University of Western Australia says some plants emit and detect sounds -- a crackling noise in the roots at a frequency of 220 hertz that is inaudible to humans. They also communicate through the air using scent signals and pheromones. When a lawn is freshly mowed and the air smells thick of cut grass -- a blend of aldehydes, ketones, alcohols and esters -- it is the grass crying out for help signaling its neighbours of danger. Similarly, when a her-



bivore starts chewing the leaves of a tree/plant, it notices the injury and emits a distress signal in the form of ethylene gas that alerts the neighbouring trees/plants.

The neighbours start pumping tannins into their leaves in large quantities that will shoo away the herbivore. On the other hand, trees also have a sense of taste. Wohlleben writes that when leaves are attacked by

leaf-eating caterpillars, they detect the saliva of the caterpillar and release pheromones that attract parasitic wasps. The wasps lay their eggs inside the caterpillars and eat them from the inside out.

Richard Karban, a professor of entomology at the University of California, in one of his experiments, notes that sagebrush plants sound alarms when they are attacked by pests, thus pushing other sagebrush plants to grow faster and stronger.

Besides, flowers also communicate with pollinators through colours, patterns, shapes and fragrances. Researchers at the University of Bristol discovered that bumblebees are positively charged and flowers negatively charged. When a bee sits on a flower, there is an ex-

Aditya-L1 payload records early phase of solar flares

BENGALURU, DHNS: The Indian Space Research Organisation (Isro) said on Tuesday that an instrument on India's first space-based solar observatory Aditya-L1 has made recordings of the impulsive phase of solar flares.

The High Energy L1 Orbiting X-ray Spectrometer (HELIOS) on board Aditya-L1 made the recordings during its first observation period on October 29, from approximately 12:00 to 22:00 UT. The recorded data is consistent with the X-ray light curves provided by the Geostationary Operational Environmental Satellites (GOES) operated by the US' National Oceanic and Atmospheric Administration, Isro said.

HELIOS, developed by the Space Astronomy Group of Isro's U R Rao Satellite Centre, is designed to capture the early, impulsive phase of solar flares – the sudden, explosive releases of enormous amounts of energy. The

data from HELIOS enables researchers to study the explosive energy release and electron acceleration during the impulsive phases of these events.

While these flares have been studied in X-rays and gamma-rays for decades, the initial impulsive emission is very difficult to characterise and understand, Isro noted. HELIOS comes with detectors that can address these challenges with their capability to cater to different energy ranges and provide high spectral and time resolution measurements.

HELIOS was commissioned on October 27 and has been monitoring the sun for hard X-ray activities, the space agency said.

Isro, in a graphical representation, marked the impulsive phase of the flare as distinguishable from the GOES observation. It also marked the strongest event during the observation period, a C6 class flare at 13:00 UT.



Reflections on Artificial Intelligence, as friend or foe

Artificial Intelligence (AI) has been dominating the headlines for its triumphs, and also fears being expressed by many including some of the best minds in AI. The Association for Computing Machinery released a statement in October 2022 on 'Principles for Responsible Algorithmic Systems', a broader class of systems that include AI systems. Several leading AI experts and thinkers have been part of different cautionary messages about AI, issued by the Future of Life Institute, the Association for the Advancement of Artificial Intelligence and the Center for AI Safety. There is deep concern about AI among many who know it. What is behind this?

Areas of use, limitations and AGI

AI systems are capable of exhibiting superhuman performance on specific or "narrow" tasks, which has made it to the news in the field of chess, Go (a game several orders harder than chess) and also in biochemistry for protein folding.

The performance and utility of AI systems improve as the task is narrowed, making them valuable assistants to humans. Speech recognition, translation, and even identifying common objects such as photographs, are just a few tasks that AI systems tackle today, even exceeding human performance in some instances. Their performance and utility degrade on more "general" or ill-defined tasks. They are weak in integrating inferences across situations based on the common sense humans have.

Artificial General Intelligence (AGI) refers to intelligence that is not limited or narrow. Think of it as human "common sense" but absent in AI systems. Common sense will make a human save his life in a life-threatening situation while a robot may remain unmoved. There are no credible efforts towards building AGI yet. Many experts believe AGI will never be achieved by a machine; others believe it could be in the far future.

A big moment for AI was the release of ChatGPT, in November 2022. ChatGPT is a generative AI tool that uses a Large Language Model (LLM) to generate text. LLMs are large artificial neural networks that ingest large amounts of digital text to build a statistical "model". Several LLMs have been built by Google, Meta, Amazon, and others. ChatGPT's stunning success in generating flawless paragraphs caught the world's attention. Writing could now be outsourced to it. Some experts even saw "sparks of AGI" in GPT-4; AGI could emerge from a bigger LLM in the near future.

Other experts refute this vociferously, based on how LLMs work. At the basic level, LLMs merely predict the most probable or relevant word to follow a given sequence of words, based on the



P.J. Narayanan

is a researcher in computer vision and Professor and (ex-officio) Director of the International Institute of Information Technology (IIIT) Hyderabad. He was the President of the Association for Computing Machinery (ACM) India, and currently serves on the global Technology Policy Council of the ACM

There needs to be systematic evaluation of the efficacy and shortcomings of Artificial Intelligence (AI) in an Indian situation even if doomsday predictions about AI use and its impact are baseless

learned statistical model. They are just "stochastic parrots," with no sense of meaning. They famously "hallucinate" facts, confidently (and wrongly) – awarding Nobel prizes generously and conjuring credible citations to non-existent academic papers.

True AGI will be a big deal if and when it arrives. Machines outperform humans in every physical task today and AGI may lead to AI "machines" bettering humans in many intellectual or mental tasks. Bleak scenarios of super-intelligent machines enslaving humans have been imagined. AGI systems could be a superior species created by humans outside of evolution. AGI will indeed be a momentous development that the world must prepare for seriously.

I believe current LLMs and their successors are not even close to AGI. But will AGI arrive some day? I reserve my judgement. However, the hype and panic about LLMs or AI leading directly to human extinction are baseless. The odds of the successors of the current tools "taking over the world" are zero.

Where the dangers lie

Does that mean we can live happily without worrying about the impact of AI? I see three possible types of dangers arising from AI.

Superhuman AI: The danger of a super intelligent AI converting humans to slaves. I do not worry about such a highly unlikely scenario.

Malicious humans with powerful AI: AI tools are relatively easy to build. Even narrow AI tools can cause serious harm when matched with malicious intent. LLMs can generate believable untruths as fake news and create deep mental anguish leading to self-harm. Public opinion can be manipulated to affect democratic elections. AI tools work globally, taking little cognisance of boundaries and barriers. Individual malice can instantly impact the globe. Governments may approve or support such actions against "enemies". We have no effective defence against malicious human behaviour. Well-meaning people have expressed concern about AI-powered "smart" weapons in the military. Unfortunately, calls for a ban are not effective in such situations. I do not see any easy defence against the malicious use of AI.

Highly capable and inscrutable AI: AI systems will continue to improve and will be employed to assist humans. They may end up harming some sections more than others unintentionally, despite the best intentions of their creators. These systems are created using Machine Learning from data from the world and can perpetuate the shortcomings of the data. They may introduce asymmetric behaviours that go against certain groups. Camera-based face recognition systems have been shown to be more

accurate on fair-skinned men than on dark-skinned women. Such unintended and unknown bias can be catastrophic in AI systems that steer autonomous cars and diagnose medical conditions. Privacy is a critical concern as algorithmic systems watch the world constantly. Every person can be tracked always, violating the fundamental right to privacy.

Another worry is about who develops these technologies and how. Most recent advances took place in companies with huge computational, data, and human resources. ChatGPT was developed by OpenAI which began as a non-profit and transformed into a for-profit entity. Other players in the AI game are Google, Meta, Microsoft, and Apple. Commercial entities with no effective public oversight are the centres of action. Do they have the incentive to keep AI systems just?

Everything that affects humans significantly needs public oversight or regulation. AI systems can have a serious, long-lasting negative impact on individuals. Yet, they can be deployed on mass scale instantly with no oversight. How do we bring about effective regulation without stifling creativity? What are the parameters about an AI system that need to be watched carefully and how? There is very little understanding of these issues.

Many a social media debate rages about AI leading to destruction. Amidst doomsday scenarios, solutions such as banning or pausing research and development in AI – as suggested by many – are neither practical nor effective. They may draw attention away from the serious issues posed by insufficient scrutiny of AI. We need to talk more about the unintentional harm AI may inflict on some or all of humanity. These are solvable, but concerted efforts are needed.

India must be prepared

Awareness and debate on these issues are largely absent in India. The adoption of AI systems is low in the country, but those used are mostly made in the West. We need systematic evaluation of their efficacy and shortcomings in Indian situations. We need to establish mechanisms of checks and balances before large-scale deployment of AI systems. AI holds tremendous potential in different sectors such as public health, agriculture, transportation and governance. As we exploit India's advantages in them, we need more discussions to make AI systems responsible, fair, and just to our society. The European Union is on the verge of enacting an AI Act that proposes regulations based on a stratification of potential risks. India needs a framework for itself, keeping in mind that regulations have been heavy-handed as well as lax in the past.

Cyber threat alert: Verify if your data was compromised

Lock up Aadhaar biometric, keep a close tab on SMS inbox, credit report

BINDISHA SARANG

An alleged data breach involving 815 million Indians has surfaced on the Dark Web. According to media reports, millions of Indians' Aadhaar and passport details, names, phone numbers, and temporary and permanent addresses have been stolen.

Says Ritesh Bhatia, cyber-crime investigator, cybersecurity, and data privacy consultant, "Investigations by several hacker groups show that the number could be much smaller — a few lakhs. Nonetheless, it's important to take a few measures after this breach, besides being constantly vigilant."

Measures you should take

The first step you should take, according to Bhatia, is to lock your biometrics for additional security. Your biometric data is stored securely in the Aadhaar system. Using the mAadhaar app, you can lock and unlock your biometrics at your convenience. Says Bhatia, "You can also lock your biometrics from the www.uidai.gov.in website."

Know your status

By running a few checks, it is possible to learn if you are among those whose data has been compromised. Says Ajay Setia, chief executive officer (CEO), Invincible Ocean, a Metaverse platform, "Check for exposed data on sites like LeakPeek or DeHashed."

Safeguards against future attacks

Data breaches are becoming common. Take a few pre-emptive measures to protect yourself against future attacks.

First, ensure that your antivirus software is updated. Second, avoid clicking on links within text messages sent by unknown sources. Says Setia, "Delete stored passwords from your systems. Also, update your passwords regularly, particularly for internet banking and other crucial websites."

Your SMS inbox can also be a source

ONLINE IDENTITY THEFT: STEPS VICTIMS MUST TAKE

- Identity theft is the deliberate and unauthorised use of someone else's personal information to commit fraud or gain financial benefits
- Check all your accounts to see if multiple accounts have been compromised
- Change all your passwords immediately, opt for alphanumeric ones
- Contact your banks, lenders, and insurance companies immediately; request banks to close all affected accounts and open new ones
- Contact credit bureaus and raise a dispute
- Inform the nearest police station or cyber cell
- Check your computer and mobile for viruses, install anti-virus software

of data breach. Clear it periodically of one-time passwords (OTPs) and other banking-related information. Says Bhatia, "Check every SMS you get. Many people ignore them. Remember if there is an activity in your account, your financial institution will send you an SMS, not a WhatsApp message."

Be cautious about downloading apps. Some of them could access your messages and other information stored on your phone. Says Setia, "Monitor your financial statements frequently for unauthorised transactions."

Check your credit report periodically for unexplained entries or inquiries you haven't made.

research, archiving, and statistics. The government, too, has the power to exempt institutions from its applicability, raising questions about its application to public institutions."

Buy cyber insurance cover

Today, buying cyber insurance has become a must not just for corporates but even for individuals. In the event of a data breach, this cover provides an individual the following: credit monitoring services, compensation for loss of wage while pursuing a resolution, and legal costs incurred on claiming damages from a third party for the data breach. Says T A Ramalingam, chief technical officer, Bajaj Allianz General Insurance, "The cyber policy for individuals also covers financial loss arising from a cyber-attack, cost of data restoration and malware decontamination, and cost incurred on dealing with a cyber-extortion attempt. It also offers covers to smart devices that may have been affected."

Cyber insurance also offers protection against identity theft, cyberstalking, phishing, email spoofing, media liability claims, cyber extortion, and data breach by a third party. The sum assured available can range from ₹1 lakh to 1 crore. Says Naval Goel, CEO and founder, PolicyX.com, "Currently, only three companies offer cyber insurance. Some of them provide worldwide coverage. Usually, these plans are targeted at individuals, but you can buy a top-up cover to protect your spouse, children, and other family members."



YOUR MONEY

Know your rights

India guarantees data protection rights under its constitution and the Information Technology Act of 2000. 'Body corporates' face penalties for mishandling sensitive data. Courts recognise the right to claim damages for privacy violations.

However, the Act's strict definition of 'body corporate'

raises concerns regarding whether it applies to specific government bodies. Says Pratyush Miglani, managing partner, MVAC Advocates & Consultants, "The Digital Personal Data Protection (DPDP) Act further bolsters data protection, imposing penalties of up to ₹250 crore for data breaches. Nevertheless, the DPDP Act allows for exemptions to entities engaged in

Great deep tech ventures starting to emerge in India

There are challenges of funding, talent, market access, and policy. Several positive signs are visible in each of these, but a lot more could be done, and faster

Sujit John & Shilpa Phadnis | ITC

Mumbai-based Qure.ai uses AI to scan x-rays and CT scans. In less than a minute, their product can tell the doctor or radiologist if there's a problem - be it a stroke or lung cancer or tuberculosis. It can even identify problems that a busy radiologist might miss. For stroke patients in remote locations, the solution provides a level of care that has been unimaginable. The AI solutions save time, costs, and improve clinical outcomes.

Anumeha Srivastava, chief customer officer at Qure.ai, said on our webinar last week that this technology built in India has been taken to 85 countries. The solutions have been the result of deep research work involving multiple disciplines. "One of our first papers was published in Lancet (the renowned peer-reviewed general medical journal). Since then, we have published more than 50 peer-reviewed papers," she said.

India is starting to see really exciting deep tech ventures like Qure.AI, and that was the focus of our discussion on the webinar, which we held in association with Nasscom on the occasion of its Future Forge event (previously called Product Conclave). Deep tech ventures build research-driven

START CREATING, THERE'S LOTS OF SUPPORT AROUND



It's been very humbling to see the outpouring of people joining our WhatsApp communities (for startups).

We have built one of the largest health tech communities to date, including about 80-90 practising physicians and surgeons, in addition to startup founders. The people who are joining are really passionate. And they provide a lot of support. We have catalysed some communities, but I'm looking forward to seeing more of these kinds of community models. So, join the movement.



Ramkumar Narayanan | CHAIRPERSON, NASSCOM DEEPTECH COUNCIL, AND VP-TECHNOLOGY & MO, VMWARE

For startup enthusiasts and founders, especially in the health space, it seems very daunting initially. The number of problems are many, but very few startups are sustainably solving for those. Qure's experience with the community is that, if you are confident about your product, and you have

the patient's best interest in mind, the ecosystem comes together to support you. There are so many in the ecosystem that relate to affordable and accessible healthcare that we get support in ways we don't expect.

Anumeha Srivastava | CHIEF CUSTOMER OFFICER, QURE.AI



I was a founder of a deep tech company almost 10 years back. Since that time, one thing I have realised, and I wish I'd leveraged better, was that there is a lot of support around. And that support ecosystem has grown over the years. Nasscom's doing it. There's a very passionate community that's doing it pro bono. The government is doing a lot of outreach these days. Academics are willing to collaborate. Larger



companies like ours are running accelerators. Founders must smartly leverage everything around them.

Jeyandran Venugopal | CHIEF PRODUCT & TECHNOLOGY OFFICER, FLIPKART

When I started off (doing a startup), my dad told me he was against it. He was absolutely against it. And now, he tells my cousins and whoever is graduating, that they should join a startup. So, mindsets about entrepreneurship have changed. We are no longer as risk averse as we once were. To deep tech founders, I would say, we are governed by Newton's second law. We should shake off the inertia, and just start creating. Once you start creating, things will fall in place. You may start small, but over time it will become big and impactful in a way you would have never imagined.

Subrat Kumar Panda | CHIEF TECHNOLOGY & PRODUCT OFFICER, AGREST



en products that solve deep problems, they make fundamental breakthroughs in emerging technology areas. Such ventures are critical for India to emerge as a global innovation hub.

Agrest has built hardware and software, including sensors and AI, that can determine the quality of a food item at a fraction of the cost and time of traditional meth-

ods. Subrat Kumar Panda, chief technology & product officer at the Chandigarh-based company, said traditional processes involve specialised chemists and lab instruments to determine, for instance, the physical characteristics and the pungency of chilli in order to fix its price. "This test, traditionally, would take 24 hours, and cost over Rs 1,500. Our tech-

nology can test this out in two minutes, at a fraction of the cost," he said. Agrest has begun to take the product to global markets, and is working on filing patents.

Till quite recently e-commerce companies weren't seen as deep tech ventures; they were just platforms enabling buyers and sellers to come together. Today, Flipkart has gone way beyond that. Jeyan-

dran Venugopal, chief product & technology officer at the pioneering venture, said they have a data science team of several 100 people that regularly publishes research papers in top global journals. The company has built IPs (intellectual property) in a number of areas - algorithmic pricing, advertising technology, trust & safety in e-commerce - and which

it has converted into SaaS products that are being sold to e-retailers in South Africa, West Asia, and North and South America. This business, Venugopal said, has been growing almost 100% year-on-year since incubation two-three years ago.

Ramkumar Narayanan, chairperson of Nasscom DeepTech Council, and VP of Technology & MD at VMware, said India has about 3,400 deep tech startups. The next wave of companies that will get created, he said, will be around deep tech. "Our projection is that by 2030, there will be a 30x growth, with many Indian companies stepping into the global market," he said.

Four challenges

However, he noted that there are four big challenges that India must overcome. One is funding. Institutional investors are not often ready to fund basic research. The government needs to step in. Narayanan said the National Research Foundation established earlier this year, with a Rs 50,000 crore corpus, is a good beginning.

The second challenge is talent. While India has a broad talent base, deep tech, Narayanan noted, involves an extra layer of complexity in the talent base required, one where "hardware, software, physics, chemistry, biology, all

come together."

Venugopal said that while the Flipkart brand attracts talent from the best universities in the world and the company has established R&D centres in Seattle and Israel, the talent pool available in emerging deep tech areas is very small, and the only way to build such talent is to upskill existing talent. Panda said it's very important for the government to find ways to create skilled talent in tier 2 and 3 locations, talent that can be used to develop products at scale. Narayanan noted that educational institutions are starting to create cross-domain disciplines in their degree programmes.

The third challenge, Narayanan said, is market access. He said Nasscom is talking to regulators in different parts of the world to persuade them to accelerate regulatory recognition for Indian startups certified by Nasscom. Anumeha said Qure.ai focused a lot on building a brilliant regulatory function. Today, most of its products are US FDA approved.

The final challenge, Narayanan said, is around policy advocacy with the government. Here, he said, there's been significant progress, with a deep tech policy in the works. The policy is expected to address all of the big issues deep tech ventures face.

GLOSSARY OF IN-GROUP TERMS USED ON THIS PAGE

ALGORITHMIC PRICING

Algorithmic pricing, also known as dynamic pricing or automated pricing, refers to the practice of using algorithms and computer programs to set and adjust the prices of products or services in real-time based on various factors and data. It is a pricing strategy that takes advantage of the rapid data processing capabilities of computers to optimise pricing decisions. Algorithmic pricing is commonly used in e-commerce, retail, travel, and other industries to maximise revenue and stay competitive. Algorithmic pricing can offer several benefits, including increased revenue, improved inventory management, and enhanced competitiveness. However, it also poses challenges, such as the potential for price wars with competitors, the need for accurate data and algorithms, and the importance of ensuring ethical and legal compliance in pricing decisions. It's essential for businesses to carefully design and monitor their algorithmic pricing strategies to achieve their goals while maintaining customer trust and market integrity.

SYNTAX ERROR

A syntax error is a type of error that occurs in computer programming when the source code of a program does not conform to the syntax rules of the programming language. Syntax refers to the specific rules and structure that dictate how code should be written in a particular programming language. When a syntax error occurs, it means that the code you've written is not valid according to the rules of the programming language. This typically results in the program being unable to be compiled or executed. Common examples of syntax errors include missing semicolons, mismatched parentheses, or curly braces, using reserved keywords incorrectly, and violating the expected structure of the language. Syntax errors are often easy to detect because they are caught by the compiler or interpreter before the program runs. The error messages provided by the compiler or interpreter usually indicate the location of the error in the code, making it easier for the programmer to identify and fix the issue.





Shri Siddaramaiah
Hon'ble Chief Minister,
Government of Karnataka

Shri D.K. Shivakumar
Hon'ble Deputy Chief Minister,
Government of Karnataka

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Even though more women are pursuing STEM education than men in India, their representation in companies is still low. We asked women techies what their advice was for young girls to correct this imbalance

There is nothing like a career in tech

NOT ENOUGH WOMEN AT TOP LEVELS

Deloitte states that there has been a consistent increase in the number of women professionals with a notable 11.7% rise in their presence in India's technology sector. Although more women are pursuing careers in technology than ever before, there remains a significant lower number of women in leadership or C-suite roles. Just like everyone else, I encountered several challenges and opportunities while climbing the success ladder. In 1997, I began working with my dream company VSNL (today Tata Communications), it was my first exposure navigating an independent life and career in a new city without family around. As Tata Communications made acquisitions and became a truly global company,

I had to test the waters in a global setting which was tough but inspiring. It gave me exposure to the rest of the world, new people, practices and cultures, and a chance to inculcate a completely new set of skills.

Amrita Sinha | GENERAL MANAGER, CORE & NEXT GEN CONNECTIVITY SERVICES, TATA COMMUNICATIONS



WORK A FEW YEARS BEFORE DOING PHD

I have grown up in a family of STEM professionals and thus from early on I was determined to make a career in STEM. After my under-graduation in microbiology, I directly went for a PhD program.

It was a proud moment to be a PhD holder at an age of 24. However, it came with a set of challenges since one lacks the holistic perspective and understanding at that age. If asked today, I would advise the younger generation to complete their Master's, get a couple of years of work experience and then prepare for a PhD program. When I joined Marico, I was proud to see over 50% of women in the R&D department. I would urge the younger generation to have a role model in their life as it helps in shaping aspirations and ambitions. My grandfather and parents were the pillar of my principles and career choices, which always guided me on the right track.



Shilpa Yora | CHIEF R&D OFFICER, MARICO LIMITED

CHOOSING A TECH CAREER CHANGED VIBHA'S LIFE

Choosing a career in tech was a turning point in my life. Women pursuing STEM fields back when I was pursuing my education was rare and engineering was no different. There were – and still are – biases and cultural expectations of women. But solving problems and ideating tech solutions for real world problems drove me towards this career. Confidence is important in any field. And it is especially



important in industries like technology and financial services. I encourage women and girls to believe in themselves, know your stuff and be confident. If you are prepared and skilled, your expertise and value will shine through. Historically, there were fewer women than men entering STEM careers in the past, but that gap is slowly bridging. Today, there are more women role models in STEM career paths and more women in leadership positions. Our own global chief information officer Lori Beer at JPMorgan Chase oversees our global technology function and inspires us every day.

Vibha Jha | HEAD OF GLOBAL TECHNOLOGY FOR INDIA, A GLOBAL CO-HEAD OF POST TRADE TECHNOLOGY, JP MORGAN CHASE & CO

KIRTI IS SOMETIMES THE ONLY WOMAN IN THE ROOM

Owing to stereotypical gender roles, many young girls are deterred from pursuing education in STEM fields. Moreover, women pursuing careers in tech often face challenges, be it in balancing work-life or speaking up in a room full of male colleagues. I've often been the only woman in the room and faced challenges early in my career to balance work especially during major life events. Do not shy away from asking for help. Your needs when it comes to learning and balancing work-life could be unique, and we need to speak up and set expectations accordingly. We must become intentional about our learning and take ownership of our personal and professional development. The realm of technology is expansive and brimming with opportunities. A unique perspective as a woman in STEM is an invaluable asset that can be a driving force for innovation and business growth.



Kirti Kama | SENIOR VP, TECHNOLOGY, MAESTROCARD

IT'LL TAKE TIME TO FIND THAT COMFORT ZONE

As a woman in the STEM field, I do face some challenges. Growing up in a small city and attending an all-girls school and college, it was a big adjustment to transition to a professional career in a metropolitan city. Suddenly, I was in a more diverse team and needed to become more adept at prioritising between work and personal life. However, with time and support from my team, I was able to find my comfort zone and even received a double promotion to a senior software engineer while balancing motherhood. Now, my challenges are slightly different and include mentoring junior engineers, staying on top of all initiatives at work and keeping up with the ever-changing technology! My advice for girls and women who want to pursue STEM is to explore and discover an environment that is conducive to your personal and professional growth, where your contributions are recognised and appreciated.

Suganya Subramanian | STAFF SOFTWARE ENGINEER, WIPAC



WOMEN SHOULD VOICE THEIR IDEAS BOLDLY

Joining the IT industry in 1996 meant reading a hardbound book on C++ by Bjarne Stroustrup to be able to code in the absence of search engines. I relied on a helpful teammate to find syntax errors (due to the lack of advanced integrated development environments), and all this while trying to understand the client's business and the outcomes that the project needed to deliver. Learning on the job, staying updated with the latest advancements, challenging norms, teamwork, and striving to make a positive impact while delivering business outcomes are the basics for a fulfilling career in technology. Young women today must embrace an inter/multidisciplinary approach to STEM careers. A pure science background, along with coding proficiency, understanding of economics, and knowledge of scaling solutions, is the need of the hour to tackle major societal challenges. Women need to learn to voice their ideas boldly. Fail fast – but don't hold back on trying.



Meriya Mathew | HEAD OF DELIVERY EXCELLENCE & TALENT SUPPLY CHAIN, ROBERTSON HOLDINGS

LOOK FOR ALLIES AND ADAPT TO CHANGE TO THRIVE

As a software developer, in my early years I had a learning curve to understand the big picture. I was constantly trying to adapt to the dynamic environment of fast evolving technologies. In my early years, as a woman in tech, my first struggle was fighting for inclusion, in a male dominated industry, and being considered to lead a project. Since then, I have grown. By networking with the right people, self-learning new tech stacks, and earning a Master's and MBA in computer information systems, I created a space for myself in this field and built a strong foundation. Currently at Morgan Stanley, I lead a team providing core platform services for wealth management technology applications enabling modernisation with automation, and tooling. While giving advice to aspiring young girls, there are three things I always say: Look for allies, focus on the end goal, and adapt to change as change is the only constant.



Mugdha Deshpande | EXECUTIVE DIRECTOR, WEALTH MANAGEMENT TECHNOLOGY, MORGAN STANLEY

In AI era, human touch trumps automated training systems

By M Muner

It looks like the corporate learning management system (LMS) has finally come of age! With an astronomical rise in its use in the pandemic years — which was until then more or less stagnant in most enterprises — today, the market is poised to triple to \$30 billion by 2027. However, research by the Medici Institute among a cross section of senior managers reveals that

many employees prefer human intervention in learning & development, despite the potential benefits of the AI-driven, adaptive LMS.

When employees have to acquire a skill that would immediately give them an upper hand, they often don't care how they acquire the same — whether it's via automation, virtually or in-person. For everything else, they lack motivation — even more so to stick to an automated LMS.

Human trainers and mentors provide personalised guidance and adapt content to an individual's unique learning style & preference. This makes it a primary reason why human intervention is indispensable in learning & development efforts.

Employees have diverse experiences, which can be challenging to address solely through automated systems. Human trainers, on the other hand, can adapt their approach

to meet individual requirements. An IT firm that set up an AI-driven coding tutorial platform found that while the content provided was valuable, employees had specific questions and challenges related to their projects. Subsequently, when human trainers were brought in to offer one-on-one mentoring, it resulted in more targeted support and accelerated skill development.



Some CHROs also feel that customisation is needed to ensure employees receive the right level of support at the right time — meaning better engagement, faster skill acquisition, and improved job performance. Employees need emotional support and motivation to learn. AI-based LMS cannot offer encouragement, address concerns, and help stay engaged throughout the journey —

at least in the present scenario. Human trainers play a vital role in motivating and holding employees accountable for their learning progress. They can set clear expectations, track performance, and provide encouragement — all of which are essential ingredients for taking responsibility for development.

One of our medium-sized clients initially relied on a LMS platform for digital marketing training but noticed

that many employees skipped modules or did not complete courses. After introducing a human mentor to track progress and provide regular feedback, completion was much better. Employees complained that their questions or clarification on complex topics were not well addressed by automated systems. They, too, believe that only human trainers address such issues appropriately.

Every organisation has its unique challenges because of

the type of industry it's in, but also because of company culture and dynamics. In such a set-up, an automated LMS does not fully understand the nuances to address them satisfactorily. Without experienced human trainers conversant with the organisation's culture and such, learning programmes cannot be tailored to align with specific requirements.

(The writer is co-founder, Medici Institute)

● AIMS TO BEGIN BUSINESS IN H2 OF 2024

Flipkart co-founder Binny Bansal to launch AI startup

To offer financial services, data science and analytics

SARITHA RAI
November 7

BILLIONAIRE BINNY BANSAL is launching an AI-as-a-service startup that will target global customers, expanding to the fast-growing segment after making a fortune in Indian e-commerce.

Bansal, who co-founded online retailer Flipkart and sold it to Walmart, has hired 15 experts for the venture — mostly artificial intelligence scientists — and plans to quickly add more, according to people familiar with the matter.

He wants to offer AI talent, products and services to corporate customers, emulating the business model of outsourcing providers like Tata Consultancy Services and Infosys, the people said, asking to not be named as the effort isn't yet public.

The startup's main operations will be in Bengaluru, and it's headquartered in Singapore, where it's in stealth mode for now and will launch its offerings within months, the people said.

It also plans to expand to the US, one of the people said.

Companies the world over are looking to harness AI, encouraged by new tools such as the ChatGPT chatbot from Microsoft-backed OpenAI.

That's resulted in huge demand for AI specialists, and Bansal is looking to tap India's vast English-speaking, youthful population to train more experts for new types of

AI-AS-A-SERVICE STARTUP

Binny Bansal, who co-founded online retailer Flipkart and sold it to Walmart, has hired 15 experts for the venture — mostly artificial intelligence scientists



■ He wants to offer AI talent, products and services to corporate customers, emulating the business model of outsourcing providers like TCS & Infosys

■ The firm's main business will be in Bengaluru, and headquartered in Singapore, where it's in stealth mode for now and will launch its offerings within months

■ Companies the world over are looking to harness AI, encouraged by new tools such as the ChatGPT chatbot from Microsoft-backed OpenAI

AI services.

While Bansal is playing his cards close to his vest as to the exact products he plans to offer, he will target the legal and e-commerce industries first, one of the people said.

The startup also plans to offer services in the fields of financial services and data science and analytics.

It aims to roll out products and services and begin marketing in the second half of 2024.

Bansal, 40, declined to comment.

The billionaire moved to Singapore after selling his Bengaluru-based internet company and now shuttles between the cities.

The AI startup will focus on training talent and offer-

ing services from India's smaller cities, where the cost of living is lower.

Bansal and his Flipkart co-founder Sachin Bansal (no relation) graduated from the Indian Institute of Technology Delhi and worked at Amazon.com before quitting in their mid-twenties.

They established Flipkart as a more localised online retailer for India, inspired by Amazon, nearly six years before the Seattle giant entered the country's retail market.

Binny went on to become the chief operating officer of Flipkart, and then its chief executive officer, before selling a majority stake in the company to Walmart in 2018 for \$1.6 billion. —BLOOMBERG

Track and target differently

A cookie-less era will unleash the potential of advertising



■ **TEJINDER GILL**

IN THE 1800s, the world marvelled at the traditional landline telephone, a symbol of innovation for its time. For generations, these landline phones connected people across India. However, the 21st century ushered in a transformative era with the widespread adoption of mobile phones. They offered greater mobility and convenience, enabling access to services beyond their reach.

Fast forward to 2023, and we find ourselves in a comparable juncture in digital advertising. This time, it's about the next generation of digital identity.

Originally, cookies weren't made for advertising, but marketers started using them to deliver personalised campaigns in the early days, when digital advertising happened on websites. Today, the landscape extends well beyond the confines of browsers. It now encompasses diverse channels on the open internet such as over-the-top, connected TV, music streaming, online gaming etc., all of which do not rely on cookies. The limitations of cookies in addressing the challenges underscores the need for alternative solutions.

In the last few years, the ad-tech industry has proactively created new and better identity solutions that work across channels.

This transformation begins with a simple yet powerful concept – 'logging in'. Nearly all apps, websites, and platforms now require user logins. Even services that don't compel users to log in are actively encouraging them to do so, in pursuit of offering personalised content. This shift is



poised to gain momentum as publishers and advertisers redefine the role of identity in a post-cookie, omnichannel context.

'Logging in' is the premise on which new 'alternative' identity frameworks like Unified ID 2.0, ID5 and LiveRamp's Authenticated Traffic Solution have been created. With alternative IDs, advertisers can meet their need to measure and manage campaigns across all channels — even those that never used cookies in the first place. Advertisers can see, for example, if a certain audience group has seen a particular ad on a streaming platform, and then manage the frequency of that ad for the viewer across all channels. Advertisers know bombarding is not good for their brand.

The benefits also extend to consumers. They can now log in using their email addresses, which are then hashed and encrypted by the alt ID system, ensuring that no personally identifiable information is accessible to advertisers. While walled gardens prioritise privacy within their walls, the open internet provides marketers a viable environment to reach more engaged users, who are spending more time outside of these walls.

The advertising industry is moving away from cookies and this transition is inevitable because, once you've experienced the efficiency of mobile phones, you realise just how outdated it is to rely on landline phone.

The author is general manager, The Trade Desk

16 NETWORK VISUALIZATION TOOLS

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Poster & networks by
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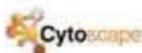
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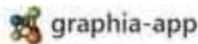


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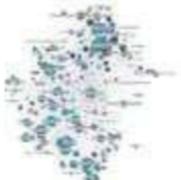
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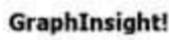


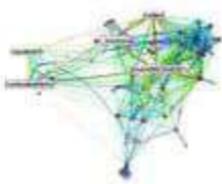
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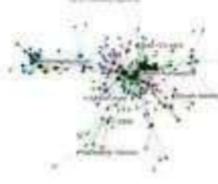
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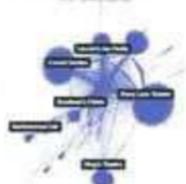
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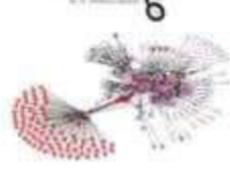
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 kumu



 orange



ಕೆರೆದರೆದು ದಿನಗಿಂರಿದ ಡೀಪ್‌ಫೇಕ್ ಎನ್ನುವ ಪದವನ್ನು ಪರಿಚಯಿಸುತ್ತೇವೆ. ಸೆಕೆಂಡರಿನ ಮುಂದೂ ಅದರ ಫೇಕ್ ವಿಡಿಯೋ ಸಾಮಾನ್ಯ ಕಾಲಾಪಾಠಗಳಲ್ಲಿ ಒಡಾಡುತ್ತಿರುವುದೇ ಇದಕ್ಕೆ ಪ್ರಮುಖ ಕಾರಣ. ಈ ತಂತ್ರಜ್ಞಾನ ಬಳಸಿ ಬಹಳಷ್ಟು ಸುಖ-ಸುಖಿಯರು ಸೆಕೆರೆ ಸಾಮಾನ್ಯರ ವಿಡಿಯೋಗಳನ್ನೂ ಮಾಡಿ ದುರುದಯೋಗ ಮಾಡಿಕೊಳ್ಳಲಾಗುತ್ತದೆ. ಈ ತಂತ್ರಜ್ಞಾನವೇನು? ಇದರ ಅರ್ಥವೇನು? ಅಥವಾ ಇಂತಹ ಪ್ರಕರಣಗಳಲ್ಲಿ ಸಿಲುಕಿಕೊಳ್ಳದೇ ಇರುವುದು ಹೇಗೆ? ಮತ್ತಿತರ ಮಾಹಿತಿ ಇಲ್ಲಿದೆ.



ಟಾರಿವುಗಳಲ್ಲಿ ಮಾತ್ರವಲ್ಲದೆ ಮಾರ್ಕೆಟಿಂಗ್‌ಗಿಂತಲೂ ಕೆಲವು ದಿನಗಳ ಹಿಂದೆ ಈ ವಿಷಯವನ್ನು ಮುಂದೂಡುವುದಕ್ಕೆ ತಲುಪಿದಾಗ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು. ಡೀಪ್‌ಫೇಕ್ ಎನ್ನುವ ಪದವನ್ನು ಮುಂದೂಡುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು. ಡೀಪ್‌ಫೇಕ್ ಎನ್ನುವ ಪದವನ್ನು ಮುಂದೂಡುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು. ಡೀಪ್‌ಫೇಕ್ ಎನ್ನುವ ಪದವನ್ನು ಮುಂದೂಡುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.

ನಕಲಿ ಮುಖಗಳ ಅಸಲಿ ಆಳ

ತೆವಲಿಗೆ ತಂತ್ರಜ್ಞಾನದ ಬಳಕೆ: ಹೆಚ್ಚಿದ ಮಾರ್ಫ್ ವಿಡಿಯೋ ಹಾವಳಿ



ಎನಿಡು ಡೀಪ್‌ಫೇಕ್?

ಜನಪ್ರಿಯರಾದ ಡೀಪ್‌ಫೇಕ್ ತಂತ್ರಜ್ಞಾನವು ಫೋಟೋ ಎಡಿಟಿಂಗ್ ಮತ್ತು ಮುಖದ ಚಲನೆಯನ್ನು ಹಂಚಿಕೊಡುವ ಮೂಲಕ ಕೆಲವು ವಿಧಗಳಲ್ಲಿ ಅಳವಡಿಸಲಾಗಿದೆ. ಡೀಪ್‌ಫೇಕ್ ಎನ್ನುವ ಪದವನ್ನು ಮುಂದೂಡುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.

ತಂತ್ರಜ್ಞಾನದ ಅಭಿವೃದ್ಧಿಯಿಂದಾಗಿ ಡೀಪ್‌ಫೇಕ್ ಅನ್ನು ವಿವಿಧ ರೀತಿಯಲ್ಲಿ ಸೃಷ್ಟಿ ಮಾಡಲು ಸಾಧ್ಯವಾಗಿದೆ. ಡೀಪ್‌ಫೇಕ್ ಎನ್ನುವ ಪದವನ್ನು ಮುಂದೂಡುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು. ಡೀಪ್‌ಫೇಕ್ ಎನ್ನುವ ಪದವನ್ನು ಮುಂದೂಡುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.

- ### ಜಾಗೃತರಾಗಿ ಹಾಗೂ ಜಾಗೃತರಾಗಿ
- ಡೀಪ್‌ಫೇಕ್ ಅಥವಾ ಮುಖದ ವಿವಿಧ ರೀತಿಯಲ್ಲಿ ಅಳವಡಿಸುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.
 - ಡೀಪ್‌ಫೇಕ್ ಅಥವಾ ಮುಖದ ವಿವಿಧ ರೀತಿಯಲ್ಲಿ ಅಳವಡಿಸುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.
 - ಡೀಪ್‌ಫೇಕ್ ಅಥವಾ ಮುಖದ ವಿವಿಧ ರೀತಿಯಲ್ಲಿ ಅಳವಡಿಸುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.
 - ಡೀಪ್‌ಫೇಕ್ ಅಥವಾ ಮುಖದ ವಿವಿಧ ರೀತಿಯಲ್ಲಿ ಅಳವಡಿಸುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.
 - ಡೀಪ್‌ಫೇಕ್ ಅಥವಾ ಮುಖದ ವಿವಿಧ ರೀತಿಯಲ್ಲಿ ಅಳವಡಿಸುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.
 - ಡೀಪ್‌ಫೇಕ್ ಅಥವಾ ಮುಖದ ವಿವಿಧ ರೀತಿಯಲ್ಲಿ ಅಳವಡಿಸುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.

ಅಸಾಮಾನ್ಯ ಬರೆಯುವ ಸಾಧನ

ಜನಪ್ರಿಯರಾದ ಡೀಪ್‌ಫೇಕ್ ತಂತ್ರಜ್ಞಾನವು ಫೋಟೋ ಎಡಿಟಿಂಗ್ ಮತ್ತು ಮುಖದ ಚಲನೆಯನ್ನು ಹಂಚಿಕೊಡುವ ಮೂಲಕ ಕೆಲವು ವಿಧಗಳಲ್ಲಿ ಅಳವಡಿಸಲಾಗಿದೆ. ಡೀಪ್‌ಫೇಕ್ ಎನ್ನುವ ಪದವನ್ನು ಮುಂದೂಡುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.

ಯಾವುದಾಗಿ ಬಳಸಲಾಗುತ್ತದೆ?

ಜನಪ್ರಿಯರಾದ ಡೀಪ್‌ಫೇಕ್ ತಂತ್ರಜ್ಞಾನವು ಫೋಟೋ ಎಡಿಟಿಂಗ್ ಮತ್ತು ಮುಖದ ಚಲನೆಯನ್ನು ಹಂಚಿಕೊಡುವ ಮೂಲಕ ಕೆಲವು ವಿಧಗಳಲ್ಲಿ ಅಳವಡಿಸಲಾಗಿದೆ. ಡೀಪ್‌ಫೇಕ್ ಎನ್ನುವ ಪದವನ್ನು ಮುಂದೂಡುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.

ಹೇಗೆ ತಯಾರಿಸಲಾಗುತ್ತದೆ?

ಡೀಪ್‌ಫೇಕ್ ತಯಾರಿಸುವುದಕ್ಕೆ ಅಗತ್ಯವಾಗಿರುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು. ಡೀಪ್‌ಫೇಕ್ ತಯಾರಿಸುವುದಕ್ಕೆ ಅಗತ್ಯವಾಗಿರುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.

ರಕ್ಷಿಸಿ ಬಳಕೆ ಕಟ್ಟಿಸಿ

ಜನಪ್ರಿಯರಾದ ಡೀಪ್‌ಫೇಕ್ ತಂತ್ರಜ್ಞಾನವು ಫೋಟೋ ಎಡಿಟಿಂಗ್ ಮತ್ತು ಮುಖದ ಚಲನೆಯನ್ನು ಹಂಚಿಕೊಡುವ ಮೂಲಕ ಕೆಲವು ವಿಧಗಳಲ್ಲಿ ಅಳವಡಿಸಲಾಗಿದೆ. ಡೀಪ್‌ಫೇಕ್ ಎನ್ನುವ ಪದವನ್ನು ಮುಂದೂಡುವುದಕ್ಕೆ ಇದರ ಅಂಶಗಳು ಸೋಪಾನವಾಗಿ ಬಿಡುಗಡೆಯಾದವು.

ಸೌರಜ್ವಾಲೆಯಲ್ಲಿನ

ಎಕ್ಸ್-ರೇಗಳನ್ನು ಸೆರೆಹಿಡಿದ ಆದಿತ್ಯ ಎಲ್-1 ನೌಕೆ



ಬೆಂಗಳೂರು: ಸೂರ್ಯನ ಅಧ್ಯಯನಕ್ಕಾಗಿ ಇಸ್ರೋ ಕೈಗೊಂಡಿರುವ ಮೊದಲ ಬಾಹ್ಯಾಕಾಶ ಯೋಜನೆಯ ಆದಿತ್ಯ ಎಲ್-1 ನೌಕೆಯಲ್ಲಿರುವ ಎಚ್‌ಇಎಲ್‌10ಎಸ್ ಪೇಲೋಡ್, ಸೌರಜ್ವಾಲೆಯಲ್ಲಿರುವ ಶಕ್ತಿಶಾಲಿ ಎಕ್ಸ್‌ಕಿರಣಗಳನ್ನು ಸೆರೆಹಿಡಿದಿದೆ ಎಂದು ಇಸ್ರೋ ಹೇಳಿದೆ. ಮೊದಲ ಅಧ್ಯಯನ ದಿನವಾದ ಅ.29ರಂದು ಸಾಯಂಕಾಲ 5.30ರಿಂದ ಮುಂಜಾನೆ 3.30ರವರೆಗೆ ಈ ಅಧ್ಯಯನ ಕೈಗೊಳ್ಳಲಾಗಿದ್ದು, ನಿಗದಿಯಂತೆ ನೌಕೆಯಲ್ಲಿರುವ ಪೇಲೋಡ್ ಶಕ್ತಿಯುತ ಎಕ್ಸ್‌ಕಿರಣಗಳನ್ನು ದಾಖಲಿಸಿದೆ. ಇದು ನಾಸಾದ ಗೋಸ್ ಉಪಗ್ರಹ ನೀಡಿರುವ ಎಕ್ಸ್‌ಕಿರಣಗಳ ಬಾಗುವಿಕೆಯನ್ನು ಹೋಲುತ್ತದೆ. ಸೌರಜ್ವಾಲೆಯಲ್ಲಿರುವ ಎಕ್ಸ್‌ಕಿರಣಗಳನ್ನು ವೇಗವಾಗಿ ಅಧ್ಯಯನ ಮಾಡಲು ಮತ್ತು ಉತ್ತಮ ಗುಣಮಟ್ಟದಲ್ಲಿ ಇದನ್ನು ದಾಖಲಿಸಲು ಈ ಪೇಲೋಡ್ ಅಳವಡಿಸಲಾಗಿದೆ. ಆದಿತ್ಯ ಎಲ್-1 ನೌಕೆಯನ್ನು ಸೆ.2ರಂದು ಇಸ್ರೋ ಉಡಾವಣೆ ಮಾಡಿತ್ತು.



'ಪ್ರಳಯ' ಕ್ಷಿಪಣಿಯ ಪರೀಕ್ಷಾರ್ಥ ಉಡಾವಣೆ ಯಶಸ್ವಿ

ಹೊಸದಿಲ್ಲಿ, ನ.7: ಭಾರತವು ಮಂಗಳವಾರ ಒಡಿಶಾ ಕರಾವಳಿಯಾಚೆಯ ಅಬ್ದುಲ್ ಕಲಾಂ ದ್ವೀಪದಿಂದ ತನ್ನ ಅಲ್ಪವ್ಯಾಪ್ತಿಯ ಬ್ಯಾಲಿಸ್ಟಿಕ್ ಕ್ಷಿಪಣಿ 'ಪ್ರಳಯ'ನ ಪರೀಕ್ಷಾರ್ಥ ಉಡಾವಣೆಯನ್ನು ಯಶಸ್ವಿಯಾಗಿ ನಡೆಸಿದೆ.

ನೆರೆಯ ಚೀನಾ ಮತ್ತು ಪಾಕಿಸ್ತಾನಗಳೊಂದಿಗಿನ ಗಡಿಗಳಲ್ಲಿ ದೇಶದ ರಕ್ಷಣಾ ಅಗತ್ಯಗಳನ್ನು ಗಮನದಲ್ಲಿಟ್ಟುಕೊಂಡು ರಕ್ಷಣಾ ಸಂಶೋಧನೆ ಮತ್ತು ಅಭಿವೃದ್ಧಿ ಸಂಸ್ಥೆ (ಡಿಆರ್‌ಡಿಒ)ಯು ಈ ಕ್ಷಿಪಣಿಯನ್ನು ಅಭಿವೃದ್ಧಿಗೊಳಿಸಿದೆ.

ಬೆಳಿಗ್ಗೆ 9:50 ರ ಸುಮಾರಿಗೆ ಉಡಾವಣೆಗೊಂಡ 'ಪ್ರಳಯ' ತನ್ನ ಗುರಿಗಳನ್ನು ಯಶಸ್ವಿಯಾಗಿ ಪೂರೈಸಿದೆ ಎಂದು ತಿಳಿಸಿದ ರಕ್ಷಣಾ ಇಲಾಖೆಯ ಅಧಿಕಾರಿಗಳು, ಕ್ಷಿಪಣಿಯ ಪಥದ ಮೇಲೆ ನಿಗಾಯಿರಿಸಲು ಕರಾವಳಿಯುದ್ದಕ್ಕೂ ಹಲವಾರು ಉಪಕರಣಗಳನ್ನು ಸ್ಥಾಪಿಸಲಾಗಿತ್ತು ಎಂದರು.

ಪ್ರಳಯ್ 350ರಿಂದ 500 ಕಿ.ಮೀ. ಅಲ್ಪವ್ಯಾಪ್ತಿಯ, ಕ್ಷಿಪಣಿಯಾಗಿದ್ದು, 500ರಿಂದ 1,000 ಕೆಜಿ. ಪೇಲೋಡ್ ಸಾಮರ್ಥ್ಯವನ್ನು ಹೊಂದಿದೆ. ಪ್ರಳಯ್ ಕ್ಷಿಪಣಿಯನ್ನು ವಾಸ್ತವ ನಿಯಂತ್ರಣ ರೇಖೆ (ಎಲ್‌ಎಸ್‌ಐ) ಮತ್ತು ನಿಯಂತ್ರಣ ರೇಖೆ (ಎಲ್‌ಒಐ)ಯಲ್ಲಿ ನಿಯೋಜಿಸಲು ಅಭಿವೃದ್ಧಿಗೊಳಿಸಲಾಗಿದೆ ಎಂದು ಅಧಿಕಾರಿಗಳು ತಿಳಿಸಿದರು.

ಪ್ರಳಯ್ ಕ್ಷಿಪಣಿಯನ್ನು ಚೀನಾದ 'ಡಾಂಗ್ ಫೆಂಗ್ 12 ಮತ್ತು ಉಕ್ರೇನ್ ಯುದ್ಧದಲ್ಲಿ ಬಳಕೆಯಾಗುತ್ತಿರುವ ರಶ್ಯದ 'ಇಸ್ಕಾಂಡರ್'ನೊಂದಿಗೆ ಹೋಲಿಸಬಹುದಾಗಿದೆ ಎಂದರು.

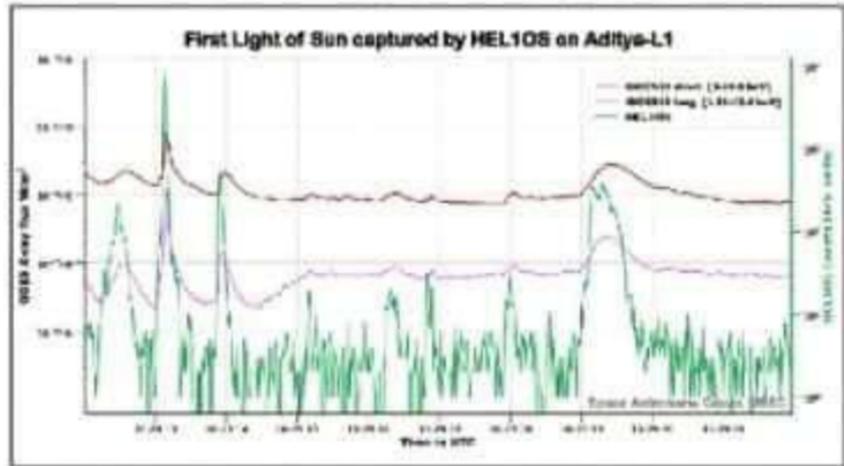
ಸೂರ್ಯ ಶಕ್ತಿ ಸ್ಫೋಟ ಸೆರೆ ಹಿಡಿದ ಆದಿತ್ಯ-ಎಲ್ 1

ದತ್ತಾಂಶ ಸಂಗ್ರಹ: ಚಂದ್ರಯಾನ-3 ಬಳಿಕ ಇಸ್ರೋ ಮತ್ತೊಂದು ಸಾಧನೆ

ಶ್ರೀಹರಿಕೋಟ: ಚಂದ್ರಯಾನ-3ರ ಯಶಸ್ಸಿನ ಒಳಕ ಇಸ್ರೋ ಮತ್ತೊಂದು ದೊಡ್ಡ ಸಾಧನೆ ಮಾಡಿದೆ. ಸೂರ್ಯನ ಅಧ್ಯಯನಕ್ಕೇಂದು ತೆರಳಿರುವ ಆದಿತ್ಯ-ಎಲ್ 1 ಉಪಗ್ರಹ ಮೊದಲನೆಯದಾಗಿ 'ಸೂರ್ಯನಲ್ಲಿ ಶಕ್ತಿ ಸ್ಫೋಟ' ಆಗುವುದನ್ನು ಸೆರೆಹಿಡಿದಿದೆ.

ಆದಿತ್ಯ-ಎಲ್ 1 ಉಪಗ್ರಹದಲ್ಲಿ 7 ಪೇ ಲೋಡ್ ಗಳಿದ್ದು, ಹೈ ಎನರ್ಜಿ ಆರ್ಬಿಟಿಂಗ್ ಎಕ್ಸ್-ರೇ ಸ್ಪೆಕ್ಟೋಮೀಟರ್ ಪೇಲೋಡ್ ಸೂರ್ಯ ಮೇಲ್ಮೈನಲ್ಲಿನ ಸೌರಚಾಲೆಗಳ ಹಠಾತ್ ಸ್ಫೋಟದ ತೀವ್ರತೆಯ ದತ್ತಾಂಶವನ್ನು ಸಂಗ್ರಹಿಸಿದೆ. ಅ.29ರಂದೇ ಈ ಸ್ಫೋಟವಾಗಿದ್ದು, ಸೂರ್ಯನ ಮೇಲ್ಮೈನಲ್ಲಿ ಎಕ್ಸ್ ಕಿರಣಗಳ ಬೆಳಕಿನ ರೂಪದಲ್ಲಿ ಶಕ್ತಿ ಮತ್ತು ವಿಕಿರಣ ಹೊರಸೂಸಿವೆ. ಸೂರ್ಯನ ಸುತ್ತಲ ವಾತಾವರಣದಲ್ಲಿ ಸಂಗ್ರಹವಾಗಿರುವ ಕಾಂತೀಯ ಶಕ್ತಿ ಬಿಡುಗಡೆ ವೇಳೆ ಈ ರೀತಿ ಸ್ಫೋಟಗಳಾಗುತ್ತವೆ. ಕೆಲವು ತೀವ್ರ ಸ್ವರೂಪದವಾಗಿದ್ದರೆ, ಕೆಲವು ಸಾಮಾನ್ಯ ಪ್ರಮಾಣದವಾಗಿರುತ್ತವೆ.

ಸೆ.9ರಂದು ಆದಿತ್ಯ-ಎಲ್ 1 ಉಪಗ್ರಹವನ್ನು ಅಂಧಪ್ರದೇಶದ



ಶ್ರೀಹರಿಕೋಟಾದಿಂದ ಪಿಎಸ್ ಎಲ್ ಎ-357 ರಾಕೆಟ್ ಮೂಲಕ ಉಡಾವಣೆ ಮಾಡಲಾಗಿತ್ತು. ಭೂಮಿಯಿಂದ 15 ಲಕ್ಷ ಕಿಮೀ ದೂರ ಸಾಗಿ ಇಸ್ರೋ ಮೊದಲೇ ಗುರುತಿಸಿದ ಲ್ಯಾಗ್ರಂಜಿಯನ್ (ಎಲ್ 1) ಪಾಯಿಂಟ್‌ನಲ್ಲಿ ನೆಲೆಗೊಳ್ಳಬೇಕಿದೆ. ಸೂರ್ಯ-ಭೂಮಿ ಗುರುತ್ವ ಬಲ ಸಮನಾಗಿರುವ ಸ್ಥಳವೇ ಎಲ್ 1. ಈ ದೂರ ಕ್ರಮಿಸಲು ಆದಿತ್ಯನಿಗೆ ಒಟ್ಟು 125 ದಿನಗಳ ಅವಶ್ಯಕತೆ ಇದೆ.

ಮೇ 28, 2023

ಬಂತರ್‌ಮಂತರ್ ಹೊಸದಿಲ್ಲಿ

ಛೇತ ಸಂವದನ ಮುದ್ರೆ ಪ್ರತಿಭಟನೆ ಕಾವೇರಿತ್ತು. ಆಳು-ಆಕ್ಕೂರಗಳನ್ನೇ ತುಂಬಿಕೊಂಡಿದ್ದು, ಕುಸ್ತಿಪಟುಗಳಾದ ವಿನೇಶ್ ಫೋಗಟ್ ಮತ್ತು ಸಂಗೀತಾ ಫೋಗಟ್‌ರನ್ನು ದಿಲ್ಲಿ ಪ್ರಾಲೀನೇಷನ್ ಬಂಧಿಸಿ, ಬಸ್ಸಿನೊಳಗೆ ಕೂಲಿಸಿದರು. ಸೀಟ್‌ನಲ್ಲಿ ಕುಳಿತ ಮೇಲೆ ವಿನೇಶ್ ಹಾಗೂ ಸಂಗೀತಾ ನಗುತ್ತಿದ್ದ ಫೋಟೋ ಸಾಮಾಜಿಕ ಜಾಲತಾಣಗಳಲ್ಲಿ ಹರಿದಾಡಿತು. ಇದನ್ನು ಕಂಡ ಜಾಲತಾಣ ಜಗತ್, "ಈ ಕುಸ್ತಿಪಟುಗಳ ಪ್ರತಿಭಟನೆ ಬೃಹತ್ ಸಾಟಕ." ಎಂಬ ಅಭಿಪ್ರಾಯಕ್ಕೆ ಬಂತು!

ಡೀಪ್‌ಫೇಕ್ ಆವಾಜ್‌ಗಳಿಂದ ನಕಲಿ ಸೃಷ್ಟಿ ಇಂದು. ಈ ನಕಲಿ ವಿಡಿಯೋಗಳಲ್ಲಿ ಪ್ರಧಾನಿ ನರೇಂದ್ರ ಮೋದಿ, ರಕ್ಷಣಾ ಸಚಿವ ರಾಜನಾಥ್ ಸಿಂಗ್ ಒಟ್ಟಿಗೆ ಕುಳಿತು ಹಾಡು ಹೇಳಿದ್ದಾರೆ. ಡೋನಾಲ್ಡ್ ಟ್ರಂಪ್ - ಬರಾಕ್ ಒಬಾಮಾ ಕೈಕೈ ಹಿಡಿದು ಡ್ಯಾನ್ಸ್ ಮಾಡಿದ್ದಾರೆ. ಯಾರದ್ದೋ ದೇಹಕ್ಕೆ ಪ್ರಸಿದ್ಧ ನಟ-ನಟಿಯರ ಮುಖ ಜೋಡಿಸಲಾಗಿದೆ. ಈಗ ಇದರ ಮುಂದುವರಿದ ಭಾಗ ನಟ ರಶ್ಮಿಕಾ ಮಂದ್ರಾಪುರಿಯವರ ವಿವಾದಿತ ವಿಡಿಯೋ.

ಹಾಗೆ ನೋಡಿದರೆ, ಡೀಪ್‌ಫೇಕ್ ಎನ್ನುವುದು ಹಳೆಯ ಪರಿಕಲ್ಪನೆ. ಸಿನಿಮಾಗಳಲ್ಲಿ ಇದನ್ನು ಹೆಚ್ಚಾಗಿ ಬಳಸಲಾಗಿದೆ. ಬೇರೆಯವರ ಮುಖಾಂತರವಾಗಿಯೂ. ಅಲ್ಲಿ ನಿಮ್ಮದೇ ದನಿಯನ್ನೂ ಕೊರಿಸಬಹುದು. ಬೇರೊಬ್ಬರ ದೇಹವಿದ್ದರೂ, ನಿಮ್ಮದೇ ಮುಖ ಜೋಡಿಸಿ, ನಿವೇಶನದ ಮೇಲಿರಿಸಿ ಎಂಬ ಭಾವ ಹುಟ್ಟಿಸಬಹುದು. ಇಂಥ ಒಳ್ಳೆಯ ಉದ್ದೇಶಕ್ಕೆ ಹುಟ್ಟಿಕೊಂಡ ತಂತ್ರಜ್ಞಾನವನ್ನು ಮಾನವ ಆತ್ಮೀಯ ಅಪಾಯಕಾರಿ ಹಂತಕ್ಕೆ ತಂದು ನಿಲ್ಲಿಸಿದ್ದಾನೆ. ಎಂಬ ಕಾಂಪ್ಯೂಟರ್‌ಶಾಸ್ತ್ರಜ್ಞ ಡೀಪ್ ಫೇಕ್ ಅಟಿ ಬಿರುಸಾಗಿದೆ.

ಡೀಪ್‌ಫೇಕ್ ಎಂದರೇನು?

ಡೀಪ್‌ಫೇಕ್ ಟೆಕ್ನಾಲಜಿ ಕೃತಕ ಬುದ್ಧಿಮತ್ತೆಯ ಒಂದು ಭಾಗ. ಅಲ್ಪಾರಿದಮಗಳ ಮೂಲಕ ಇನ್ನೊಬ್ಬರ ಮುಖಭಾವಗಳನ್ನು ಆಳವದರಗಳಲ್ಲಿ ವಿಶ್ಲೇಷಿಸಿ, ನಕಲಿ ರಚನೆಗಳನ್ನು ಇದು ಮುಂದಿಡುತ್ತದೆ. ವ್ಯಕ್ತಿಯ ಮೂಲ ಮುಖ ಮತ್ತು ಧ್ವನಿಯನ್ನು ಬದಲಿಸಿ, ಸೃಜನ ಎಂಬಂಥ ವಿಡಿಯೋ ಮತ್ತು ಆಡಿಯೋಗಳನ್ನು ರಚಿಸುವ ಸಾಮರ್ಥ್ಯ ಇದ್ದಿದೆ. ಮನರಂಜನೆ ಮತ್ತು ವಿಡಂಬನಾತ್ಮಕ ವಿಷಯ ರಚನೆಗಳಿಗೆ ಹುಟ್ಟಿಕೊಂಡ ಡೀಪ್‌ಫೇಕ್ ಈಗ ತಪ್ಪು ಮಾಟಕಿ ರವಾನೆ, ಚಾರಿತ್ರ್ಯಹರಣ, ರಾಜಕೀಯ ಅವಪ್ರಚಾರ, ಬ್ಯಾಂಕ್‌ಮೇಲ್ ವಿಚಾರಗಳಿಗೆ ದುರ್ಬಳಕೆಯಾಗುತ್ತಿದೆ.

ಡೀಪ್‌ಫೇಕ್ ಹೇಗೆ ತಯಾರಿಸಲಾಗುತ್ತದೆ?

ಡೀಪ್‌ಫೇಕ್ ರಚನೆಗಳನ್ನು ಸೃಷ್ಟಿಸಲು ಪೈ ಸೋಲರ್, ಆಪ್ತ ಸೋಲರ್‌ಗಳಲ್ಲಿ ಸಾಕಷ್ಟು ಆಪ್ತಗಳು, ಆನ್‌ಲೈನ್‌ನಲ್ಲಿ ಸಾಕಷ್ಟು ವೆಬ್‌ಸೈಟ್‌ಗಳಿವೆ. ಸೃಜನ ಫೋಟೋಗಳು, ವಿಡಿಯೋಗಳನ್ನು ಅಪ್‌ಲೋಡ್ ಮಾಡಿ, ಎನ್‌ಕೋಡರ್ ಮತ್ತು ಡಿಕೋಡರ್ ನೆರವಿನಿಂದ ಕೃತಕ ಬುದ್ಧಿಮತ್ತೆಯು ಆ ಫೋಟೋ-ವಿಡಿಯೋಗಳನ್ನು ವಿಶ್ಲೇಷಿಸಿ, ನಕಲಿಯನ್ನು ಸೃಷ್ಟಿಸಲಾಗುತ್ತದೆ. 15 ಸೆಕೆಂಡ್ ವಿಡಿಯೋಗಳನ್ನು ಉಚಿತವಾಗಿ ಮಾಡಲು ಈ ಆಪ್‌ಗಳು ಅವಕಾಶ ತೆರೆದಿಟ್ಟಿವೆ. ಆದರೆ ವಾಣಿಜ್ಯಿಕ ಉದ್ದೇಶಗಳಿಗೆ ಬಳಸುವಂಥವರಿಗೆ ಚಂದಾದಾರಿಕೆ ಇದ್ದು, ಪ್ರತಿ ನಿಮಿಷಗಳಿಗೆ ಕೋಟಿಂಕರ ರೂ. ವಶಪಡಿಸಿ ಮಾಡುವ ಆಪ್‌ಗಳೂ ಸಾಕಷ್ಟಿವೆ.

2023ರಲ್ಲಿ 1.43 ಲಕ್ಷ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋಗಳು!

2023ರಲ್ಲಿ ಕೇವಲ ರಶ್ಮಿಕಾ ಮಂದ್ರಾಪುರಿಯ ವಿಡಿಯೋ ಮಾತ್ರವಲ್ಲದೆ, 1.43 ಲಕ್ಷ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋಗಳು ಅಂತರ್ಜಾಲ ಜಗತ್ತನ್ನು ಪ್ರವೇಶಿಸಿವೆ. ಡೀಪ್‌ಫೇಕ್‌ಗಳಿಗೆ ಹೆಸರಾದ 40 ವೆಬ್‌ಸೈಟ್‌ಗಳನ್ನು ಪರಿಶೀಲಿಸಿದಾಗ ಇಷ್ಟೊಂದು ಪ್ರಮಾಣದ ವಿಡಿಯೋಗಳು ಪತ್ತೆಯಾಗಿವೆ ಎನ್ನುತ್ತಾರೆ ಎಂಬ ವಿಶ್ಲೇಷಕರು. ಈ ಪೈಕಿ ಶೇ.27ರಷ್ಟು ವಿಡಿಯೋಗಳಿಗೆ ಜನಪ್ರಿಯ ವ್ಯಕ್ತಿಗಳ ಮುಖಗಳನ್ನು ಬಳಸಲಾಗಿದ್ದರೆ, ಮಿಕ್ಕಂತೆ ಶ್ರೀನಿವಾಸರಾಯರ ಮುಖ ರಚನೆಗಳು ದುರ್ಬಳಕೆಯಾಗಿವೆ. ಅಲ್ಲದೆ, ಎಂಬ ರಚಿಸಿದ ಅಕ್ಷರ ಫೋಟೋ ಅಪ್‌ಲೋಡ್ ಮಾಡುವ ವೆಬ್‌ಸೈಟ್‌ಗಳಲ್ಲಿ ನಕಲಿ ಅಕ್ಷರ ಫೋಟೋಗಳ ಸಂಖ್ಯೆಯು 2018ರಿಂದ ಶೇ.290ರಷ್ಟು ಹೆಚ್ಚಾಗಿರುವುದು ನಿಜಕ್ಕೂ ಅಶಂಕಿತವೆನಿಸುತ್ತದೆ.

ವಿಕ ಪೋಲಿಸ್

ಡೀಪ್‌ಫೇಕ್ ತಂತ್ರಜ್ಞಾನದ ಮೂಲಕ ನಟ ರಶ್ಮಿಕಾ ಮಂದ್ರಾಪುರಿಯ ಚಾರಿತ್ರ್ಯಹರಣ ಮಾಡಿದ ಪ್ರಯತ್ನಕ್ಕೆ ಎಲ್ಲೆಡೆ ಖಂಡನೆ ವ್ಯಕ್ತವಾಗಿದೆ. ಆದರೆ, ನಕಲಿ ವಿಡಿಯೋ, ಫೋಟೋಗಳ ಆತಂಕಕ್ಕೆ ಗುರಿಯಾಗಿದ್ದು ಕೇವಲ ರಶ್ಮಿಕಾ ಮಾತ್ರವೇ ಅಲ್ಲ, ಈ ಒಂದು ವರ್ಷದಲ್ಲೇ ಸುಮಾರು 1.40 ಲಕ್ಷಕ್ಕೂ ಅಧಿಕ ನಕಲಿ ವಿಡಿಯೋಗಳು ಡೀಪ್‌ಫೇಕ್ ಗರ್ಭದಿಂದ ಹೊರಬಂದಿವೆ. ಏನಿದು ಡೀಪ್‌ಫೇಕ್?

ಡೀಪ್‌ಫೇಕ್ ಡಿಜಿಟಲ್ ಭಯೋತ್ಪಾದನೆ



ಅಪರಾಧಿಗಳಿಗೆ ಶಿಕ್ಷೆ ಎನು?

ರಶ್ಮಿಕಾ ಮಂದ್ರಾಪುರಿಯ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ ಪ್ರಕರಣ ಸ್ವತಃ ಮಾತ್ರವಲ್ಲ, ಕಾನೂನಾತ್ಮಕ ಪ್ರಶ್ನೆಗಳನ್ನೂ ಮುಂದಿಟ್ಟಿದೆ. ಭಾರತೀಯ ಕಾನೂನುಗಳಲ್ಲಿ ಡೀಪ್ ಫೇಕ್ ಅಪರಾಧಕ್ಕೆ ಶಿಕ್ಷೆ ಇದೆವೆಯೇ? "ಚಾರಿತ್ರ್ಯಹರಣ ಮಾಡುವ ನಕಲಿ ವಿಡಿಯೋಗಳನ್ನು ಸೃಷ್ಟಿಸುವುದು ಶಿಕ್ಷಾರ್ಹ ಅಪರಾಧ," ಎನ್ನುತ್ತಾರೆ ಹೈಕೋರ್ಟ್ ವಕೀಲ ಶ್ರೀಧರ್ ಪ್ರಭು. ಇಂಥ ಅಪರಾಧಿಗಳಿಗೆ...

- ಮಾಹಿತಿ ತಂತ್ರಜ್ಞಾನ ಕಾಯಿದೆ 2000 ಸೆಕ್ಷನ್ 66ರ ಪ್ರಕಾರ, ಗುರುತು ಕಳವು (ಐಡಿಫಿಫಿಕೇಷನ್ ಥಿಫ್ಟ್) ಮಾಡಿ ಅದನ್ನು ಅನ್ಯ ಉದ್ದೇಶಗಳಿಗೆ ಬಳಸಿದರೆ ಅದಕ್ಕೆ 3 ವರ್ಷ ಜೈಲು, 1 ಲಕ್ಷದವರೆಗೆ ದಂಡ ವಿಧಿಸಲಾಗುತ್ತದೆ.
- ಐಟಿ ಕಾಯಿದೆ ಸೆಕ್ಷನ್ 68ಎ ಪ್ರಕಾರ, ಖಾಸಗಿ ಹಕ್ಕು ಉಲ್ಲಂಘನೆಗಾಗಿ 3 ವರ್ಷ ಜೈಲು, 2 ಲಕ್ಷದವರೆಗೆ ದಂಡ ವಿಧಿಸಲಾಗುತ್ತದೆ.
- ಐಟಿ ಕಾಯಿದೆ ಸೆಕ್ಷನ್ 67 ಪ್ರಕಾರ, ವಿದ್ಯುತ್ ಸಂಪರ್ಕ ದ್ವಂದ್ವದ ರೂಪದಲ್ಲಿ ಅಕ್ಷರೀಕರಣ ಪ್ರದರ್ಶನಕ್ಕೆ 3 ವರ್ಷ ಜೈಲು, 3 ಲಕ್ಷ ರೂ. ವರೆಗೆ ದಂಡ.
- ಭಾರತೀಯ ದಂಡ ಸಂಹಿತೆ ಸೆಕ್ಷನ್ 153ಎ (ಧರ್ಮ, ಜಾತಿ ಮತೀತರ ಹೆಸರಿನಲ್ಲಿ ನಿಂದನೆ) ಮತ್ತು 295ಎ (ಉದ್ದೇಶ ಪೂರ್ವಕವಾಗಿ ಅಪಮಾನಗೊಳಿಸುವುದು) ಅಡಿಯಲ್ಲಿ ಪ್ರಕರಣ ದಾಖಲಿಸಬಹುದು.
- ಕಾಪಿ ರೈಟ್ ಕಾಯಿದೆ 1957ರ ಸೆಕ್ಷನ್ 16ರ ಪ್ರಕಾರ ವಿಡಿಯೋ-ಸುರಕ್ಷಾಳಕೆ ಮಾಡಿಕೊಂಡರೆ 3 ವರ್ಷ ಜೈಲು, 2 ಲಕ್ಷ ರೂ. ದಂಡ ವಿಧಿಸಬಹುದು.

ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋಗಳನ್ನು ಪತ್ತೆ ಹಚ್ಚಬಹುದೇ?

ಸಂಪೂರ್ಣವಾಗಿ ಸೃಜನವಾಗಿ ತೋರುವುದು ಡೀಪ್‌ಫೇಕ್‌ನ ದೊಡ್ಡ ಸವಾಲು. ಆದರೆ, ಸೂಕ್ತವಾಗಿ ಗಮನಿಸಿದರೆ ಈ ವಿಡಿಯೋಗಳ ಅಪರಿಚಿತವನ್ನು ಸುಲಭವಾಗಿ ಪತ್ತೆಹಚ್ಚಬಹುದು.

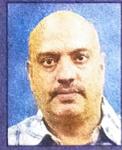
- **ಮುಖದ ಅನಿವೃತ್ತಿ:** ವಿಡಿಯೋಗಳನ್ನು ಎಚ್ಚರಿಕೆಯಿಂದ, ಫೇಮ್ ಟು ಫೇಮ್ ವೀಕ್ಷಿಸಿದರೆ, ಸೃಜನ ವ್ಯಕ್ತಿಯ ಕನ್ನೆ ಮತ್ತು ಹಣೆ ರಚನೆಗೂ, ಎಣೆ ಸೃಷ್ಟಿಸಿದ ನಕಲಿ ವ್ಯಕ್ತಿಯ ಕನ್ನೆ-ಹಣೆಯ ರಚನೆಗೂ ವ್ಯತ್ಯಾಸ ಕಂಡುಬರುತ್ತದೆ.
- **ಕಣ್ಣಿನ ರಚನೆ:** ಹೆಚ್ಚಿನ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋಗಳಲ್ಲಿ ನಕಲಿ ಮುಖಗಳಲ್ಲಿನ ಕಣ್ಣಿನ ರಚನೆ ಹೆಚ್ಚು ಮಿಟುಕಿಸುವುದಿಲ್ಲ.
- **ಲಿಪ್ ಸಿಂಕ್:** ವಿಡಿಯೋವನ್ನು ನಿಧಾನವಾಗಿ ಪ್ಲೇ ಮಾಡಿ, ತುಟಿ ಭಾಗವನ್ನು ಸೂಕ್ಷ್ಮವಾಗಿ ಅವಲೋಕಿಸಿದರೆ, ತುಟಿ ಚಲನೆಯು ಆಡಿಯೋದೊಂದಿಗೆ ಹೊಂದಿಕೆಯಾಗದಿರುವುದು ಖಚಿತವಾಗುತ್ತದೆ.
- **ಮುಖದ ಕೂದಲು:** ವಿಡಿಯೋವನ್ನು ರಿಯೂಮ್ ಇನ್ ಮಾಡಿದಾಗ, ಮಿಲಿ ಅಥವಾ ಗಡ್ಡಗಳನ್ನು ನಕಲಿಯಾಗಿ ಹೊಂದಿಸಿರುವುದು ಸ್ಪಷ್ಟವಾಗುತ್ತದೆ. ಏಕೆಂದರೆ, ಮುಖದ ಕೂದಲಿನ ವಿಚಾರದಲ್ಲಿ ಎಂಬ ಅಧಾರಿತ ಡೀಪ್‌ಫೇಕ್ ಇನ್ನೂ ಸುಧಾರಣೆ ಕಾಣಬೇಕಿದೆ.
- **ರಿಯರ್ ಇಮೇಜ್ ತುಡುಕಾಟ:** ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋದಿಂದ ಸ್ಪೀನ್‌ಕಾಟ್ ತೆಗೆದು ಗೂಗಲ್‌ನ ಇಮೇಜ್ ತುಡುಕಾಟದಲ್ಲಿ ತುಡುಕುವ ಮೂಲಕವೂ ಇವುಗಳ ಸತ್ಯಾಸತ್ಯತೆ ಪರಿಶೀಲಿಸಬಹುದು.
- **ಕಣ್ಣಿನ ಚಲನೆಗಳು:** ವಿಡಿಯೋದಲ್ಲಿನ ಕಣ್ಣಿನ ಚಲನೆಯನ್ನು ಸೂಕ್ಷ್ಮವಾಗಿ ಗಮನಿಸಿದಾಗ, ಕಣ್ಣಿನ ಚಲನೆಗಳು ಮೂಲಕ್ಕಿಂತ ಸಾಕಷ್ಟು ಭಿನ್ನವಾಗಿರುವುದನ್ನು ಗಮನಿಸಬಹುದು. ರಶ್ಮಿಕಾ ವಿಡಿಯೋದಲ್ಲೂ ಇದನ್ನು ಪತ್ತೆ ಹಚ್ಚಬಹುದು.
- **ಹಿನ್ನೆಲೆ ಪರಿವರ:** ಅನೇಕ ಸಂದರ್ಭಗಳಲ್ಲಿ ವಿಡಿಯೋದಲ್ಲಿ ಹಿನ್ನೆಲೆ ಮತ್ತು ಮುನ್ನೆಲೆ ಪರಿವರವನ್ನು ಕೃತಕವಾಗಿ ಜೋಡಿಸಿದಂತೆ ತೋರಲಾಗಬಹುದು.

ಸಂತ್ರಸ್ತರೇ ಧೈರ್ಯ ಕಳೆದುಕೊಳ್ಳಬೇಡಿ...

"ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋಗಳ ಅವಾಂತರ ಗಮನಿಸಿದಾಗ ಅರ್ಚಿಷಿಯಲ್ ಇಂಟೆಲಿಜೆನ್ಸ್ ಎನ್ನುವುದು ಹಿಂದೆ ಕುಡಿದ ಕೋಟಿಯಂತೆ ತೋರುತ್ತಿದೆ. ಇನ್ನೊಬ್ಬರಿಗೆ ಮಾನಸಿಕ ಹಿಂಸೆ ಕೊಟ್ಟು ಮಾತಾ ತೆಗೆದುಕೊಳ್ಳುವ ವರ್ಗ ಸೃಷ್ಟಿಯಾಗುತ್ತಿದೆ. ಕ್ರಿಯಾತ್ಮಕ ಗೆದ್ದು ತಪ್ಪಿಸಿಕೊಳ್ಳುವ ಕಡೆಯು ಅಯುಧವೇ ಅವಪ್ರಚಾರ."

ಎನ್ನುತ್ತಾರೆ ಮನೋಚಿಕಿತ್ಸಾ ವಿಜ್ಞಾನಿ **ಡಾ. ಕುಭಾ ಮಧುಸೂದನ್**. ಇಂಥ ಪರಿಸ್ಥಿತಿಯನ್ನು ಹೇಗೆ ನಿಭಾಯಿಸಬೇಕೆಂದರೆ...

- ಸಂತ್ರಸ್ತರು ಯಾವುದೇ ಕಾರಣಕ್ಕೂ ಅತ್ಯಧೈರ್ಯ ಕಳೆದುಕೊಳ್ಳಬೇಡಿ
- ದುರುಳರು ಖಾಸಗಿತನಕ್ಕೆ ಕನ್ನೆ ಹಾಕಿ, ಸಾರ್ವಜನಿಕವಾಗಿ ಹಂಚಿ ಮರ್ಯಾದೆ ತೆಗೆದಾಗ ತಂದೆ-ತಾಯಿ ಬಿಟ್ಟು ಇನ್ನಾರೂ ನಮಗೆ ಧೈರ್ಯ ಹೇಳಲು ಸಾಧ್ಯವಿಲ್ಲ.
- ಮರ್ಯಾದೆಗೆ ಧಕ್ಕೆ ಆಯಿತೆಂದು ಕೆಲವರು ಅತ್ಯಧೈರ್ಯ ಅಂತರ್ಜಾಲ ಮುಂದೂಡುತ್ತಾರೆ. ಇಂಥ ಅಲೋಚನೆಗಳು ತಪ್ಪು.
- ಸುತ್ತಮುತ್ತ ಇದ್ದವರು ಕೂಡ ಯಾವುದೇ ವಿಡಿಯೋಗಳಲ್ಲಿ ಪರಿಚಿತರು ಕಂಡುಬಂದಲ್ಲಿ ಆ ಸಂತ್ರಸ್ತರಿಗೆ ಮೊದಲು ಅಲರ್ಟ್ ಮಾಡಿ. ನೀವು ನಂಬಬೇಡಿ. ಸಂತ್ರಸ್ತರನ್ನು ಗಾಬರಿಗೊಳಿಸಬೇಡಿ. ಸಂತ್ರಸ್ತರ ಬಗ್ಗೆ ಅನುರಂಭ-ಸಹಾನುಭೂತಿಯಿರಲಿ. "ಒಟ್ಟಿಗೆ ಹೋರಾಡೋಣ. ನಾವೂ ಪೋಷಕಿ ಇದ್ದೇವೆ." ಎಂಬ ಧೈರ್ಯ ಹೇಳಿ.





Health & Nutrition

QUICK FIX

CORN PAKODA



Contributed by S Anil, Hyderabad

INGREDIENTS

- Corn: 1 cup
- Dry mango powder: 1 tsp
- Onion: 1 (finely chopped)
- Green chilli: 2 (finely chopped)
- Chilli powder: 1 tsp
- Besan: 1 cup
- Salt: 1 tsp
- Water: 1/2 cup

METHOD

- To a bowl add corn, besan, chopped onion, chopped green chilli and water.
- Add salt, chilli powder, dry mango powder and mix well.
- Take small portions of the mixture and deep fry it in hot oil.
- Once done, serve it hot with your favourite beverage.

What's cooking in your kitchen?

We are hungry for recipes with minimum ingredients and maximum flavours. Share your quick-fix with us, along with step-by-step photos, at bengalurucityexpress@gmail.com

FIT BIT

EKA PADA SIRASANA PALMS TO FLOOR
(FOOT BEHIND THE HEAD POSE PALMS TO FLOOR)

This challenging seated pose is associated with the Anahata (heart) chakra, which increases feelings of love and compassion. It is a part of the intermediate series or Nadi Shodhana of Ashtanga yoga. It should be performed with the help of an expert.

STEPS

- Sit on the floor comfortably in Dandasana with legs stretched.
- Inhale, bend your right leg at the knee, lift the right foot and bring it near the trunk by holding the right ankle with your hands. Place the leg on the back of the neck with toes pointing upwards.
- Exhale, keep the back straight and move the right foot from the shoulders.
- Make sure that the back of the right thigh touches the back of the right shoulder.
- Place your palms on the floor, near to the hips. If the head is not held up properly, the leg will slip off the neck. The back of the left leg should touch the floor.
- Remain in this position from 15 to 60 seconds and continue deep breathing.
- To release, hold the right ankle with both hands, lower the right leg to the ground and straighten it.

BENEFITS

- Helps increase the blood flow, especially in your back.
- The increased blood flow helps remove toxins that are accumulated.
- The pose improves the hemoglobin levels.
- Helps people who suffer from anemia and nervous trembling.
- Helps digest food quickly.
- This pose also increases your flexibility.
- It makes hips and legs flexible and spine more supple.

● Repeat this pose on the left side by placing the left leg behind the neck.

● Do the pose on both sides for the same duration of time.

LIMITATIONS

People suffering from sciatica, hip problem or hernia, have spinal problems or injuries and problems with the back or knees, avoid this.



By N Elumalai, PhD Scholar (Yoga Science) at Meenakshi Academy of Higher Education & Research, Chennai

Mental health experts report uptick in cases

More people are seeking help for anxiety, depression and burnout

RASHMI RAJAGOPAL
TEAM METROLIFE

Psychologists and therapists believe that the past year has had a significant impact on mental health. They have recorded a rise in patients with anxiety and depression in the past 6-12 months. They reason that multiple wars, communal issues, natural disasters and lingering grief from the pandemic are to blame.

Experts say the world is in a polycrisis. A term coined in the 1970s, it is defined as a time of multiple catastrophic events occurring simultaneously.

Psychologist Afifa Kauser, founder of Let's Talk Healing, says she noted a rise in cases during the pandemic years. After a brief lull, she's been receiving more queries for therapy sessions. "Earlier I would receive one or two messages and calls per day, asking for help. Now it's jumped to 15-20 enquiries a day," she reveals.

Community healing

Anxiety caused by a sense of uncertainty due to what's happening around the world, and the potential threat to certain minority communities are the leading causes for her patients to seek professional help. "As a lot of the problems they are facing are similar, I conducted a healing circle recently," she reveals. Around 50 people attended the session, which saw participants sharing their experiences. The facilitators also shared strategies for self care. After receiving more enquiries, Afifa is planning to host



The global crisis has led to a sense of futility and uncertainty about the future, say psychologists. PIC FOR REPRESENTATION

another session for 400 people in collaboration with multiple organisations.

A significant number of her patients are new mothers. Being bombarded with news of the wars on social media and television has added to the trauma of those suffering from postpartum depression. "A lot of them are dealing with feelings of guilt. They feel guilty that they're able to feed and clothe their children and comfort them when they're upset, when at the same time mothers in strife-torn countries are seeing their children dying," she explains.

Other factors like vicarious trauma (caused by watching disturbing videos), cognitive dissonance (when what one believes is at odds with what one is seeing) and political gaslighting are contributing to mental health issues.

Staying in the present

Therapist Maullika Sharma shares that

apart from anxiety and depression, most of her patients are dealing with burnout. "The future by definition is unpredictable. But the pandemic has heightened that feeling. It has proven that life can change in an instant," she says. She advises her patients to "focus on what they can control and stay in the present". "I ask them what they can do now to have a more stable future and tell them to work on that. I make them understand that they can control their thoughts, feelings, behaviour and how they react to situations," she tells *Metrolife*.

Kala Balasubramanian, psychotherapist at Inner Dawn Counselling, says that a common feeling shared by a lot of her patients is a sense of futility. "They ask me what's the point of life when innocent people are getting killed or are losing all their possessions," she shares.

She explains that the increase in cases could be a result of multiple factors.

SELF CARE TIPS

- First, one must acknowledge that being affected by what's happening in the world is a normal response, says Afifa Kauser.
- Afifa advises drawing boundaries and not engaging with people who are causing you distress, especially strangers on social media. "If your friends or family have opinions that could be triggering, inform them that you will not discuss the topic with them and stick to your decision," she adds.
- Limit your exposure to social media or accounts whose content could be triggering.
- Practice diaphragmatic breathing. Doing it two to three times a day will reset your nervous system, she says.
- Lastly, she says, it's important to take care of your physical health. "As a result of vicarious trauma, people have been complaining about pain in their body. I would advise regular physical activity to release stress," she concludes.

"First, what's happening globally is definitely causing mental distress. Secondly, the stigma associated with seeking help for mental health has reduced drastically because celebrities are talking about it. People are more aware of what's happening to them because of this. And lastly, getting help has become easier. We get a lot of cases from tier 2 cities and smaller towns because of online sessions. This was not the case before," she explains.



ತಿರುಚಿದ ಅಪಧಮನಿಗೆ ಸರ್ಜರಿ

ಅರವತ್ತಾಲ್ಪ ವರ್ಷದ ಹಂಸವೇಣಿ ಅವರಿಗೆ ಹೃದಯ ಕವಾಟ ತೊಂದರೆ, ಜೊತೆಗೆ ಮಧುಮೇಹ, ಅಧಿಕ ರಕ್ತದೊತ್ತಡವೂ ಇದ್ದು, ದೈಹಿಕವಾಗಿ ಬಹಳ ಕ್ಷೀಣವಾಗಿದ್ದರು. ಜನ್ಯಜಾತವಾಗಿಯೇ ಬಂದಿರುವ ಹೃದಯದ ಮಹಾಪಧಮನಿಯ ಕವಾಟದ ಸಮಸ್ಯೆಯಿಂದಾಗಿ ಇವರಿಗೆ ಉಸಿರಾಟದ ತೊಂದರೆಯೂ ಕಾಣಿಸಿಕೊಂಡಿತ್ತು. ಈಚೆಗೆ ಹೃದಯ ತೊಂದರೆ ಗಂಭೀರ ಹಂತಕ್ಕೆ ಬಂದಿತ್ತು. ಆಗ ಬೆಂಗಳೂರಿನ ಫೋರ್ಟಿಸ್ ಆಸ್ಪತ್ರೆಗೆ ಚಿಕಿತ್ಸೆಗಾಗಿ ದಾಖಲಾದರು. ಈಕೆಯನ್ನು ಪರಿಷ್ಕರಿಸಿದ ವೈದ್ಯರು ಇವರ ಹೃದಯದಿಂದ ರಕ್ತ ಸಾಗಿಸುವ ಮಹಾಪಧಮನಿಯ ಕವಾಟವು ಸಂಪೂರ್ಣ ತಿರುಚಿಕೊಂಡಿದ್ದು ಶಸ್ತ್ರ ಚಿಕಿತ್ಸೆ ತುರ್ತಾಗಿ ಮಾಡಲೇಬೇಕು ಎಂಬ ತೀರ್ಮಾನಕ್ಕೆ ಬಂದರು. ಅದರಂತೆ ಇವರಿಗೆ ಟ್ರಾನ್ಸ್‌ಕ್ಯಾಥೆಟರ್ ಅಯಾರ್ಟಿಕ್ ವಾಲ್ವ್ ರಿಪ್ಲೇಸ್‌ಮೆಂಟ್ (Transcatheter Aortic Valve Replacement – TAVR) ಸರ್ಜರಿ ಮಾಡಿ ಹೃದಯ ಮಹಾಪಧಮನಿಯ ಕವಾಟ ಬದಲಾವಣೆ ಮಾಡಲಾಯಿತು. ಟಿವಿಆರ್ ಮೂಲಕ ನಡೆಸಿದ ಈ ಶಸ್ತ್ರ ಚಿಕಿತ್ಸೆ ದೇಶದಲ್ಲೇ ಮೊದಲನೆಯದು ಎನ್ನಲಾದ ದಾಖಲೆಗೂ ಪಾತ್ರವಾಯಿತು.

ಹೃದಯದ ಮಹಾಪಧಮನಿಯ ಕವಾಟವು ತಿರುಚಿಕೊಂಡರೆ ರಕ್ತಸಂಚಾರಕ್ಕೆ ಅಡ್ಡಿಯಾಗುತ್ತದೆ. ಇದಕ್ಕೆ ಟ್ರಾನ್ಸ್‌ಕ್ಯಾಥೆಟರ್ ವಾಲ್ವ್ ರಿಪ್ಲೇಸ್‌ಮೆಂಟ್ ಸರ್ಜರಿ ವರದಾನ.



■ ಉಮಾ ಅನಂತ್

'ಹೃದಯ ತೊಂದರೆಯಿಂದಾಗಿ ಅನೇಕ ವರ್ಷಗಳಿಂದ ಬಳಲುತ್ತಿದ್ದ ಈಕೆಯ ಹಿಂದಿನ ಶಸ್ತ್ರ ಚಿಕಿತ್ಸೆಯ ಸಮಯದಲ್ಲಿ ಅಳವಡಿಸಲಾದ ಪ್ರಾಸ್ಟೆಟಿಕ್ ಕವಾಟವು ಕಾರ್ಯನಿರ್ವಹಣೆಗೆ ಅಡ್ಡಿಪಡಿಸುತ್ತಿದ್ದುದರಿಂದ ರಕ್ತನಾಳವು ತೀವ್ರವಾಗಿ ಹಾನಿಗೊಳಗಾಗಿತ್ತು. ಇದರಿಂದ ಆಕೆಯ ಸ್ಥಿತಿ ಇನ್ನಷ್ಟು ಹದಗೆಟ್ಟಿತ್ತು, ಸಾಕಷ್ಟು ಪರೀಕ್ಷೆಗಳ ಬಳಿಕ ಆಕೆಗೆ ಬಹು ಅಂಗಾಂಗಗಳ ವೈಫಲ್ಯವೂ ಆಗಲು ಶುರುವಾಗಿತ್ತು. ಅಲ್ಲದೆ ಈಕೆಯ ಮಹಾಪಧಮನಿಯಲ್ಲಿ (ಹೃದಯದಿಂದ ರಕ್ತವನ್ನು ಸಾಗಿಸುವ ದೇಹದಲ್ಲಿನ ಅತಿದೊಡ್ಡ ಅಪಧಮನಿ) ಅಧಿಕ ಕ್ಯಾಲ್ಷಿಯಂ ತುಂಬಿರುವುದು ಪಶ್ಚಿಯಾಯಿತು. ಹೀಗಾಗಿ ಹೃದಯದ ಮಹಾಪಧಮನಿಯ ಕವಾಟವು ಸಂಪೂರ್ಣ ತಿರುಚಿಕೊಂಡಿತ್ತು. ಈ ಕಾರಣಕ್ಕೆ ಇವರಿಗೆ ಟ್ರಾನ್ಸ್‌ಕ್ಯಾಥೆಟರ್ ಮಹಾಪಧಮನಿಯ ವಾಲ್ವ್ ರಿಪ್ಲೇಸ್‌ಮೆಂಟ್ (TAVR) ಶಸ್ತ್ರ ಚಿಕಿತ್ಸೆ ನಡೆಸುವುದು ಒಂದೇ ದಾರಿಯಾಗಿತ್ತು' ಎಂದು ವಿವರಿಸುತ್ತಾರೆ ಇದೇ ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ಹಿರಿಯ ಹೃದಯ ಶಸ್ತ್ರ ಚಿಕಿತ್ಸಕರಾಗಿರುವ ಡಾ. ವಿವೇಕ್ ಜವಳಿ.

'ಟಿವಿಆರ್ ಚಿಕಿತ್ಸೆ ನಡೆಸಿ 10 ದಿನಗಳ ಬಳಿಕ ಈಕೆಯನ್ನು ಆಸ್ಪತ್ರೆಯಿಂದ ಮನೆಗೆ ಕಳಿಸಲಾಯಿತು. ಈಗ ಹಂಸವೇಣಿ ಆರೋಗ್ಯ ಸುಧಾರಿಸಿದ. ಆದರೆ

ನಿರಂತರ ತಪಾಸಣೆ ಹಾಗೂ ಮುನ್ನೆಚ್ಚರಿಕೆ ಬಹಳ ಅಗತ್ಯ' ಎಂದು ಹೇಳುತ್ತಾರೆ ಈ ವೈದ್ಯರು. ಮಹಾಪಧಮನಿಯ (Aorta) ಪ್ರಮುಖ ಕೆಲಸವೆಂದರೆ ರಕ್ತವನ್ನು ಪಂಪ್ ಮಾಡಿ ದೇಹದ ಉಳಿದ ಭಾಗಗಳಿಗೆ ಸರಿಯಾದ ದಿಕ್ಕಿನಲ್ಲಿ ಹರಿಯುವಂತೆ ಮಾಡುವುದು. ಮಹಾಪಧಮನಿಯ ಕವಾಟವು ಹೃದಯದ ಎಡ ಕುಹರದ ಮತ್ತು ಮಹಾಪಧಮನಿಯ ನಡುವಿನ ಬೇರ್ಪಡಿಕೆಯಾಗಿ ಕಾರ್ಯನಿರ್ವಹಿಸುತ್ತದೆ. ಇದು ಇಡೀ ದೇಹಕ್ಕೆ ಆಮ್ಲಜನಕಯುಕ್ತ ರಕ್ತವನ್ನು ಪೂರೈಸುತ್ತದೆ. ಹೃದಯದ ಸ್ವಾಯಂವಿನ ಸಂಕೋಚನವು ಮಹಾಪಧಮನಿಯ ಕವಾಟವನ್ನು ತೆರೆಯುತ್ತದೆ, ರಕ್ತವು ಅದರ ಮೂಲಕ ಹರಿಯುವಂತೆ ಮಾಡುತ್ತದೆ ಮತ್ತು ಒಮ್ಮೆ ಅದು ಸಡಿಲಗೊಂಡರೆ, ಮಹಾಪಧಮನಿಯ ಕವಾಟವು ಮುಚ್ಚುತ್ತದೆ. ಅಲ್ಲದೆ ಯಾವುದೇ ರಕ್ತವು ಕುಹರದೊಳಗೆ ಹಿಂತಿರುಗುವುದನ್ನು ತಡೆಯುತ್ತದೆ. ಮಹಾಪಧಮನಿಯ ಕವಾಟದ ಕೆಲಸದಲ್ಲಿ ವ್ಯತ್ಯಯ ಕಂಡುಬಂದರೆ ಹೃದಯಕ್ಕೆ ಹೆಚ್ಚಿನ ಒತ್ತಡ ಬೀಳುತ್ತದೆ. ಈ ಒತ್ತಡ ದೀರ್ಘಕಾಲ ಮುಂದುವರಿದರೆ ಮಹಾಪಧಮನಿಯ ಕವಾಟ ತಿರುಚಿಕೊಳ್ಳಲಾರಂಭಿಸುತ್ತದೆ. ಹೃದಯ

ಸಮಸ್ಯೆ ಹೆಚ್ಚುತ್ತದೆ. ಈ ಸಂದರ್ಭದಲ್ಲಿ ಕವಾಟವನ್ನು ಬದಲಾಯಿಸುವ ಪರಿಷ್ಕರಿಯೂ ಬಂದೊದಗಬಹುದು' ಎಂದು ವಿವರಿಸುತ್ತಾರೆ ಫೋರ್ಟಿಸ್ ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ಹಿರಿಯ ಹೃದಯ ತಜ್ಞರಾಗಿರುವ ಡಾ. ಶ್ರೀನಿವಾಸ್ ಪ್ರಸಾದ್.

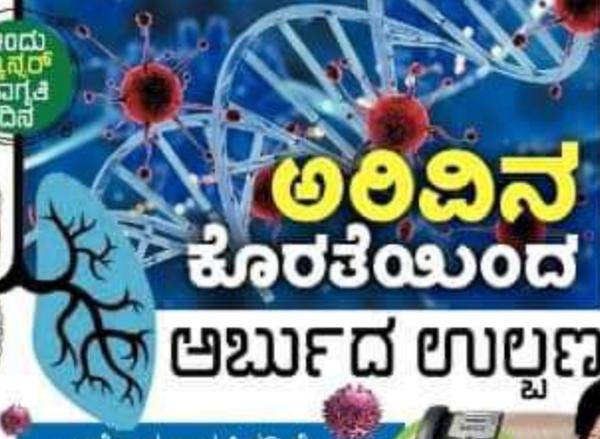
'ಕೆಲವು ಸಂದರ್ಭಗಳಲ್ಲಿ, ಜನ್ಯಜಾತ ಹೃದಯ ದೋಷಗಳು ಮಹಾಪಧಮನಿಯ ಕವಾಟದ ತೊಂದರೆಗೆ ಕಾರಣವಾಗಬಹುದು. ಹೀಗಾದಾಗ ಕವಾಟ ಸರಿಯಾಗಿ ಕಾರ್ಯನಿರ್ವಹಿಸಲು ಅಸಮರ್ಥವಾಗಬಹುದು. ಕವಾಟವು ತುಂಬಾ ಚಿಕ್ಕದು ಅಥವಾ ತುಂಬಾ ದೊಡ್ಡದು ಆಗಿರಬಹುದು ಇಲ್ಲವೇ ಸರಿಯಾದ ಆಕಾರವಿಲ್ಲದೇ ಇರಬಹುದು. ಇದು ರಕ್ತದ ಹರಿವಿನ ಮೇಲೆ ವ್ಯತಿರಿಕ್ತ ಪರಿಣಾಮ ಬೀರಬಹುದು. ಇದನ್ನು 'ಅಟ್ರಿಸಿಯಾ' ಎನ್ನಲಾಗುತ್ತದೆ. ಇದು ಆರಂಭದಲ್ಲಿ ಯಾವುದೇ ರೋಗ ಲಕ್ಷಣಗಳನ್ನು ಪ್ರದರ್ಶಿಸದೇ ಇರುವುದರಿಂದ ಚಿಕಿತ್ಸೆ ನೀಡುವುದು ಕಷ್ಟ. ಕಾಲಾನಂತರ ಸಮಸ್ಯೆ ಉಲ್ಬಣಗೊಂಡು ಹಠಾತ್ ಹೃದಯಾಘಾತ, ಹಠಾತ್ ಹೃದಯ ಸ್ತಂಭನ ಅಥವಾ ಹೃದಯ ವೈಫಲ್ಯದಂತಹ ಅಪಾಯಕ್ಕೆ ಕಾರಣವಾಗಬಹುದು' ಎಂದು

ಎಚ್ಚರಿಕೆ ನೀಡುತ್ತಾರೆ ಅವರು.

ಟಿವಿಆರ್ ವರದಾನ

ಮಹಾಪಧಮನಿಯ ಕವಾಟದ ತೊಂದರೆ ನಿವಾರಣೆಗೆ ಟ್ರಾನ್ಸ್‌ಕ್ಯಾಥೆಟರ್ ವಾಲ್ವ್ ರಿಪ್ಲೇಸ್‌ಮೆಂಟ್ (ಟಿವಿಆರ್) ಶಸ್ತ್ರ ಚಿಕಿತ್ಸೆ ಸೂಕ್ತವಾದ ಪರಿಹಾರ ಒದಗಿಸುತ್ತದೆ. ಈ ಪ್ರಕ್ರಿಯೆಯಲ್ಲಿ ತೊಡೆಯ ಎಲುಬಿನ ಅಪಧಮನಿಯ ಮೂಲಕ ಮಹಾಪಧಮನಿಯ ಕವಾಟದವರೆಗೆ ಕ್ಯಾಥೆಟರ್ ಅನ್ನು ಸೇರಿಸಲಾಗುತ್ತದೆ. ಇದು ಎದೆಯ ಗೋಡೆಯಲ್ಲಿ ಛೇದನದ ಮೂಲಕ ಮತ್ತು ಹೃದಯದ ತುದಿಯ ಮೂಲಕ ಕವಾಟವನ್ನು ಪ್ರವೇಶಿಸಬಹುದು. ರಕ್ತದ ಹರಿವು ತನ್ನ ಕಾರ್ಯವನ್ನು ಪುನರಾರಂಭಿಸಲು ಹಳೆಯ ಕವಾಟದ ಸ್ಥಳದಲ್ಲಿ ಬದಲಿ ಕವಾಟವನ್ನು ಅಳವಡಿಸಿದಾಗ ಹೃದಯದ ಕೆಲಸ ಸುಗಮವಾಗುತ್ತದೆಯಾದರೂ ಅಪರೂಪದ ಪ್ರಕರಣಗಳಲ್ಲಿ ಇದರಿಂದ ಅಪಾಯವೂ ಇಲ್ಲದಿಲ್ಲ. ಹೃದಯ ಚಿಕಿತ್ಸೆಗೆ ಈಗ ಅತ್ಯಾಧುನಿಕ ಸೌಲಭ್ಯ ಲಭ್ಯವಿದೆ. ಹಿಂದೆ ಹೃದಯದ ಕವಾಟ ಬದಲಿಸಲು ತೆರದ ಹೃದಯ ಶಸ್ತ್ರ ಚಿಕಿತ್ಸೆಯೊಂದೇ ದಾರಿಯಾಗಿತ್ತು. ಆದರೆ ಈಗ ಬಂದಿರುವ ಟಿವಿಆರ್ ಚಿಕಿತ್ಸೆ ಸರಳ ಹಾಗೂ ಕಡಿಮೆ ಅವಧಿಯಲ್ಲಿ ಸಮಸ್ಯೆ ಪರಿಹಾರವಾಗುವಂಥ ಪರ್ಯಾಯ ವ್ಯವಸ್ಥೆ.

• **ಬೆಂಗಳೂರಿನಲ್ಲಿ ಪುಸ್ತಕ ಬಿಡುಗಡೆ**
 ಜನಜನಿತವಾದ ಕೊರೋನಾ ವೈರಸ್‌ನಿಂದ
 ರಕ್ಷಿಸಿಕೊಳ್ಳಲು ಅಗತ್ಯವಾಗಿರುವ ಎಲ್ಲವನ್ನೂ
 ಈ ಪುಸ್ತಕವು ತಿಳಿಸುತ್ತದೆ.



ಇಂದು ಕ್ಯಾನ್ಸರ್ ಜಾಗೃತಿ ದಿನ
 ಇಂದು ಕ್ಯಾನ್ಸರ್ ದಿನ (17) ಆಯ್ಕೆ
 'ಬೆಂಗಳೂರಿನಲ್ಲಿ ಅರಿವಿನ ಕೊರತೆಯಿಂದ
 ಆರ್ಜಿಎಫ್ ಉಪಭವಿಸುವುದು' ಎಂಬ
 ವಿಷಯವನ್ನು ಹಿರಿಯ ವೈದ್ಯಕೀಮತರು
 ಡಾ. ಮ. ಅಶ್ವಿನಿ ಅವರು ತಿಳಿಸಿದರು.

ಆರೋಗ್ಯ ಕಾಳಜಿ ಕಡಿಮೆ ಆಗಿರುವುದು ಕಾಯಿಲೆಗೆ ಕಾರಣ

ದೇಹದ ಎಲ್ಲೆಡೆಗೂ ಪುಟ್ಟ ಕಣ್ಣಿನಂಥ ರಕ್ತ
 ಪರಿಚಲನೆಯಿರುತ್ತದೆ. ಆದರೆ ಈ ರಕ್ತವು
 ಸುರಕ್ಷಿತವಾಗಿರಲು ಮತ್ತು ಆರೋಗ್ಯಕರವಾಗಿ
 ಇರಲು ಅಗತ್ಯವಿದೆ. ಆರೋಗ್ಯಕರವಾದ
 ಆಹಾರವನ್ನು ತಿಳಿದುಕೊಳ್ಳುವುದು
 ಮತ್ತು ಆರೋಗ್ಯಕರವಾದ ಜೀವನ
 ಶೈಲಿಯನ್ನು ಅನುಸರಿಸುವುದು
 ಅಗತ್ಯವಿದೆ.

ಪಂಜೋಥನೆಗೆ ಒತ್ತು ನೀಡಲೇಕೆ
 ದೇಹದಲ್ಲಿ ಪಂಜೋಥನು (ಜೀವಕೋಶ)
 ಇರುವುದರಿಂದ ಆರೋಗ್ಯಕರವಾದ ಜೀವನ
 ಶೈಲಿಯನ್ನು ಅನುಸರಿಸುವುದು
 ಅಗತ್ಯವಿದೆ. ಆರೋಗ್ಯಕರವಾದ
 ಆಹಾರವನ್ನು ತಿಳಿದುಕೊಳ್ಳುವುದು
 ಮತ್ತು ಆರೋಗ್ಯಕರವಾದ ಜೀವನ
 ಶೈಲಿಯನ್ನು ಅನುಸರಿಸುವುದು
 ಅಗತ್ಯವಿದೆ.



6 ಮಹಿಳೆಯರು ನಿರಂತರವಾಗಿ
 ಪುಸ್ತಕವನ್ನು ಕೊಡಲು ನಿರೀಕ್ಷಿಸಿ
 ಇದನ್ನು ಸಂಪೂರ್ಣವಾಗಿ
 ಕೊಡಲು ನಿರೀಕ್ಷಿಸಿ. 40 ವರ್ಷದ
 ವಯಸ್ಸಿನಲ್ಲಿ ಇದನ್ನು ಕೊಡಲು
 ನಿರೀಕ್ಷಿಸಿ.

ಕೆಲೆಗಳಿಗೆ ಸುದ್ದಿ ಮಾಡಿ
 ತೊಂದರೆಯಿಂದ ತಪ್ಪಿಸುವ
 ವಿಧಾನಗಳನ್ನು ತಿಳಿಸುವ
 ಪುಸ್ತಕವನ್ನು
 ಹಿರಿಯ ವೈದ್ಯಕೀಮತರು
 ಡಾ. ಮ. ಅಶ್ವಿನಿ ಅವರು
 ಬಿಡುಗಡೆ ಮಾಡಿದರು.

ಅಸತಿ ನಿರ್ಲಕ್ಷ್ಯವಾದಿ...
 ಗಂಡನಿಂದ ಅತ್ಯಂತ ದೂರವಾಗಿ
 ಇದ್ದುಕೊಂಡು, ಅತ್ಯಂತ ದೂರವಾಗಿ
 ಇದ್ದುಕೊಂಡು, ಅತ್ಯಂತ ದೂರವಾಗಿ
 ಇದ್ದುಕೊಂಡು...



ಕ್ಯಾನ್ಸರ್ ತಡೆಗೆ ಸಲಹೆಗಳು
 • ಮಧ್ಯಸ್ಥರ ಅಪಾಯ ತಡೆಗಡಿಸಿ
 • ವಿಸ್ಮಯಕಾರಕವಾದ, ಎಲ್ಲವನ್ನೂ ತಿಳಿಸಿ
 • ಆರೋಗ್ಯಕರವಾದ, ಎಲ್ಲವನ್ನೂ ತಿಳಿಸಿ

ನಿಯಂತ್ರಣ ಹೇಗೆ?
 ಇದನ್ನು ನಿಯಂತ್ರಿಸುವುದು
 ಸುಮಾರು 40 ವರ್ಷದ ವಯಸ್ಸಿನಲ್ಲಿ
 ಆರಂಭಿಸುವುದು.



ಯಾವುದು ಅಪಾಯ?
 ಯಾವುದು ಅಪಾಯ? ಇದನ್ನು
 ತಿಳಿಸುವುದು ಅಗತ್ಯವಿದೆ.

ಯಾವುದು ಅಪಾಯ? ಇದನ್ನು
 ತಿಳಿಸುವುದು ಅಗತ್ಯವಿದೆ.

40 ವರ್ಷ ದಾಟಿದವರು ತಪ್ಪೆ ಪರಿಶೀಲನೆಗೆ ಒಳಗಾಗುವುದು ಸೂಕ್ತ
 40 ವರ್ಷ ದಾಟಿದವರು ತಪ್ಪೆ ಪರಿಶೀಲನೆಗೆ
 ಒಳಗಾಗುವುದು ಸೂಕ್ತ.



ಕ್ಯಾನ್ಸರ್ ಗೆ ನಾಟಿ ಚಿಕಿತ್ಸಕ ಸೂತ್ರವೇ?
 ಯಾವುದು ನಾಟಿ ಚಿಕಿತ್ಸಕ ಸೂತ್ರವೇ?

ದೋಗ ಲಕ್ಷಣಗಳು
 ಯಾವುದು ದೋಗ ಲಕ್ಷಣಗಳು?

ಚಿಕಿತ್ಸೆಯ ಪಟ್ಟಿ
 ಯಾವುದು ಚಿಕಿತ್ಸೆಯ ಪಟ್ಟಿ?



Business

Finance

Marketing

12



BrandWagon

WEDNESDAY, NOVEMBER 8, 2023

● **INTERVIEW:** LALIT PARMAR, country manager, Hasbro India

'Demand rising for toys that enable childrens' social skills'

The maker of Play-Doh, Monopoly and Transformers action figures, Hasbro, not known for big-bang launches, recently introduced its first developed-in-India board game, Cricket Monopoly, amid much fanfare. Lalit Parmar, country manager for the US multinational in India, talks to Christina Moniz about the importance of timing in marketing, the company's performance in India and the gauntlet thrown down by the unorganised sector. Edited excerpts:

You have been in India for more than half a decade now. Has the online gaming boost slowed demand for toys?
We have done really well since our entry into the market in 2017, although we were actually present in India before that as well, albeit with a JV partner. We saw substantial growth in the first three years, after which the pandemic happened. Since then, we have seen a slightly moderate growth pace. From a distribution perspective, we are currently equally represented across e-commerce and brick-and-mortar stores. We are well distributed across the country in traditional trade or toy and novelty stores, as they are better known, particularly in urban markets. Our brands are dominant on e-commerce platforms, and are also seeing traction on quick commerce. We have also started sourcing a lot locally and our vendor base in India exports the largest quantity of toys to global markets. We are able to manufacture and retail major brands like Nerf and Monopoly here in India.

Why did you choose this time of the year when people are busy with festivities to

launch Monopoly Cricket?
Since the ICC men's World Cup is on at the moment, this was the right time for us to launch an offering that marries two fan bases – cricket fans and Monopoly fans. This is easily one of the biggest launches of the year for us. Usually most of our games and toys are designed globally but this is the first one that has been designed and developed in India with a game design firm in Bangalore. The unique thing about this game is that we have tried to retain the core elements of Monopoly but have also infused a lot of ele-



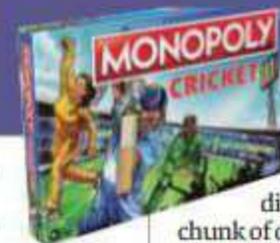
ments from cricket. It's being sold at an attractive price point of ₹999 and is perfect for gifting, especially during these festive months. We expect Monopoly Cricket to be the biggest volume driver for us in the years to come.

Because it is a big launch, we are going all out to promote it with a 360-degree effort. We have a TVC that is out already on kids' animation channels and on digital media. We're doing a lot of in-store marketing, influencer collaborations and promotions across e-commerce. The idea is to recruit new consumers and create more fans for the Monopoly franchise too. In India, it is already the biggest-selling board game from the Hasbro portfolio. We have around 13 offerings in Monopoly.

The unorganised segment is said to account for over 70% of the Indian toy market. How big a challenge does that pose?
Yes, the unorganised market is a real challenge and there are numerous small vendors and toy manufacturers that have flooded the market. However, the branded segment is seeing a great deal of traction because parents are also increasingly seeking good quality toys for their kids. There is a lot of appreciation for games that enable better engagement and social skills. The per capita consumption of toys in our market is just about 1-2% of what it is in a market like

the US, so there is still tremendous headroom for growth. Considering there are over 400 million children in the country, India is among the top three focus markets in the APAC region for Hasbro. Aside from Monopoly, brands like Jenga, Cluedo and Game Of Life are some of our best-performing games here. Toys like Nerf also perform well, since they come with global history and heritage.

INDIA IS AMONG THE TOP 3 FOCUS MARKETS IN THE APAC REGION FOR HASBRO, WITH OVER 400 MN KIDS"



Considering that urban markets contribute the larger share of your business, what steps are you taking to reach smaller markets?
Toys are not an intensively distributed category in India compared with other categories such as FMCG. That is where e-commerce plays an important role, since these players can reach nearly 99% of all pin-codes. E-commerce

accounts for a decent, double-digit share of Hasbro's sales. A good chunk of our e-commerce business comes from tier-II and III markets. Our advertising and marketing is not just limited to metros and top urban markets, so we're seeing a growing awareness about our brands in smaller cities. Further, we have products at various price points even for our range of popular titles like Monopoly, where we offer smaller grab-and-go versions at accessible prices. Our pricing is based on extensive consumer research and market trends, and has worked well for the company.

NUMBER THEORY

The economic learnings of Bihar's caste survey

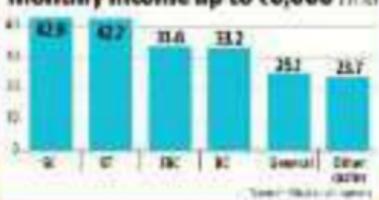
By Abhishek Jha and Roshan Kishore

The Bihar government tabled detailed socio-economic findings of the caste survey in the state assembly on November 7. The 216-page document, which has been made public, contains detailed information on income, employment, assets and education of all 215 sub-castes that have been listed in the caste survey. Here are four charts that summarise what the report says about Bihar's socio-economic landscape.

1 More than a third of Bihar's households earn less than ₹6,000 a month

The report has selected self-reported annual or monthly earnings of all 272 million households in the state. It shows that 34.3% of these earn less than ₹6,000 per month, which is the minimum amount by the Bihar government to classify a household as poor. The state's parliamentary affairs minister Vijay Kumar Singh says while working in the assembly, he said that the survey revealed that 34.3% of the population are poor, as revealed by the Bihar government in July 2023 (as of 2019-20-21). The share of poor households is the highest for Scheduled Caste (SC) and Scheduled Tribe (ST) groups, but it is not insignificant for households not belonging to SC-ST or Forward Caste (FC) and Extremely Backward Class (EBC) groups as well. When seen in terms of relative share, a share of low households from each category adjusted for their overall share - SC and ST households are over-represented in a group SCs and STs are in the same proportion to their population, and the over-represented...

Share of households with monthly income up to ₹6,000 (in %)

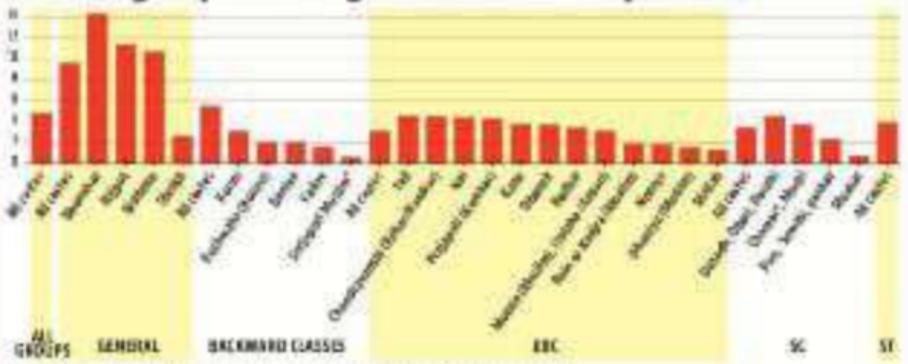


2 Under-representation for EBCs, SCs, STs in govt jobs; upper castes are most over-represented

The caste census report also gives the number of persons employed in government jobs across caste groups and sub-groups. A comparison of job openings in government jobs - number of persons with government jobs against the share in population - shows that the number is less than one for EBCs, SCs and STs and even less than two for persons who are belonging to the SC/ST/EBC categories. In the SCs and STs the ratio is around a slightly higher value, one, which shows that they do have proper representation. The social representation of government job numbers show that currently mandated reservation - 16% for SCs, 8% for STs, 6% for EBCs and 10% for FCs - are barely met for reserve quota SCs in the state. To be sure, there is significant over-quota irregularity too. For example, among castes that have at least 25 share in Bihar's...

population - there are 25 of them - some backward castes are among the most over-represented in government job and others are among the most under-represented compared to their representation in the workforce overall. The top five castes in the list of 25 most over-represented in government jobs are EBCs, Patil, Rajput, Bhumihar of the non SC/ST/EBC category and Khatua and Bhumihar of the SC category. The five most under-represented castes are Mahua of the SC category, Mahla, Bhoi, Mahya of the EBC category and Sengupta and Shukla of the ST category. Because of the opportunities, the caste group data on workers in government jobs, it is difficult to estimate their average and whether the number of government jobs has fallen in a recent year.

Share of group/caste in government sector jobs (in %)

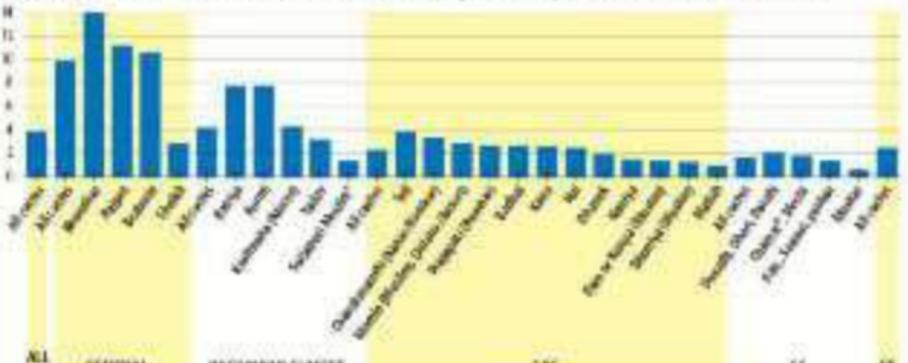


3 What is the social composition of the rich in Bihar?

The highest income category in the report is more than ₹50,000 per month. Of the 215 caste households, which are above 10% monthly, share belong to non-SC/ST/EBC groups. This means that these relative share among the income households is 7.3 times more than its overall households. This number is 1.06, 0.4 and 1.5 for the SC, EBCs, STs and STs in the state.

As it appears, the over- or under-representation can be mainly explained for individual caste. Among the 25 by caste, the five most over-represented among such rich households are Bhumihar, Rajput, Bhoi, Mahya, and Khatua, and the five most under-represented are Mahua, Mahla, Thapar, Mahari, Patil or Rajya Mahari, and Sengupta Mahari.

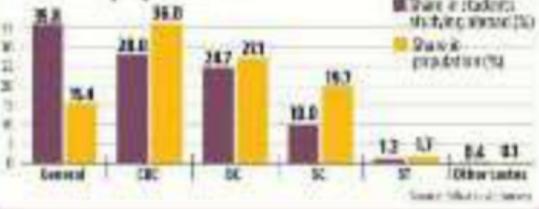
Share of households with monthly income over ₹50,000 (in %)



4 To be sure, social composition of the really rich could be slightly different

When caste comes to talk about caste it is difficult to understand this because you are looking at 712,000 households and you have to divide it into 215 castes. The report does give a hint about who the really rich is, and that is the caste. One of the statistics in the report is about students from Bihar studying abroad. The one reason that a household sending their child to study abroad will have to be really rich. Of the 12,378 such students, non-SC/ST/EBC category is the highest at 1,100 but the numbers for EBCs and STs is not insignificant either. What is interesting is the fact that these caste with the highest number of students studying abroad in India. This suggests that India was the largest market among the really rich in their own home, the largest sub-caste in the state.

Share in students studying abroad versus share in population



● THE COMPANY INTENDS TO FILE RECOGNITION PROCEEDINGS IN CANADA

WeWork, once most valuable US startup, succumbs to bankruptcy

Company expects to have the financial liquidity to continue business normally

REUTERS
November 7

WEWORK, THE SOFTBANK Group-backed startup whose meteoric rise and fall reshaped the office sector globally, sought US bankruptcy protection on Monday after its bets on companies using more of its office-sharing space soured.

The move represents an admission by SoftBank, the Japanese technology group that owns about 60% of WeWork and has invested billions of dollars in its turnaround, that the company cannot survive unless it renegotiates its pricey leases in bankruptcy.

A WeWork spokesperson said about 92% of the company's lenders had agreed to convert their secured debt into equity under a restructuring support agreement, wiping out about \$3 billion of debt.

The company, which also intends to file recognition proceedings in Canada, said it expected to have the financial liquidity to continue business normally and that its locations outside of the US and Canada, as well as its franchisees around the world, were not affected by these proceedings.

WeWork had office space available at 777 locations worldwide as of the end of June.

KEY TAKEAWAYS

■ The move represents an admission by SoftBank, the Japanese technology group that owns about 60% of WeWork

■ About 92% of the company's lenders had agreed to convert their secured debt into equity under a restructuring support agreement



■ WeWork's restructuring support agreement was apt for them to reorganise business, believed SoftBank

■ Paying for space consumed 74% of WeWork's revenue in the second quarter of 2023

Saga cost SoftBank CEO \$11.5 bn & his credibility

WEWORK'S BANKRUPTCY FILING caps a years-long saga that revealed breathtaking flaws in the investment style of Japanese billionaire Masayoshi Son, damaging his professional reputation far beyond the money he lost. Son overrode his lieutenants' objections and handed WeWork founder Adam Neumann billions of dollars from both SoftBank Group Corp. and the Vision Fund, lifting the co-working office space's valuation to an astronomical \$47 billion in early 2019.

Just months later, investors balked at the deep losses and conflicts of interest WeWork's IPO fil-

ings revealed. WeWork's subsequent nosedive is costing SoftBank more than the estimated \$11.5 billion in equity losses and another \$2.2 billion in debt still on the line. WeWork's very public decline, along with the Vision Fund's record loss of \$32 billion last year, battered Son's standing as a shrewd investor who scored one of venture capital's legendary wins through an early bet on Chinese e-commerce leader Alibaba. "You can recover from mistakes, but how do you recover from the perception that you don't know what you're doing?" said Aswath Damodaran, a professor at New York University. —BLOOMBERG

US bankruptcy won't hit our operations: India CEO

COWORKING MAJOR
WEWORK India on Tuesday said the Indian business will not be impacted in any manner, as it is not part of the bankruptcy proceedings filed by WeWork Global in the US court.

In WeWork India, Bengaluru-based real estate firm Embassy Group has a 73% stake, while WeWork Global has a 27% shareholding. WeWork India has 50 centres, comprising around 90,000 desks, across seven cities. In a statement, WeWork India CEO Karan Virwani asserted that the Indian business is independent from WeWork Global and hence its operations will not be impacted.

"WeWork India operates independently of WeWork Global, and our operations will not be affected in any manner," he said.

Virwani noted that WeWork India is a separate entity in itself, and it is not a part of this strategic reorganisation process.

The bankruptcy filing does not impact the operations of the global entity as it continues to remain in possession of its business, operating as usual, he added. The process restructures the debts and the leases of WeWork Global in the US and Canada.

"During this period, we will con-

tinue to hold the rights to use the brand name as part of the operating agreement, while serving our members, landlords, and partners as usual," Virwani said.

WeWork India is backed by majority stake holder Embassy Group, he said. Virwani said the Embassy Group is committed to investing in the future of WeWork India business.

"We remain fully focused on delivering exceptional and innovative flexible workspace solutions for our members in the region. We are the leaders in the flexible workspace industry and have transformed the way India works," he said. —PTI



Karan Virwani

Behind the telco-tech firm dispute over SMS charges

Indian telcos and foreign tech firms have been locked in a dispute over SMS charges for over three years now—the latter allege that telcos categorise their SMSes as international SMS, and charge large tariffs. Tech firms have turned to WhatsApp etc, prompting telcos to raise the issue with the DoT. Jatin Grover goes into the particulars of the matter



₹4-4.5
being charged to
tech firms for
"international SMSes"
by the telcos

2X increase
in international SMS
tariffs within the
last two years,
from ₹2 to ₹4-4.5

₹3,000 cr
revenue loss alleged by
telcos from tech
companies switching to
WhatsApp, Telegra,

● SMS treatment and tariffs

TECH FIRMS, ESPECIALLY those head-quartered overseas, with markets in India (such as Amazon, Truecaller, Meta, Microsoft, and Google), use Indian telcos to send SMSes such as one-time password (OTP), updates on orders, etc, to their consumers. These technology companies are currently being charged ₹4-4.5 per SMS for such messages, as against 13 paise charged per domestic SMS. Telcos say these companies are being charged higher international rates

because these entities send SMSes to Indian users from servers or applications located outside the country. However, these global technology firms say their messages originate and terminate in India, and therefore telcos are charging them incorrectly.

Clarity has also been sought from the Telecom Regulatory Authority of India (Trai) on the definition of international traffic. Trai has completed the consultation, but is yet to release its recommendations.

● What the telcos are saying

TELECOM COMPANIES HAVE told Trai that some tech companies such as financial institutions, OTTs, e-commerce companies, bypass the licensing framework to transmit international SMSes—nothing less than a grey route.

They said the global companies through their servers located outside India, transmit international SMSes via telemarketers in India who use the DLT (distributed ledger technology) to transmit messages to end consumers, bypassing the international long distance (ILD) route.

However, the latest issue is over the tech firms using alternative routes like WhatsApp and Telegram to send SMSes.

The telcos told the department of telecommunications (DoT) that this is a gross violation of licensing and security norms, and is also causing a revenue loss to them and the Centre.

The representative body for telcos, the Cellular Operators' Association of India (COAI), in its letter to the DoT, also urged it to declare WhatsApp/Telegram as illegitimate routes for enterprise communication.

● What the tech firms say

THE REASON WHY these companies have reduced the volumes of the SMSes they send using telco services is because of the higher SMS tariff, which is because of the incorrect categorisation of their SMSes as international, according to the arguments they submitted before the Trai and DoT. According to industry estimates, over 1 billion domestic commercial messages are sent every day and these technology companies are slowly migrating to channels like WhatsApp or using their own apps to communicate with the users. Sources say Truecaller recently told the government that, thanks

to its SMSes getting categorised as international, it incurs an additional operational cost of nearly ₹15 crore annually.

According to Truecaller, their SMSes including the underlying content, are originated, carried, and terminated by domestic telcos and do not leave the geographical boundaries of India at any point of time. Amazon said it uses certain applications for sending SMSes, which do not interact with telecom networks at the time of origination. Telcos have increased the international SMS tariffs by over two times in the last one year, from ₹2 per SMS.

● The likely regulatory stance

BOTH TELCOS AND tech firms have made representations to the government on the matter. DoT has sought representations from Trai. While Trai will likely not intervene on tariffs set by telcos—telecom tariffs come under forbearance—it will, however, give clarity to the government on the definition of international traffic. In the consultation, Trai reportedly proposed to define international traffic as international long-distance traffic originating in one country and terminating in another, where one of the countries is India. A crucial factor which contributes to the added

rates for international SMSes is the forbearance of termination charges, meaning the telcos can charge each other any rate when a message sent by a foreign entity terminates on their networks. For domestic transactional messages, Trai has specified a termination charge of 5 paise. Overall, the domestic SMS charge comes to around around 9-15 paise for commercial entities.

Further, Trai isn't likely to recommend that tech companies stop using WhatsApp/Telegram for business messaging. This is also not likely to be taken into consideration by DoT, officials said.

WeWork India's brand image may take hit as global entity files for bankruptcy

ANEKA CHATTERJEE &
ARYAMAN GUPTA

Bengaluru/ New Delhi, 7 November

WeWork India on Tuesday said it operates independently, and its global unit's bankruptcy filing in the US will not impact its business, even as the industry experts warned the company's brand image is likely to take a hit.

WeWork Inc. filed for bankruptcy on Monday, capping a tumultuous period that saw the once high-flying startup navigate a failed initial public offering and Covid-19-induced lockdowns. WeWork Inc.'s bankruptcy highlights the legal separation aspect of a business structure, according to Jitender Ahlawat, founder and managing partner, HJA & Associates LLP.

"When a subsidiary is legally independent from its parent company, it operates on its own with its assets, contracts, and financial responsibilities. This means WeWork India can carry on with its operations without significant disruptions," he said.

However, there are subtle repercussions, he cautioned.

"WeWork Inc.'s bankruptcy might impact WeWork India's reputation and how the market perceives it. Additionally, if there are undisclosed shared resources or dependencies between the two entities, this could pose challenges. WeWork India should proactively main-



WeWork India, backed by Embassy Group, has maintained that it operates independently of WeWork Global, and its operations will not be affected in any manner

tain transparency and open communication to reassure stakeholders about its independence, and its well-planned measures for business continuity," Ahlawat added.

Meanwhile, WeWork India, backed by the Embassy group, has maintained it operates independently of WeWork Global, and its operations will not be affected. "It is a separate entity in itself, and we are not a part of this strategic reorganisation process. The Chapter 11 filing does not impact the operations of the global entity as it continues to remain in possession of its business, operating as usual. The process restructures the debts and the leases of WeWork Global in the US and Canada. During this period, we will continue to hold the rights

to use the brand name as part of the operating agreement while serving our members, landlords, and partners as usual," said Kiran Virwani, the chief executive officer (CEO) at WeWork India.

WeWork Inc. holds approximately 27 per cent ownership in the Indian business. The remaining 73 per cent stake belongs to Embassy group, an office development company in India. "There will be no implications on the India business since it is a standalone entity. However, there will be a squeeze in funds available as a result of the bankruptcy proceedings in the US," said Abhishek Malhotra, managing partner of TMT Law Practice, a law firm. The Chapter 11 proceedings, however, are proceedings for

resolving the insolvency that the company finds itself in. Hence, the company's existing investors or new buyers of the firm can re-commence the firm's operations after paying off the creditors. Once that happens, it may become business as usual.

Regardless, the bankruptcy proceedings may have a resultant adverse financial trickle-down effect on the resources of the promoters. "This may indirectly impact the future plans of the promoters as regards the Indian entity, without any apparent legal issue arising in the normal course, subject to the specific decision of the case in the US as per US laws," said Jyoti Prakash Gadia, managing director, Resurgent India, a Sebi-registered Category 1 Merchant Bank that aids in insolvency and bankruptcy.

Chennai-based law firm Tatva Legal has clarified that an Indian entity of a foreign company has an independent corporate existence. "Hence, the bankruptcy proceedings against the parent company shall not immediately make its Indian subsidiary go out of business. In the normal course, the subsidiary is deemed to be an extension of the parent company, by virtue of the board of management or the shareholding of the former being controlled by the latter," said R. Venkat Raman, partner, Tatva Legal.

India's resident patent applications up 31.6%

SURAJEET DAS GUPTA

New Delhi, 7 November

India clocked a gigantic rise of 31.6 per cent in patent filing by resident applicants, the highest of any country in 2022 as compared with the previous year, according to the latest study released recently by the World Intellectual Property Organisation (WIPO).

With 55,718 resident patent applications in 2022, India's numbers grew much faster than other competing countries that include Switzerland (6.1 per cent), China (3.1), and Austria and the UK (both at 2.5 per cent).

In terms of the granting of patents, too, India had among the fastest growth of 15.5 per cent (16,346) in 2022 out of the top 20 countries, behind only China which grew at 19 per cent on a far bigger base (760,171).

But it was not rosy on all fronts. In India the waiting period between the patent office taking the first action and eventually clearing or rejecting an application took a staggering 51 months in 2022.

This ranked as the second longest time anywhere except for Mexico, which took just over 51 months. In China, the same process took only 16.5 months.

Also noteworthy is the pretty high number — 30.1 per cent — of the resident applications for patents that were either withdrawn or abandoned.

Nonetheless, WIPO acknowledged India's contribution to the world of patents by noting that a record 3.46 million patent applications (as opposed to resident patent applications) were filed in 2022 which shows an increase of 1.7 per cent over the previous year.

Its report says the substantial rise in filings by China in 2022 along with "robust contributions from the intellectual property (IP) office of India (15,495 additional

COMPETING OVER IP

THE TOP TEN COUNTRIES IN RESIDENT PATENT APPLICATIONS 2022



Country	No of applications	Growth % in CY 2022 over CY 2021
China	1.5 mn	3.1
US	0.5 mn	1.1
Japan	0.4 mn	1.6
S Korea	0.2 mn	1.9
Germany	0.1 mn	-4.8
France	65,275	0.8
India	55,718	31.6
UK	53,536	2.5
Switzerland	49,077	6.1
Netherlands	32,053	0.6

Source: WIPO

applications)... was the main driver of growth in 2022".

WIPO also said that the patent applications by residents of India helped in "extending an 11-year run of growth unmatched by any other country among the top 10 filers" in the world.

India is now in seventh position in actual number of patents filed by residents. This is higher than the UK, Switzerland and the Netherlands but lower than France, Germany, South Korea, Japan, the US and China. The latter hit 1.5 million, which is far ahead of any other country.

On trademark filings, India was in the top four with 467,918 filings in 2022, behind

the US (945,571), Turkey (482,567), and Germany (479,334).

Women also featured in India's performance. They had a share of 23.9 per cent of all the Patent Cooperation Treaty applications. At least one Indian woman was an inventor among the top 10 countries.

However, while India is 17th in a list of the top 20, its performance pales when compared with China where women accounted for 47.9 per cent of the patent applications.

India is also nowhere near the top 20 in terms of the ratio of resident patent application to GDP or population. On both criteria, South Korea comes out on top.



ECONOMY



India needs to grow at 6.5-7%

FOR IT TO BECOME THE FASTEST GROWING ECONOMY IN NEXT FEW YEARS

DR M NARENDRA

THE provisional estimates of national income 2022-23 and quarterly estimates of GDP for the fourth quarter (January- March) of 2022-23 shows that GDP at constant prices (2012-12) in Q2022-23 is estimated at Rs 43.62 lakh crore, as against Rs 41.12 lakh crore in Q4 2021-22, reflecting a 6.1 per cent growth. GDP at current prices in Q4 2022-23 is estimated at Rs 71.82 lakh crore, as against Rs 65.05 lakh crore in Q4 2021-22 showing a growth of 10.4 per cent.

The last quarter of 2022-23 growth is much higher than the estimates made by economists and market experts and comes across as a positive surprise to many. It was believed that due to global slowdown, higher inflation, the geopolitical situation, supply chain disturbances, volatility in commodities prices, slow growth in global trade and their consequent impact on domestic macro-economic situation, the last quarter GDP growth was estimated by RBI at 5.1 per cent whereas the current NSO data indicates a GDP growth of 6.1 per cent.

Real GDP or GDP at constant (2011-12) prices in the year 2022-23 is estimated to attain a level of Rs 160.06 lakh crore, as against the first revised estimate of GDP for the year 2021-22 at Rs 149.26 lakh crore. The growth in real GDP during 2022-23 is estimated at 7.2

India has kept its mission of achieving \$5 trillion economy by 2026/27 and become a developed nation by 2047, when India attains its 100 years of Independence. Such a speedy growth is necessary in its Amrit Kaal period so that India can become the fastest growing economy and bring a lot of opportunities for the world inclusive growth

per cent as compared to 9.1 per cent 2021-23. This full year GDP growth at 7.2 per cent is higher than 6.5 to 7 estimated earlier.

Nominal GDP or GDP at current prices in the year 2022-23 is estimated to attain a level of Rs 272.41 lakh crore, as against Rs 234.71 lakh crore in 2021-22. India has kept its mission of achieving \$5 trillion economy by 2026/27 and become a developed nation by 2047, when India attains its 100 years of Independence.

EY projects India to become a \$ 26 trillion economy by 2047 with six-fold increase in per capita income to \$15,000 from the level of GDP per capita \$ 2301.418 as on March 31, 2022. It is necessary for India to grow on an average 6.5 to 7 per cent in the next few years in its Amrit Kaal period so that India can become the fastest growing economy and bring a lot of opportunities for the world inclusive growth.

With its continued focus on world-class infrastructure, creating conducive

environment for manufacturing hub with progressive schemes like Production Linked Incentive Schemes, Make In India, Start Up India, supported by growth and investment oriented policies and reforms, opportunities arising out of sustainability initiatives, like global solar alliance, alternative energy projects, hydrogen mission, national logistics mission, reduction in logic cost, free trade agreements and enhanced global trade promotion efforts as per the Foreign Trade Policy, a dominant position in services exports and creating public digital infrastructure and more reforms should create a conducive environment to accomplish its dream in Amrit Kaal.

From further analysis of the GDP growth as on 2022-23, it is seen that while agriculture has been continuing to show excellent performance at 4 per cent for 2022-23 as against the 2021-22 level of 3.5 per cent. Industry as a whole is yet to see full recovery and

has been at 4.4 per cent as on 2022-23 as against last year's level of 11.6 per cent. Services has been major contributor at 9.5 per cent growth as at 2022-23 as against at 8.8 as on 2021-22. If monsoon is normal, lower impact of El-Nino, with expected increase in food grain production, agriculture may show similar performance in 2023-24. There are reports of new investments and project expansion coming in the manufacturing sector with improvements in capacity utilisation. It is expected to recover and show higher performance. Services sector is expected to moderate even though services PMI has shown sharp improvement in recent months.

The RBI has revised its GDP forecast for FY 2024 marginally to 6.5 per cent from 6.4 per cent on the back of higher Rabi crop output, moderating commodities prices and the proposed higher capital expenditure. However, IMF has cut India's GDP growth to 5.9 per cent for FY 2024

from its earlier projection of 6.1 percent.

As per Asian Development Bank's recent estimates, India's economy is to grow by 6.4 in FY2023, which India beat estimation, reached a growth of 7.1 per cent. It has estimated that India's growth will rise to 6.7 per cent in FY 2024. The World Bank has lowered the growth forecast to 6.3 per cent, a downgrade of 0.7 percentage points since October forecast due to high borrowing costs, slower income growth, causing lower consumption as well as the government tightening fiscal expenditure.

They have also raised concerns at the drop in female labour participation as labour market needs to be more inclusive. It is expected that the GDP growth for the world and advanced and emerging economies are likely to be lower than last year, but India will continue to shine in terms of better results beating the expectations.

The government is committed to bring the fiscal



deficit to levels below 4.5 % by 2025-26 and from FY 2022 level of 6.7 % for FY 2023 fiscal deficit brought down to 6.4%. It is estimated at 5.9 % for FY 2024. There is a long way in its journey towards fiscal consolidation and hope that tax buoyancy and less borrowing will bring down fiscal deficit to the desired levels and maintain fiscal prudence, which India displayed during Covid-19 as against unsustainable debt level in some countries.

There is pleasant news that India's inflation has started to moderate and latest CPI eases sharply to 4.7 % in April 2023 coming under the RBI's upper tolerance limit of 6%. RBI expects the headline retail inflation to average 5.3 % in 2023-24. The Indian basket of crude oil as on 01.06.23 is \$ 72.39 /bbl as against inflation forecasts assumed by RBI, the price of India's crude oil basket at \$95/bbl.

We may expect RBI to continue to pause in the next monetary policy meeting. The market is looking for a favourable monetary policy response to further drive Indian economy.

In its annual report for 2022-23, the RBI as stated "Medium-term prospects have been brightened by the demographic dividend the digital revolution, policy initiatives to transform India into a global manufacturing hub, a resurgence in services sector competitiveness and favourable non-economic positioning that is underway."

FM nudges biz to register for GST, says they're losing clients

Wants Consumers To Get Bills For Purchases, Curb Evasion

TIMES NEWS NETWORK

New Delhi: Finance minister Nirmala Sitharaman on Tuesday exhorted consumers to insist on a bill, while making a purchase so that GST evasion is minimised, and also asked officers to focus on expanding the taxpayer base, while seeking to generate more revenue.

"From now, I would like equal attention to be given to the collection of tax, the numbers are going up every month, but equally more establishments and businesses should get enrolled. The country should benefit from having a transparent tax regime in which everybody participates," she said at an event in Vapi to launch 12 GST Seva Kendras, which are modelled on the lines of Passport Seva Kendras.

The FM also urged businesses to register for GST.

“Why should they (businesses) come in the tax net, not because they will pay me tax, but for true strength of the economy... and formalisation of economy can happen only when everybody is onboard... You believe that you benefit by staying out... Actually, **you are losing out on potential buyers**



“A consumer should make sure that he participates in the nation-building process. Your buying a product and demanding a bill is a **big step forward in transparency...** To not bill a customer or to not give the bill to the customer, having obtained money for the product, is not in national interest
— **Nirmala Sitharaman** | FM

“Why should they come in the tax net, not because they will pay me tax, but for the true strength of the economy... and formalisation of economy can happen only when everybody is onboard... You believe that you benefit by staying out...you don't come in the net, you don't get to be noticed, which is not true. Actually, you are losing out on potential buyers,” she said, adding that GST has helped reduce the tax burden.

The number of entities

that are registered for GST went past 1.4 crore at the end of October — almost twice the number when the new regime kicked in with 72 lakh taxpayers in July 2017, including 58.5 lakh that had migrated from the old regime and close to 14 lakh new taxpayers. The increase has, however, been gradual.

The minister also asked businesses to ensure that bills are issued to consumers, an issue, which was also flagged by Central Board of Indirect Tax-

es and Customs (CBIC) chairman Sanjay Kumar Agarwal. The government has launched a campaign to get buyers of goods and services to upload a copy of their bills to be eligible for a contest.

Over the years, several sellers, including large stores, have been urging people to pay in cash and in the process avoid paying GST. Sitharaman, however, said that there was a need to ensure that everyone got a copy of their invoice. “A consumer should make sure that he participates in the nation building process. Your buying a product and demanding a bill is a big step forward in transparency. It is a big step forward to make sure that the money that has to go for public causes goes for it... To not bill a customer or to not give the bill to the customer, having obtained money for the product, is not in national interest,” she said.



**Art
&
Architecture**

Hoysala period inscriptions, sculptures discovered in Mandya dist.

The Hindu Bureau

MYSURU

A team of researchers have discovered an inscription belonging to the 12th and the 13th centuries, apart from a few sculptures at Ragimudde-nahalli village in Pandavapura taluk of Mandya district.

The discovery was reported by a team of researchers headed by C.S. Shashidhara, N.S. Annapurna, and A.P. Rakshith of the Centre of Excellence for Studies in Classical

Kannada and the antiquities were found on the agricultural land of a farmer of the village.

A release said the inscriptions and the sculptures belong to the Hoysala period and among the discoveries is also a rare yogini sculpture of soapstone. A team of scholars with the help of the landowners cleaned and dug the partially buried sculptures and the estampages of the inscriptions were also taken.

The inscription is in the Kannada language of the



The sculptural panel of Bhairavi discovered in Pandavapura taluk of Mandya district. SPECIAL ARRANGEMENT

Hoysala period and there was also a sculpture of Bhairava under a mango tree. What is significant is the discovery of a sculptu-

ral panel of Saptamatrikas a the ruins of an Ishwara temple. The inscription provides the names of Shri Veerabhadra, Shri Brah-

ma, Shri Mahadeva, Shri Vasudeva, Shri Varaha, Shri Indira, Shri Chaudeshwarim, and Benaka.

N.S. Rangaraju, former head of Department of History and Archaeology, University of Mysore, said the discovery of Bhairavi and Saptamatrika panel along with inscriptions is rare and thus significant.

Also, the names of the sculptors frequently found in the architectural and sculptural works of Hoysala period are also present in this discovery and the Bhairavi and Saptamatrika

idols were sculpted by Baichoja, according to Dr. Shashidhara. The names of Erjoja and Baichoja have been mentioned and the Bhairavi inscription reads as Erjojana maga Baichoja indicating that the former was the son of the latter. The Bhairva idol was sculpted by both father and son as their joint names have been inscribed, he added.

Dr. Shashidhara said another point which is clear from the discovery is that the place was a Shaiva religious centre.

Sports & Cultural



WORLD CUP

"IT'S VERY IMPORTANT THAT WE QUALIFY FOR THE CHAMPIONS TROPHY. I KNOW IT WAS A SEMIFINAL DEFEAT IN 2017 BUT IT JUST WAS THE EXPERIENCE OF BEING THERE."

—Moeen Ali | @moeen_ali | ICC

GLENN FINISH! RARE, VINTAGE

Standing, Literally, On One Leg, Glenn Maxwell Single-Handedly Snatches Game Away From Afghanistan With Australia Staring At Defeat In Mountain-Like 292-Run Chase At The Wankhede

Rajesh Pansare@timesgroup.com

Mumbai: Never count out Australia. They seldom throw in the towel and always find someone to dig them out of trouble. On Tuesday, it was Glenn Maxwell's turn.

Australia were staring at defeat but Maxwell rode his luck, stuck to his brand of cricket and battled cramps in the later stages to secure their passage to World Cup semifinals at the Wankhede Stadium.

In the process, Maxwell played one of the greatest innings of the World Cup ever by scoring 201 off 128 balls which was laced with 21 fours and 10 sixes. His effort pulled Australia from dire straits and steered them to a three-wicket win over spirited Afghanistan. He shared a 202-run unbeaten eight-wicket stand from 170 balls with Pat Cummins (52, 6th). The Aussie skipper was more than happy to anchor himself at the other end while Maxwell went about dismantling the Afghan bowlers, ball-by-ball, shot-by-shot.

This was a vintage Maxwell innings. It was the kind of innings people throng to watch during the IPL. The additional stuff he added to it was a stamp of maturity.

Till the 21st over, Afghanistan were all over Australia and had sent seven of their batters back in the pavilion. But things started to tilt in Australia's favour thereafter. The very next over bowled by Nour Ahmad first saw Maxwell get an LBW decision overturned through DRS and then got a reprieve when Mujeeb Ur Rahman spilled an easy chance at short fine-leg. Maxwell till then adopted a wait-and-watch approach and had just scored 34 from 40 balls.

He decided he had enough of it and took it upon himself to take down the Afghanistan bowlers. While he did go on the attack thereafter, it was controlled aggression backed by the belief that he could swing it back in Australia's favour.

While he continued to play his shots, he minimized the risk by cutting down on the high-risk ones like the reverse sweeps. It was only later in his innings that he brought out those shots. Most of his boundaries came in front of the wicket while he hammered all his sixes between long-on and mid-wicket region.

As the 35-year-old progressed in his innings, luck seemed to be favouring him as well. Mujeeb in-

duced a thick edge but with no slip in place, it raced to the boundary. That further demoralised the Afghan players who started the defence of the 292-run target all pumped up but were seen with their hands on their hips, shoulders drooping.

Maxwell had to take multiple medical breaks to treat cramps and with him unable to run quick singles, he decided to swath them away without any foot movement. It included a reverse sweep six off Naveen-ul-Haq towards the later stages of the match. His innings also set the template for how to play under lights at the Wankhede—see off the new ball, then see things going your way.

Earlier, Afghanistan bowlers had Australia batter talk to their tune. Naveen set the tone as Travis Head poked at an away going delivery before he had Mitchell Marsh caught leg-before. His new ball partner Amrullah Omarzai landed his own twin blows with back-to-back dismissals in the ninth over. He first coasted David Warner, who was looking to put the pressure back on the Afghans, and then had Josh Inglis



caught at first slip, Marnus Labuschagne got run out after a mix-up with Maxwell and it left Australia struggling at 69-5. Rashid Khan then dismissed Marcus Stoinis and Mitchell Starc to reduce them to 91-7 before Maxwell took it away.

Riding on Ibrahim Zadran's unbeaten 129 from 143 balls, Afghanistan had posted 291 which they thought would be a challenging total but it wasn't to be. They next face South Africa in Ahmedabad on Friday but their qualification for the knockouts depends on them winning and other results going their way as their net run rate (NRR) is inferior to those still in fray.

293/7

Australia registered their highest successful chase in the World Cup, bettering the 289 for four against New Zealand at Chennai on March 11, 2016.

201*

Glenn Maxwell posted his career-best innings in One-day Internationals, eclipsing the 108 against England at Manchester on September 16, 2020. His fourth hundred is his third in the World Cup.

1 Glenn Maxwell, the first double centurion for Australia in ODIs, has become the first batter to register three tons while batting at number five or below in the World Cup. No other player has recorded even two hundreds.

RIISING FROM THE DEAD: Glenn Maxwell during his knock of 201* on Tuesday. (Below) The Australian played through pain to take his team home

RUNS	201*
BALLS	128
4s	21
6s	10
SR	157.03



'Six straight wins great effort by the team'

Times News Network

Mumbai: The night belonged to Glenn Maxwell, here on Tuesday. Handicapped by cramps, he single-handedly took Australia to an improbable win. After the game, he revealed how he kept going despite severe physical impediment. "I haven't really done a whole lot of high intensity exercise in the heat and it certainly got a hold of me today

Luckily enough we came out with a plan to stay at the same end for a little bit until I could get some movement back." He added, "I suppose for me it was still trying to be positive. I think you obviously saw a little bit more swing and nip around under lights. I think after the first two games everyone was pretty quick to write us off and to come back and win six straight now is a great effort from this group."

Hashmarullah Shahidi, Afghanistan captain, was a obviously a disappointed man. "Cricket is a funny game. It was unbelievable for us. We were in the game, our bowlers started really well. But the dropped chances hurt us at end of the day. We missed those moments and after that Maxwell didn't stop, credit to him. "I think that catch (dropped by Mujeeb) was the key point. After that, he (Maxwell) played

really well, he had all the shots and didn't give us any chance. Our bowlers tried their best. Proud of the team; team will be disappointed tonight but it's part of the game. We will try our best to come stronger in our next game against South Africa." Shahidi praised Ibrahim Zadran for his century. "He must be proud of himself. I am also proud. He is the first Afghan player to score a hundred on World Cup."

HOW THEY STAND

Pos	T	P	W	L	N/R	NRR	Pts
1	Ind	8	8	0	0	+2.456	16
2	SA	8	6	2	0	+1.376	12
3	Aus	8	6	2	0	+0.861	12
4	NZ	8	4	4	0	+0.398	8
5	Pak	8	4	4	0	+0.036	8
6	Af	8	4	4	0	-0.338	8
7	Ban	8	2	6	0	-1.142	4
8	SL	8	2	6	0	-1.160	4
9	Ned	7	2	5	0	-1.398	4
10	Eng	7	1	6	0	-1.504	2

TOP RUN-GETTERS

Batter	M	Runs	HS	Ave	100	50	SR
Q de Kock	8	550	174	68.75	4	0	111.33
V Kohli	8	543	103*	108.6	2	4	88.29
R Ravindra	8	523	123*	74.71	3	2	107.39
D Warner	8	446	163	55.75	2	1	108.25
R Sharma	8	442	131	55.25	1	2	122.77

TOP WICKET-TAKERS

Bowler	M	Wkts	Ave	Best	SR	DR
M Shanka	8	21	22.23	5/80	20.57	6.48
A Zampa	8	20	19.20	4/8	20.70	5.56
M Jansen	8	17	24.41	3/31	22.82	6.41
M Shami	4	16	7.00	5/18	9.75	4.30
S Afridi	8	16	25.56	5/54	26.62	5.76

FINCH: ZAMPA PREMIER WHITE-BALL SPINNER ACROSS TWO FORMATS

Mumbai: Australia spinner Adam Zampa's ability to read the batter's mind currently makes him the premier spinner across the two white-ball formats, feels former captain Aaron Finch. Zampa has claimed at least three wickets in Australia's last five consecutive games to bring their campaign back on track with five wins on the trot. "At times, you can get caught when you play against teams or individuals so much that you just sort of go through the motions of preparation because you get comfortable. But Zampa dots his in and crosses his T's each and every game," Finch wrote in a column for the ICC website. "That has shone through in his unbelievable consistency. He has been probably the premier white-ball spinner for a couple of years across the two white-ball formats around the world," he added.

On a dew-laden Motera track, Zampa came on in the 12th over and claimed the big wickets of England's Jos Buttler, Ben Stokes and Moeen Ali to return with exceptional figures of 10-0-21-3, the cheapest spell of his career. "What stands out for me is how well he is reading the batters. With spin, half the battle is knowing when to bowl your variations based on reading the batters and the conditions. He is bowling so beautifully at the moment and he has taken so many crucial wickets," Finch said. Zampa is now the second in the list of leading wicket-takers of the ongoing World Cup, with 15 scalps from seven matches at an average of 17.15. **ANI**



Champions Trophy spot at stake for ex-champions

Bottom-Placed England Eye Dutch Scalp To Save Face

Tushar.Dutt@timesgroup.com

Pune: Bazball has become a legit word after getting added to the dictionary, however, there is no word that could describe the dismal show of the English team in the World Cup. The defending champions are struggling at the bottom of the 10-team table. Unlike their Tests side, this team lacks aggression. Their ODI team, coached by Mathew Mott, looks like a pale version of the one that plays under coach Brendon McCullum.

England have managed to register only one win — against Bangladesh — so far. Their top run-getter, David Malan (286) stands 20th in the table of highest run makers in the tournament, while placed at the 19th spot, Adil Rashid, is their best bowler with 10 wickets. There are three Dutch bowlers above Rashid in the list. England collectively have hit only 33 sixes and 155 fours in their seven matches, better than only Netherlands, who have hit 18 sixes and 129 fours, respectively.

Their match against the Netherlands will not only decide their fate in the tournament, but also in the Champions Trophy to be held in Pakistan in 2025. Not to forget the calls for an overhaul of the team that are growing louder with each loss. Though England have exhausted every chance to defend their title, their fielding coach Carl Hopkinson doesn't want to call their match against the Netherlands, a dead rubber.

"I don't think there's ever a dead rubber when you play for England. I think the lads are completely up for the two games in which we need to win both to qualify for the



SHIFTED GOALPOSTS: England's captain Jos Buttler (left) chats with fielding coach Carl Hopkinson during practice at the MCA Stadium in Pune a day before their match against The Netherlands

Champions Trophy," he said.

Hopkinson cannot specify the things that went wrong for England, he however feels not performing well under pressure cost them the Cup.

"I think cricket can be a game of - it's about executing under pressure, isn't it? I think this team has been well known for doing that really, really well. It's an incredibly skilful team, it's a very talented team, but at key moments in certain situations, we haven't executed under pressure like we normally do," he said.

Have England invested more in the Test format than ODIs? Hopkinson disagreed. "No, absolutely not. The schedule is obviously very busy like

it is for all international teams. I think we balance players playing Test cricket and playing ODI cricket to try and get the best performances that we can do. So, I don't think there's ever one that gets put in front of the other. But there is always a balancing act when you have Test series played so closely to ODI series. So, you just try and make the calls as best you can around selection and have the team there for that. I don't think that's the case now," he said.

When asked about the contribution and the leadership qualities of the head coach Mott, Hopkinson defended the former Australia Women's coach. "I think Motty's (Mott)

ENG

NED

ICC ODI RANKINGS

6

14

VENUE

MCA Stadium, Pune

PITCH



A batting paradise, it won't be a surprise if there is a big score.

But there is also some carry for the seamers.

WEATHER



There will be a 24% chance of rain which increases slightly later in the day.

ODDS: ENG 5/10, NED 6/4

NUMBERS GAME

5 England, with defeats by Afghanistan, South Africa, Sri Lanka, India & Australia in the ongoing competition, have lost five successive World Cup matches for the first time.

104 An unbeaten knock by Graeme Hick in Peshawar on February 22, 1996 remains the only World Cup hundred for England vs Netherlands.

Stats: Rajesh Kumar

a relaxed character. I think he's got a lot of experience in lots of different avenues that he can draw on and bring to the table when things aren't going well, but equally when they do go well, like they did this time last year. So, I think all that experience that he's gained from all around the world sets him in good stead to lead this team moving forward."

SPORT ICC ODI WORLD CUP

OCTOBER 5 - NOVEMBER 19



Like they once reached for Sachin Tendulkar, the Wankhede Stadium crowd on Tuesday reached out for Glenn Maxwell after an epic 201* that carried Australia to victory over Afghanistan.

A WALK TO REMEMBER

The Aussie, struggling with cramp, scripts one of the most spectacular innings in ODI cricket in one of the most epic chases in World Cup history

MUMBAI In the final 10 overs of the Australia chase as a cramp-stricken Glenn Maxwell completed a stunner, an event so rare compared to his routine stuns on the night, he fell flat on the ground. As he was being attended to by the physio, Adam Zampa, their No. 10 batter, was ready at the boundary rope. Maxwell, though, wasn't going anywhere. Not on a night when he would script one of the most spectacular innings in ODI cricket in one of the most epic chases in World Cup history.

subsequent 129 made him the first Afghan century in a World Cup and their 201/5 the team's highest score in the franchise of 50-overs cricket.

Then, under lights where the ball did that bit more, their bowlers took over and dazzled. Navneet Singh got the ball to move away enough to take the outside edge of Yasir Haidar in the second over. Smacked for two runs by comeback man Mitchell Marsh, Navneet hit back by going wide on the crease and haler and straighter to trap Marsh in front.

From around the wicket, Asmatullah Omarani went through David Warner going for his trademark back over fine leg on one knee. Next ball, he got just going, arching. Not on a night when he would script one of the most spectacular innings in ODI cricket in one of the most epic chases in World Cup history.

lost half their side and Rishad Khan didn't even bowl two balls. The star Afghan spinner needed a few more balls to get a reverse-sweeping Marcus Stoinis plumb in front. So rattled were Australia that Mitchell Starc didn't even review as edge ball wasn't and walked back instead.

At Maxwell brought up his 100 off 76 balls in the 23rd over, he'd brought the equation down along to 118 off 106. In a 100-run partnership off 80 balls with Pat Cummins, the skipper was 8 off 37.

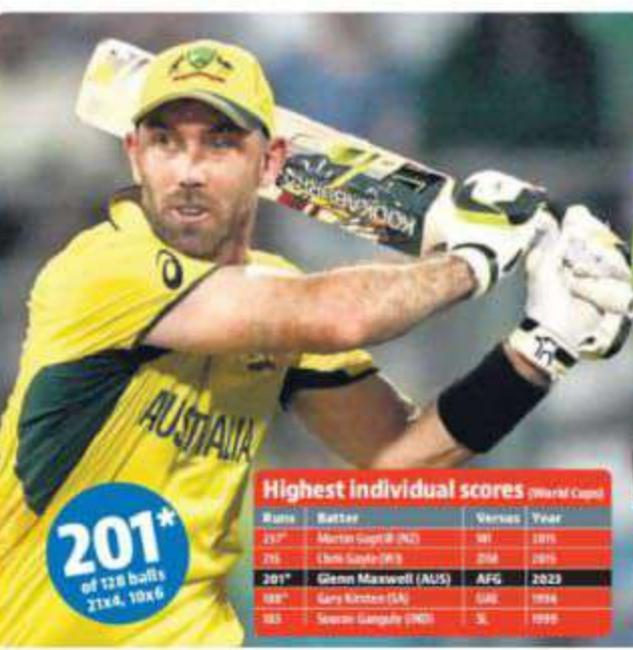
Maxwell wasn't even thinking about resting, hunched physically and batting (over batting) on one leg. He felt his hip harshly while all the work. And so even as he stood unmoved on one leg, he found the gap just over for four. Next over, a switch hit post short third man for four.

It tricked down to a run-a-ball in the last 10 overs. An opening was all Afghanistan needed for a fitness victory. But Maxwell was busy picking a fitness finish. The switch hit was constant, so did the sixes and fours. After a brief pause, Maxwell completed a single to bring it down to 32 off 36.

Starc and Josh Hazlewood found far less movement in the sultry afternoon even though they did ask some questions. The Afghan openers held their own. The latter pulled the length ball, and Baburnasir Ghani pruned out the one fiddler mauling the leg-side boundary going for a pack-up shot off his hips as Afghanistan lost their first wicket for 35. Zafar brought up his 50 in 62 balls and Afghanistan then bunched in the 24th over.

From the 20th over right until the 45th, Zafar hit just one boundary. Starc a six until then, Zafar broke the shackles against Zampa after getting his century. Mohammad Nabi joined in, so did Rashid. But by the time the game ended, there's nothing memory of the game was Maxwell. It was impossible. It was a dream, an impossible dream only made possible by a man known as 'The Big Show'.

Maxwell's 201* was the greatest ODI innings that Pat Cummins, who made 12 of 64, gave more of the style to Maxwell in their match-winning



201* of 128 balls 21x4, 10x6



Table: Highest individual scores in World Cup. Columns: Runs, Batter, Versus, Year. Rows include Marnus Labuschagne (203), Glenn Maxwell (201), and others.

Table: Highest eighth-wicket partnerships in ODIs. Columns: Runs, Batters, Versus, Year. Rows include Glenn Maxwell and Pat Cummins (202), and others.

'The greatest ODI innings that I've ever seen'

Rutvik Mehta cricket.rutvik@rediffmail.com MUMBAI: Australia captain Pat Cummins, at the other end for most part of the Glenn Maxwell special on Tuesday night at the Wankhede Stadium in Mumbai, reckoned it was the greatest ODI innings that he had ever seen.

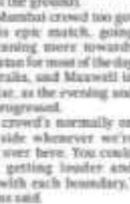
partnership that took Australia from 90/7 to 202/7. Cummins said when he walked out to bat in the 19th over, all he was thinking about was survival, and was pretty sure Maxwell was thinking about how to get over the line.

The turning point, in hindsight, was the LBW that was reversed when Maxwell was on 27. The ball - he was often dropped a few balls later - fired him up.

made the most of it as to make the most of it is probably the most pleasing thing," Maxwell added.

"It looked so easy" "It looks so easy from the other end. It feels like every time it hits his bat it runs for a four. Still can't believe how he manages to hit a six over his head with a reverse... just, he's a freak. He hits in such different areas (of the ground)."

Table: Top scorers. Columns: Rank, Player, Runs, Balls, Strike Rate. Rows include Quinton de Kock (550), Virat Kohli (543), and Ravindra Jadeja (523).



India

In the build up to the World Cup there was talk of how this edition was going to see a massive spike in runs scored, and with batters groomed in the T20 mode, there would be nothing that could be termed as a safe total. But the highest this India team have conceded in a match is 273 runs, against New Zealand. And it is not a one-off show. Over the eight matches, India have defended twice and on both occasions the oppositions were bowled out for less than 100. India bundled out Sri Lanka for 55 after setting a target of 358. South Africa were bowled out for 83 trying to chase 327.

Highest wicket-taker
M Shami
16

Most econ bowler
Jasprit Bumrah
3.65

South Africa

South Africa were the second team after India to qualify for the semi-finals and behind their success has been their rampaging batting line-up. They have scored the highest total in the World Cup, briefly held the record for the tournament's fastest century and their batters collectively lead the list of most sixes hit in the World Cup. But quietly going about their job, at least till their match against India, was their bowling unit led by Marco Jansen, one of the leading wicket-takers of the World Cup. Kagiso Rabada (12 wkts) and Gerald Coetzee (14 wkts) have all contributed.

Highest wicket-taker
Marco Jansen
17

Most econ bowler
Keshav Maharaj
4.65

Keeping it tight

It is said that batters win you matches, but bowlers win you tournaments. India have already displayed that their bowlers are in the form of their lives. Arguably the most destructive batting side in the tournament — South Africa — were packed off for less than 100 by India on Sunday. Here's a look at the World Cup's top bowling units

Runs conceded in a match: ● Fewest ● Most

Avg runs conceded per match

Team (matches)	Runs conceded
India (8)	182
South Africa (8)	239
Afghanistan (8)	241
Australia (8)	255
Netherlands (7)	257
New Zealand (8)	264
Bangladesh (8)	265
England (7)	267
Pakistan (8)	284
Sri Lanka (8)	286

Afghanistan

Except for their opening match against Bangladesh where they were bowled out for 156 batting first, Afghanistan are the only team other than India to not concede more than 300 runs in a match. Their spin attack of Rashid Khan, Mujeeb Ur Rahman, Mohammad Nabi and Noor Ahmad have been right on the money and even had Australia in a spot till Glenn Maxwell changed it all. That Afghanistan have beaten England, Pakistan and Sri Lanka — all three former World Cup winners — in this edition and are one upset away from getting into the top four speak of their bowling unit.

Highest wicket-taker
Rashid Khan
9

Most econ bowler
M Nabi
4.65

Australia

That Australia were able to turn their campaign around after starting with back-to-back losses was predominantly due to the fact that their bowlers have pulled things back. And this despite the fact that their pace spearhead Mitchell Starc has not been able to replicate his usual white-ball form here after the pre-World Cup injury lay-off. Adam Zampa has been their top wicket-taker and he was the one who turned it around in their first win against Sri Lanka with a four-wicket haul. Since then Australia are on a six-match winning streak and after their win over Afghanistan on Tuesday, have become the third team to qualify for the semi-finals.

Highest wicket-taker
Adam Zampa
20

Most econ bowler
Glenn Maxwell
4.95

Allround challenge: The toughest job in present day world cricket

Rasesh Mandani

www.mandani@hltv.com

MUMBAI: If Hardik Pandya doesn't play Test cricket again, he won't stop regaling his son with stories of the Trent Bridge Test of 2018 when his 25-year-old self, delivered a true-blue all-round performance (5/28 and 52*) in a winning cause. That's when so many in Indian cricket had prophesied — more in hope than belief — that Hardik would be the next Kapil Dev.

A fallacy that it was, Pandya played only one more Test after that to take his career tally to 11. Kapil played 131 Tests at a stretch, missing only one, and not for fitness reasons.

In as much as it speaks of Kapil's remarkable fitness values, the workload of the present-day player is fast making the gig undouble; certainly, across formats, where being an all-rounder means double the work not just on match-day but also in training. It came as no surprise when India couldn't find a replacement close enough to Pandya's calibre (1,789 runs, Avg 34.01 and 84 wkts, Avg 35.23 in ODIs) in the World Cup, after his ankle injury did not heal in time. They chose to boost their fast bowling reserves.

Indian cricket has also not shown any inclination to try and create back-ups for Pandya. If T20 is the currency in circulation, the introduction of Impact player rule in the last IPL and its continuation in the recently concluded Mushtaq Ali T20s is doing little to help build an all-rounders pool. From the time Pandya arrived



Australia's Mitchell Marsh bowls against South Africa during their World Cup match.

to the international scene in 2016, the few to have been trialled by India are Vijay Shankar and Venkatesh Iyer. Both military-medium, they failed to leave an impact. Shardul Thakur is mostly picked for a very specialized role that restricts him to playing Test cricket in SENA countries on specific pitches. In the current World Cup campaign, he's been a side-show.

Not just in India, there are less than a handful of pace bowling all-rounders that fit the definition, left in the world game. And for reasons, separate from the other, very few have been able to leave an impact in the ongoing World

Cup. Fast bowling on Indian pitches is a highly skilled job and part-time bowlers can be found out very easily.

Ben Stokes, arguably the best going around, has been hobbling through England's dismal campaign and is waiting to get his knee repaired. Angelo Matthews, the sole survivor from 2011 World Cup runners-up Sri Lanka has now in his last legs, bowling smartly, but only slow-medium. Australia's Mitch Marsh has had one strong performance (12) with the bat against Pakistan, but he's been required to bowl only 7 overs in 6 matches.

Among the younger crop,

Cameron Green hasn't been trusted with enough game time. Sam Curran — his father Kevin experienced first-hand how good Kapil was in 1983, more on that later — continues to find the switch from T20 to ODI cricket difficult. Only Marco Jansen has both runs (141, Avg 39.25) and wickets (17), Avg 24.41 to show. Taking a thrashing against India in the last match, the tall South African is still far from being a finished article.

It is hoped, if this lot can find their bearings, perhaps they may be able to prevent a complete erosion of fast bowling all-rounders. Or is that wishful to think, when

you consider the rapid spread of T20s in the calendar?

T20s, entertaining as they are, encourage a very different all-rounders' genre. One where escaping boundary-hits is sometimes a win for a fast bowler, going after wickets not always the motto. Where there is no such thing as a moral victory; a game-changing impact can be left by a stream of powerful mis-hits, if they sail over the boundary.

One reason ODI World Cups are difficult to abandon, despite T20's natural appeal, is their rich history and the number of vintage match-winning performances that have gone into Hall of Fame. None bigger than India's young captain with rustic looks, who walked in at Tunbridge Wells against Zimbabwe in the 1983 World Cup with his team tottering on 17/5, to go on and stroke an unbeaten 175 with an odd-shaped Sazinger bat to spark a dream to an underconfident nation.

Or Wasim Akram's heroics at the 1992 World Cup final where his 18-ball 33 and 34/49 including two magic balls, which are perhaps yet to be bettered on a stage as grand as that one. There was also Ian Botham, 39, defying age, fitness and form with his 4/31 and 53 against old enemy Australia in the same World Cup.

Perhaps, only those of a certain age may relate to the spectacle of watching Imran Khan, Richard Hadlee, Botham and Kapil in their prime. But even the next generation, the likes of Steve Waugh, Shaun Pollock, Andrew Flintoff and Jacques Kallis kept the lamp burning. In the T20 age, the lights are flickering fast.

SPORT  ICC ODI WORLD CUP

OCTOBER 5 - NOVEMBER 19

India's best laid plans have worked a charm

Familiarity and role clarity have helped Rohit and Co ace different conditions and missing players

BENGALURU: Four years ago, KL Rahul began the World Cup by batting at No. 4 and No. 6 in the first two games before moving up to open after Shikhar Dhawan's injury. Four players occupied the No. 4 slot across ten matches, Dinesh Karthik, who had batted once in the tournament before the semi-final, was asked to go in at No. 5 against New Zealand when the team was 5/3. Rishabh Pant wasn't part of the original squad and had played a total of five ODIs before the World Cup, but he was batting at No. 4 in that semi-final. Ambati Rayudu's omission, after months of him believing he was India's No. 4 for the tournament, caused quite a stir too.

These may be top-notch players equipped to handle different challenges and situations, but it can't be advisable to expect excellence at the biggest stage without providing familiarity and role clarity.

Cut to this World Cup, and the contrast is palpable. In the flawless eight-game winning run that India have had, there's been complete clarity about the roles that each of them dons. Rohit Sharma and Shubman Gill are tasked with providing fast starts in the powerplay. Virat Kohli is the anchor at No. 3 who holds the innings together.

Shreyas Iyer and Rahul, at No. 4 and No. 5, have to be flexible with their approach during the middle overs. And now that Hardik Pandya is ruled out of the tournament, Suryakumar Yadav must provide the finishing kick at No. 6 along with Ravindra Jadeja at No. 7.

It's only Pandya's injury and Gill's illness at the start of the campaign that has called for India to veer even slightly from their plans as a batting group.

Meriting recognition is the security provided to Iyer and Rahul in particular. Usually the toughest spots to bat in 50-over cricket in the subcontinent are No. 4 and 5 — they call for an approach tailored to the state of the game during a phase when the surface tends to get slower and more difficult for boundary-hitting.

In cognizance of the challenge, the selectors and team management have backed Iyer and Rahul to the hilt. Never mind their recent injuries raising a few eyebrows about their readiness for the World Cup. As coach Rahul Dravid said before the Asia Cup in August, they were clear about Iyer and Rahul for more than a year and it was only their injuries that had compelled India to try other options.

"No. 4 and No. 5 get discussed a lot and it gives the impression that we don't have clarity on who is going to be there," Dravid had said. "But to be honest, I could have told you 18 or 19 months ago who were the two or three candidates that we were looking at for the No. 4 or 5 slot. It was always going to be between Shreyas (Iyer), KL (Rahul) and Rishabh (Pant). If you look back at the teams that we picked 18 months ago, there were no doubts in our minds. It is unfortunate that all three ended up with injuries in the space of two months."

That Iyer and Rahul played the most innings at No. 4 and 5 respectively in the four years between World Cups bears testimony to Dravid's assertion. Importantly, both have repaid that trust.

If Rahul's defining contribution came in their opener against Australia when he hit an unbeaten 97 to help stage a recovery from 2/3 in a chase of 200, Iyer took charge on a tough surface against South Africa with an 87-ball 77.

The clarity about Suryakumar at No. 6 in Pandya's absence has also been striking.

While Kohli opened in Gill's absence and also showed his middle-order credentials with a knock of 82 against Pakistan in the Asia Cup, it is Surya's ingenuity and hitting range that India desire in that specific position.

"We are pretty clear about the kind of roles that people can play," Dravid explained after Pandya's injury against Bangladesh.

"So, if you are looking for someone who might be a bit of an enforcer for us in the lower middle order, then Surya is certainly someone who can do that. If you are looking for someone a little bit higher up the order, then maybe we might go with Ishan."

This sense of conviction has dovetailed nicely with flexibility about their bowling options. In line with the emphasis before the tournament on batting depth while picking the bowler at No. 8, Shardul Thakur was preferred to Mohammed Shami in the initial phase. But the moment Pandya was unavailable, they chose Shami to ensure that their five bowlers were the strongest possible.

Shami has been unstoppable, zooming to the top of the wicket-takers' list for India in just four games. The 33-year-old is usually Sharma's first-choice bowler, and he is required to keep up the pressure that Jasprit Bumrah exerts in his opening spell.

Bumrah, too, had been subject to a long injury layoff earlier this year, but at no stage was his supremacy as the spearhead in doubt. Mohammed Siraj, Jadeja and Kuldeep Yadav have also benefitted from backing that hasn't wavered at any time this year.

None of this may guarantee success in the knockout stage, but it ensures India are in the best position possible to have a proper crack at ending their 10-year ICC title drought.

Taking the tough and right calls

From providing role clarity to backing Shreyas Iyer, KL Rahul and Jasprit Bumrah who were returning from lengthy injury layoffs, India haven't yet put a foot wrong at this World Cup

SHREYAS IYER

The middle-order batter made his comeback at the Asia Cup in August-September after a back surgery that had sidelined him for nearly five months. Even during the Asia Cup, he suffered back spasms that limited his appearances in the tournament to two games.

KL RAHUL

A high injury while fielding in an IPL game in May required the 31-year-old to undergo surgery and be out of the game for three months. The selectors picked Rahul as soon as he was ready, and they have been vindicated given his performances with the bat and gloves.

JASPRIT BUMRAH

Having been out of the game for almost a year due to a back surgery, Jasprit Bumrah returned to action in a T20 series against Ireland in August. His ODI comeback followed at the Asia Cup. Any anxiety about how he will fare after a career-threatening injury has been laid to rest with a series of performances that have simply reiterated why he is irreplaceable.





'I said before the match, I'll bat like Sachin today'

Young Afghan Zadran Is Growing Into Top Class Bat

Rajesh.Pansare@timesgroup.com

Mumbai: Ibrahim Zadran is just 21 but he has already carved out an image for himself of a batter with perfect technique, one with every shot in the book and one who is mentally very strong.

All that was on display at the Wankhede Stadium on Tuesday as he scored a well-crafted unbeaten 129 against an Australia attack that was on the ball for majority of the match. Zadran's knock was his fifth ODI century, the most important of his career, and one which went a long way in Afghanistan posting 291-5—their highest ever total in the World Cup. The innings came off 143 balls with the help of eight fours and three sixes.

The knock also saw him enter the record books. The Khost-born right-hander became the fourth youngest to score an ODI century against Australia besides recording the third-highest score against them in the World Cup. He has now scored 361 runs in eight matches at an average of 51.57.

"Feeling great to score Afghanistan's maiden hundred in the World Cup. I worked hard for this tournament. I missed a hundred against



ONE FOR THE FUTURE: Zadran became Afghanistan's first World Cup centurion with a ton against Australia on Tuesday

Pakistan but made it today. I had a good chat with Sachin Tendulkar (on the eve of the match) and he shared his experience and I said (to my teammate) before the match that I will bat like him (today). He gave me a lot of energy and confidence," Zadran said at the mid-innings break.

Afghanistan needed someone to carry the bat and the rest to play around to help them post a fighting

total. They chose Zadran and he didn't disappoint. It was crucial to see off the initial overs from Josh Hazlewood, Mitchell Starc and Pat Cummins.

His technique saw him weather the storm. His balance helped him to shift his weight easily—on the front foot or the back. The shifting was aided by his ability to pick up the line and length quickly. Throughout the battle, he kept the scoreboard ticking and was wide awake to put away bad balls.

That he ran 60 singles, showed his ability to manoeuvre the ball to different parts of the field and rotate the

strike especially with Aussie close-in fielders always on the move to cut down those singles.

Besides the conventional shots—cover drive being his favourite—he also showed that he can be cheeky as well with a ramp for boundary off Cummins at the start of the innings or a flick off Starc's attempted yorker for a six over long leg.

Zadran was part of the Afghanistan under-19 team that made it to the semi-final of the U-19 World Cup in 2018.

As Afghanistan looked to add some fresh legs to their squad, Zadran's impressive display in the U-19 tourney saw him drafted in the Afghanistan squad for the Bangladesh tour in 2019 where he scored a crucial 87 in the second innings as Afghans went on to win the one-off Test. Zadran batted for 230 minutes during that knock and never looked back.

The pandemic didn't slow him down and he built up his reputation as a steady ODI batter as well—his four tons between June 2022 to July 2023 vouch for it. During the World Cup, Zadran also became the fastest Afghanistan batter to score 1000 runs in ODIs — in just 24 innings.

With his century against Australia, Zadran has opened a new chapter in his young career which has a potential to blossom into something substantial.

KK Choudhary

ನಾವು ಸಿದ್ಧರಿದ್ದೇವಾ?

ಅವಕಾಶಗಳೇ ಹೀಗೆ, ಯಾವಾಗ ಯಾರಿಗೆ ಒಲಿದು ಬರುವುದೋ ಹೇಳಲಾಗದು. ಅವಕಾಶಕ್ಕೆ ಬರುವ ಅವಕಾಶಗಳು ಬಂದಾಗ ನಾವದಕ್ಕೆ ಸಿದ್ಧರಿದ್ದು, ಸರಿಯಾಗಿ ಬಳಕೆ ಮಾಡಿಕೊಳ್ಳಬೇಕು. ಇದೇ ಸಾಧಕರ ಲಕ್ಷಣ. ಇದೇ ಇಂದಿನ ಕತೆಯ ಸಾರ.

ಒಹುಷಾ: ನೀವು ಈ ಬಾರಿಯ ಐಪಿಎಲ್ ಪಂದ್ಯಾವಳಿ ನೋಡಿರಬಹುದು. ಕೆಕೆಆರ್ - ಜಿಟಿ ನಡುವಿನ ಪಂದ್ಯ. ಗೆಲ್ಲಲು ಕೊಲ್ಕತ್ತಾಗೆ 39 ರನ್ ಬೇಕು, ಇದ್ದದ್ದು ಬರೀ 8 ಬಾಲ್! ಸ್ವೈಕನಲ್ಲಿ ಉಮೇಶ್ ಯಾದವ್, ರಿಂಕು ಸಿಂಗ್. ಪಂದ್ಯ ಗುಜರಾತ್ ಪಾಲಾಯಿತು ಎಂದು ಒಹುತೇಕ ಖಾತ್ರಿಯಾಗಿತ್ತು. ಆದರೆ, ಮುಂದಿನ ಎಂಟು ನಿಮಿಷಗಳಲ್ಲಿ ಹೊಸ ಸ್ಟಾರ್ ಉದಯಿಸಿ ಬಿಟ್ಟು, ಆತನೇ ರಿಂಕು ಸಿಂಗ್! ಕೊನೆಯ ಬಾಲ್ ಸಿಕ್ಸರ್ ಸೇರಿದಂತೆ ಸತತ ಐದು ಸಿಕ್ಸರ್ ಚಚ್ಚಿ ಮುಗಿಲೆತ್ತರ ಮಿಂಚಿ ಬಿಟ್ಟು.

ಎಂಥವರಿಗೇ ಆದರೂ ನಾವೂ ಹೀಗೆ ಹೀರೋ ಆಗಿ ಮಿಂಚಬೇಕು ಎಂದನಿಸಿ ದಿರದು. ಆದರೆ, ಆ ಗೆಲುವಿನ ಕ್ಷಣಗಳಿಗಾಗಿ ರಿಂಕು ಪಟ್ಟ ಶ್ರಮ, ಸುರಿಸಿದ ಬೆವರು, ಕಾದ ದಿನಗಳು ಮಾತ್ರ ಯಾರಿಗೂ ಕಾಣದು.

ಉತ್ತರ ಪ್ರದೇಶದ ಅಲಿಗಡದಲ್ಲಿ ಅತ್ಯಂತ ಕಡು ಬಡತನದಲ್ಲಿ ಜನಿಸಿದ ರಿಂಕುಗೆ ಅಪ್ಪ, ಅಮ್ಮ, ಅಣ್ಣನಿದ್ದರು. ವಾಸಕ್ಕೆ ಪುಟ್ಟ ಮನೆ. ಅಪ್ಪನಿಗೆ ಸೈಕಲ್‌ನಲ್ಲಿ ಸಿಲಿಂಡರ್‌ಗಳನ್ನು ಮನೆ ಮನೆಗೆ ಕೊಟ್ಟು ಬರುವ ಕೆಲಸ. ಕಂಪನಿಯ ಸಣ್ಣ ಮನೆ. ಅಮ್ಮನ್ನದ್ದು ಮನೆಗೆಲಸ, ಅಣ್ಣನಿಗೆ ಮನೆ ಸಮೀಪವಿದ್ದ ಕೋಚಿಂಗ್ ಸೆಂಟರ್‌ನಲ್ಲಿ ಕಸ ಗುಡಿಸಿ, ನೆಲ ಒರೆಸುವ ಕೆಲಸವಿತ್ತು. ಇಷ್ಟಾದರೂ ಹೊಟ್ಟೆ ತುಂಬಾ ಊಟ ಸಿಗುತ್ತಿದ್ದದ್ದೇ ತ್ರಾಸು.

ನೀನೀಗ ದೊಡ್ಡವನಾಗಿದ್ದೀಯೆ, ಹಾಗಾಗಿ ನೀನೂ ಕೋಚಿಂಗ್ ಸೆಂಟರ್‌ಗೆ ಬಂದು ಸ್ಟೀಪಿಂಗ್ ಕೆಲಸ ಮಾಡು ಎಂದು ರಿಂಕುಗೆ ಆತನ ಅಣ್ಣ ಒಮ್ಮೆ ಹೇಳಿದರು. ತಲೆಯಲ್ಲಿ ಅದೇನಿತ್ತೂ, ನಾನು ಇಂತವಲ್ಲ ಕೆಲಸ ಮಾಡಲಾರೆ ಎಂದು ರಿಂಕು ರೇಗಿಬಿಟ್ಟರು.

ಕೆಲಸ ಮಾಡದಿದ್ದರೆ ಮನೆ ನಡೆಯದು, ನೀನು ಪೋಲಿಯಾಗುವೆ ಎಂದು ಅಪ್ಪನೂ ಕಟು ಮಾತಿನಲ್ಲಿ ಬೈದರು. ರಿಂಕು ಜಗ್ಗಲೇ ಇಲ್ಲ. ಗೆಳೆಯರೊಂದಿಗೆ ಆಡುತ್ತಿದ್ದ ಕ್ರಿಕೆಟ್ ಆಟವನ್ನೇ ಏಕೆ ತನ್ನ ಬದುಕಿನ ಗುರಿ ಮಾಡಿಕೊಳ್ಳಬೇಕು ಎಂಬ ಆಲೋಚನೆ ಬಂತು.

ದಿನಕ್ಕೊಂದು ಸ್ಫೂರ್ತಿ ಕಥೆ

ಕನಸು ಮೋಹನ



ತಾನು ಕ್ರಿಕೆಟರ್ ಆಗುವೆ ಎಂದು ಮನೆಯಲ್ಲಿ ಹೇಳಿದಾಗ ಎಲ್ಲರೂ ಕೈ ಹೊತ್ತು ಕುಳಿತರು. ಆದರೆ, ರಿಂಕು ಮಾತ್ರ ಧೃಢವಾಗಿದ್ದರು. ಮನೆಯಲ್ಲಿ ಯಾರೂ ಮಾತನಾಡಿಸಲಿಲ್ಲ. ಆದರೂ ರಿಂಕು ತಗ್ಗಲಿಲ್ಲ. ಜಿಲ್ಲಾ ಮಟ್ಟದ ಟೂರ್ನಿಯಲ್ಲೊಮ್ಮೆ ಸರಣಿ ಪುರುಷ ಪ್ರಶಸ್ತಿಗೆ ಬಂದ ಬೈಕನ್ನು ರಿಂಕು ತನ್ನ ಅಪ್ಪನಿಗೆ ತಂದು ನೀಡಿದ್ದರು, ಸೈಕಲ್ ಬಿಟ್ಟು ಬೈಕಿನಲ್ಲಿ ಸಿಲೆಂಡರ್ ವಿತರಿಸಿ ಎಂದಾಗ ಎಲ್ಲರೂ ಭಾವುಕ.

ನಮಗಾಗಿ ಇಷ್ಟೆಲ್ಲ ಮಾಡುವ ಮಗನಿಗಾಗಿ ಬೆಂಬಲ ನೀಡಬೇಕು ಎಂದು ಮನೆಯವರೆಲ್ಲ ನಿರ್ಧರಿಸಿದರು. ಅಲ್ಲಿಂದಲೇ ರಿಂಕು ಶ್ರಮ ದುಪ್ಪಟ್ಟಾಯಿತು. ಬೆಳಿಗ್ಗೆ ಐದರಿಂದ ರಾತ್ರಿ ತನಕ ಜಿಮ್, ಓಟ, ಕ್ರಿಕೆಟ್ ಪ್ರಾಕ್ಟೀಸ್‌ಗೆ ಸಮಯ ಮೀಸಲಾಯಿತು. ರಿಂಕುವಿನ ಕನಸು, ಮನಸಿನಲ್ಲಿ ಕ್ರಿಕೆಟ್, ಕ್ರಿಕೆಟ್ ಮಾತ್ರ.

ಆದರೆ, ರಿಂಕುಗೆ ರಾಜ್ಯ, ರಾಷ್ಟ್ರೀಯ ತಂಡದಲ್ಲಿ ತಕ್ಷಣವೇ ಅವಕಾಶ ಸಿಗಲಿಲ್ಲ. ಆದರೂ ರಿಂಕು ಶ್ರಮ ನಿಲ್ಲಿಸಲಿಲ್ಲ. ಐಪಿಎಲ್ ಬಿಡ್ಡಿಂಗ್‌ನಲ್ಲೂ ರಿಂಕುಗೆ ಕಡಿಮೆ ಮೊತ್ತ ಬಂತು. ಆದರೂ, ತನ್ನ ಸಮಯಕ್ಕಾಗಿ ರಿಂಕು ನೆಲಕ್ಕಚ್ಚಿ, ಸಹಿಸಿ ನಿಂತಿದ್ದರು. ಅದೇ 39 ರನ್, 8 ಬಾಲ್! ಈಗಂತೂ ರಿಂಕುಗೆ ಕೋಟಿ ಕೋಟಿ ಕೊಡಲು ತಾಮ್ಮಂದು ನಾಮ್ಮಂದು! ಕಸ ಹೊಡೆಯಲು ಕರೆದಿದ್ದ ಕೋಚಿಂಗ್ ಸೆಂಟರ್‌ಗೆ ರಿಂಕು ಈಗ ಮುಖ್ಯ ಅತಿಥಿ!

ಅವಕಾಶಗಳು ನಮಗೂ ಹೀಗೆ ದುತ್ತನೇ ಬಂದು ಬಿಡಬೇಕು, ಆಗ ನಾವು ಸಿದ್ಧರಿರಬೇಕಷ್ಟೇ.

ನಿಲ್ಲಲೂ ಆಗದ ಸ್ಥಿತಿಯಲ್ಲಿ ದ್ವಿಶತಕ ಸಿಡಿಸಿ ತಂಡವನ್ನು ಸೆಮೀಸ್‌ಗೆರಿಸಿದ ಗ್ಲೆನ್

ನರಳಿ ಅರಳಿದ ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ಗ್ರೇಟ್ ಚೇಸ್!

ಮ್ಯಾಕ್ಸ್ ಅಜೇಯ 201 ಸಾಹಸ: ಶ್ರೀಲಂಕಾ, ಪಾಕಿಸ್ತಾನ, ಇಂಗ್ಲೆಂಡ್ ಬಳಿಕ ಆಸ್ಟ್ರೇಲಿಯಾವನ್ನೂ ಮಣಿಸುವ ಅಫ಼ಾನಿಸ್ತಾನ ಕನಸು ಭಗ್ನ ಆಫ಼ನ್ ನೀಡಿದ 292 ರನ್ ಗುರಿ ಬೆನ್ನತ್ತುವಾಗ ಆಸ್ಟ್ರೇಲಿಯಾ 91ಕ್ಕೆ 7 | ಬಳಿಕ ಏಕಾಂಗಿಯಾಗಿ ಹೋರಾಡಿ ಗೆಲ್ಲಿಸಿದ ಮ್ಯಾಕ್ಸ್‌ವೆಲ್

ಮುಂಬೈ: ಕ್ರಿಕೆಟ್ ಕ್ಷಣ ಇತಿಹಾಸದಲ್ಲಿ ಎಂತೆಂದರೋ ಪಾಡುಗಳಿಗೆ ಸಾಕ್ಷಿಯಾಗಿದೆ. ಮಂಗಳವಾರ ಪಾಯಿಂಡೆ ಕ್ರೀಡಾಂಗಣದಲ್ಲಿ ಗ್ಲೆನ್ ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ಪಂದ್ಯಕ್ಕೆ ವೇದಿಕೆಯಾಯಿತು. ಸೋಲಿಸ್ ಸಂಭಯದ ಎದುರು ಬರುವುದು ಹೇಗೆ ಎನ್ನುವುದನ್ನು ಕ್ರಿಕೆಟ್ ಒಗಟಿಗೆ ತೋರಿಸಿಕೊಟ್ಟ ಆಸ್ಟ್ರೇಲಿಯಾ, ಅಫ಼ಾನಿಸ್ತಾನವನ್ನು 3 ವಿಶೇಷಗಳಿಂದ ಸೋಲಿಸಿ ಸೆಮಿಫೈನಲ್ ಪ್ರವೇಶಿಸಿತು.

ಮೊದಲು ಬ್ಯಾಟ್ ಮಾಡಿದ ಅಫ಼ನ್ ಇದ್ದಾಟುಂಟಾದರೂ ಪಾಕಿಸ್ತಾನದ ನೆರವಿನಿಂದ 5 ವಿಶೇಷ 291 ರನ್ ಕಲೆಹಾಕಿತು. ಪಾಯಿಂಡೆಯಲ್ಲಿ ಇದು ಸುರಕ್ಷಿತ ಮೊತ್ತವಲ್ಲವೆನ್ನಿಸಿದರೂ, ಆಸ್ಟ್ರೇಲಿಯಾ ಕುಸಿತ ರೀತಿ ಸೋಡಿ ಅಫ಼ಾನಿಸ್ತಾನ ಸೆಮಿಫೈನಲ್‌ನಲ್ಲಿ ಒಂದು ಕಾರಿಯಿತ್ತು. 91 ರನ್ ಗೆ 7 ವಿಶೇಷ ಕೇವಲಕೊಂಡು ಹೀನಾಯ ಸೋಲನ್ನು ಎದುರು ನೋಡುತ್ತಿದ್ದ ಆಸ್ಟ್ರೇಲಿಯನ್ನರ ಪಾಲಿನ ಆವಧ್ಯಾನವಾಗಿದ್ದು ಮ್ಯಾಕ್ಸ್‌ವೆಲ್.

ಮುರಿಯದ 8ನೇ ವಿಶೇಷಕ್ಕೆ ಬ್ಯಾಟ್ ಕಮಿಸ್ ತೊಡಗೊಡಿ 170 ಎಸೆತದಲ್ಲಿ 202 ರನ್ ಕಲೆಹಾಕಿದ ಮ್ಯಾಕ್ಸ್‌ವೆಲ್, ಇನ್ನೂ 19 ಎಸೆ ಬಾಕಿ ಇರುವಂತೆಯೇ ತಂದವನ್ನು ಗೆಲ್ಲಿಸಿದರು. 128 ಎಸೆತದಲ್ಲಿ 21 ಬೌಂಡರಿ, 10 ಸಿಕ್ಸರ್‌ನೊಂದಿಗೆ ಟಿಲಾಕಾದ 201 ರನ್ ಚಿಟ್ಟಿ ಅಫ಼ನ್ ಆಸೆಗೆ ತಣ್ಣಗೆರೆತಿದರು. ನಾಯಕನ ಅಟವಾಡಿದ ಕಮಿಸ್, ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ತೊಡೆ ಗಟ್ಟಿಯಾಗಿ ನೆಲೆಯೊಂದಿ 68 ಎಸೆತಗಳಲ್ಲಿ 12 ರನ್ ಗಳಿಸಿದರು.

ಇದನ್ನೂ ಮುನ್ನ ಇದ್ದಾಟುಂಟಾದ ಅಫ಼ನ್ ಪರ ವಿಶ್ವಕಪ್‌ನಲ್ಲಿ ಮೊದಲ ಪಾಕಿಸ್ತಾನದ ಓರಿಯೆಗೆ ಪಾತ್ರರಾದರು. 143 ಎಸೆತದಲ್ಲಿ 129 ರನ್ ಗಳಿಸಿ ತಂದವನ್ನು ಸ್ವರ್ಧಾತ್ಮಕ ಮೊತ್ತ ಕಲುಪಿಸಿದರು. ರೋಡ್ ಪಾನ್ ತೊಡೆಯಲ್ಲಿ 18 ಎಸೆತದಲ್ಲಿ 35 ರನ್ ಸಿಡಿಸಿ ತಂದಕ್ಕೆ ಉತ್ತಮ ಕೊಡುಗೆ ನೀಡಿದರು.

ಸ್ಕೋರ್: ಅಫ಼ಾನಿಸ್ತಾನ 50 ಓವರ್‌ನಲ್ಲಿ 291/5 (ಇದ್ದಾಟುಂ 129*, ರೋಡ್ 35*, ಪೇವಲ್‌ದ್ವಾರ್ 2-39), ಆಸ್ಟ್ರೇಲಿಯಾ 46.5 ಓವರ್‌ನಲ್ಲಿ 293/7 (ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ 201*, ಮಿಟಲ್ ಮಾರ್ಕರ್ 24, ರೋಡ್ ಪಾನ್ 2-44) ಪಂದ್ಯಶ್ರೇಣಿ: ಗ್ಲೆನ್ ಮ್ಯಾಕ್ಸ್‌ವೆಲ್



201*
ರನ್
128
ಎಸೆ
10
ಸಿಕ್ಸರ್
21
ಬೌಂಡರಿ

ಗ್ಲೆನ್ ಮ್ಯಾಕ್ಸ್‌ವೆಲ್

1ನೇ
ಮ್ಯಾಟರ್
ವಿಶ್ವದ
ಇತಿಹಾಸದಲ್ಲಿ
ದ್ವಿಶತಕ ಮಾಡಿದ
ಆಸ್ಟ್ರೇಲಿಯಾದ
ಮೊದಲ ಕ್ರಿಕೆಟಿಗ
ಮ್ಯಾಕ್ಸ್‌ವೆಲ್.

ಟರ್ನಿಂಗ್ ಪಾಯಿಂಟ್

ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ಎದುರಿಸಿದ ಮೊದಲ ಎಸೆತದಲ್ಲಿ ಅಫ಼ನ್ ಡಿಆರ್ ಎಸ್ ಮೊರೆ ಹೋದರೂ ಪ್ರಯೋಜನವಾಗಲಿಲ್ಲ. 26 ರನ್ ಗಳಿಸಿದ್ದಾಗ ಹದುವುತ್ತು, 33 ರನ್ ಗಳಿಸಿದ್ದಾಗ ಮುಜೇಬ್ ಕ್ವಿಟ್ ಕ್ರಿಕೆಟ್ ಜೀವನದಿಂದ ನಿರೀಡಿದರು. ಬಳಿಕ 23ನೇ ಓವರ್‌ನಲ್ಲಿ ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ಏಕದ್ದ ಎಲೆವೆನಿ ತೀರ್ಪು ನೀಡಲಾಗಿತ್ತು. ಆದರೆ ಡಿಆರ್ ಎಸ್ ಸಹಾಯದಿಂದ ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ಇಂಗ್ಲಿಷ್ ಮುಂದುವರಿಸಲು ಸಾಧ್ಯವಾಯಿತು. ಹೋರಾಟದ ಮೊರೆ ಅವೈವೈ ಇದ್ದ ಕಾರಣ, ಆಸೀಸ್ ಒಂದುಸುತ್ತು.

ಏಕದಿನ ವಿಶ್ವಕಪ್‌ನಲ್ಲಿ ದಾಖಲಾದ 3ನೇ ದ್ವಿಶತಕ

ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ಮಾಡಿದ 201 * ರನ್ ವಿಶ್ವಕಪ್‌ನಲ್ಲಿ ದಾಖಲಾದ 3ನೇ ದ್ವಿಶತಕ. 2015ರಲ್ಲಿ ಮೊ಼ಹಮ್ಮದ್ ಅಜ಼ಹ್ ನೂಜಿರಿಯಾ 201.5ರಲ್ಲಿ 237, ಅಂಜಲಿ ವಿದುಷ್ ಎಂಜಿಲಾನ್ ಕ್ರಿಸ್ ಗೇಲ್ 215 ರನ್ ಸಿಡಿಸಿದರು.

ಆಸೀಸ್ vs ಅಫ಼ಿಕಾ ಸೆಮೀಸ್

ಆಸೀಸ್‌ನ ಈ ಗೆಲುವಿನೊಂದಿಗೆ ತಂಡಕ್ಕೆ ಸೆಮಿಫೈನಲ್ ಎದುರಾಗ ಯೂರೋಪಿಯೂ ಏರ್ಪಡಿತು. ನ.16ಕ್ಕೆ ಕೋಲ್ಕತ್ತಾದ ಈಡಲ್ ಗಾರ್ಡ್ಸ್‌ನಲ್ಲಿ ಆಸೀಸ್‌ಗೆ ದೆ.ಅಫ಼ಿಕಾ ಸಹಾಯ ಎದುರಾಗಲಿದೆ. ಮತ್ತೊಂದು ಸೆಮಿಫೈನಲ್ ಭಾರತಕ್ಕೆ ಎದುರಾಗುವ ತಂಡ ಇನ್ನಷ್ಟೇ ಏರ್ಪಡುವುದೇ.

ನೋವಿನಲ್ಲೂ ಫಲ ಬಿಡದ ಮ್ಯಾಕ್ಸ್‌ವೆಲ್!

ಆಸ್ಟ್ರೇಲಿಯಾ ಗೆಲುವಿಗೆ ಇನ್ನೂ ಸುಮಾರು 100 ರನ್ ಗಿಂತ ಹೆಚ್ಚು ಬೇಕಿದ್ದಾಗ ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ಸ್ವಾಯು ಸೇತಕ್ಕೆ ಒಳಗಾದರು. ಇಂಗ್ಲಿಷ್ ಸಾವಿರಕ್ಕೆ ನೋವು ಹೆಚ್ಚಾಯಿತು. ಪ್ರತಿ ಎಸೆತ ಎದುರಿಸುವಾಗಲೂ ಸೇತ ಹೋರಾಟ ಒಂದು ಹಂತದಲ್ಲಿ ನಿಲ್ಲಲು ಸಹ ಆಗುತ್ತಿರಲಿಲ್ಲ. ಇನ್ನೇನು ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ರಿಟೈರ್ಡ್ ಹಾರ್ಡ್ ಆಗಿ ಹೋದನೆಂಬುದಿದ್ದರೆ ಎನ್ನುವ ಪರಿಸ್ಥಿತಿ ಇತ್ತು. ಆದರೆ ಒಂದು ಕ್ರೀಮ್ ಗೆಲುವು ಸುಧರಿಸಿ ಬೌಂಡರಿ ಗೆದ್ದವರಗೂ ಒಂದು ನಿಂತಿದ್ದರು. ಆದರೆ ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ಫಲ ಬಿಡಲಿಲ್ಲ. ಬಹಳ ಲೆಕ್ಕಾಚಾರ ದೊಂದಿಗೆ ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ಹೆಚ್ಚು ಬೌಂಡರಿ, ಸಿಕ್ಸರ್ ಸಿಡಿಸುವ ಕಡೆಗೆ ಗಮನ ನೀಡಿದರು. ಓವರ್‌ನ ಕೊನೆ ಎಸೆತದಲ್ಲಿ ಕಾಪ್ಪಿಂದ ಒಂದು ರನ್ ಪಡೆದು ಸ್ಕ್ವೆಕ್ಸ್‌ನಲ್ಲಿ ಉಳಿದರು. ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ಈ ಹೋರಾಟಕ್ಕೆ ಕಮಿಸ್ ನೀಡ ಆದ್ಯತೆ ಬೆಂಬಲ ದೊರೆತು.

ಏಕದಿನ ಡಬಲ್ ಸೆಂಚುರಿ ಹೊಡೆದ 9ನೇ ಬ್ಯಾಟರ್!

ಮ್ಯಾಕ್ಸ್‌ವೆಲ್ ಏಕದಿನ ಕ್ರಿಕೆಟ್‌ನಲ್ಲಿ ದ್ವಿಶತಕ ಮಾಡಿದ 9ನೇ ಕ್ರಿಕೆಟಿಗ. ಸುನಿಲ್ ತೆಂಡುಲ್ಕರ್, ರೋಹಿತ್ ಶರ್ಮಾ (3 ಬಾರಿ), ಮಾರ್ಕಸ್ ಗಿಬ್ಸನ್, ಸ್ಟ್ಯಾನ್ ಗೇಲ್, ಫಯಿಜ್‌ಅಮಾನ್, ಇಮಾನ್ ಕಿಶನ್, ತುಘ್‌ಮನ್ ಗಿಲ್ ಇತರ ಸಾಧಕರು.

ಆಸ್ಟ್ರೇಲಿಯಾಕ್ಕೆ ಮುಂದಿನ ಪಂದ್ಯ: ನ.11ಕ್ಕೆ ಮಂಗಳೂರು. ಫೈನಲ್: ಅಫ಼ಾನಿಸ್ತಾನಕ್ಕೆ ಮುಂದಿನ ಪಂದ್ಯ: ನ.18ಕ್ಕೆ ಅಫ಼ಿಕಾ ಎದುರು ಅಡ್ಡದಾಟದ



ಶ್ರೀಲಂಕಾ ಕ್ರಿಕೆಟ್ ಮಂಡಳಿ ವಜಾ ಕ್ರಮ ರದ್ದುಪಡಿಸಿದ ನ್ಯಾಯಾಲಯ

ಹೊಸದಿಲ್ಲಿ, ನ.7: ಶ್ರೀಲಂಕಾ ಕ್ರಿಕೆಟ್ ಮಂಡಳಿ ಯನ್ನು ವಜಾಗೊಳಿಸಿದ ಕ್ರೀಡಾ ಸಚಿವರ ಇತ್ತೀಚೆಗಿನ ಕ್ರಮವನ್ನು ರದ್ದುಪಡಿಸುವ ಮೂಲಕ ಶ್ರೀಲಂಕಾದ ಮೇಲ್ಮನವಿ ನ್ಯಾಯಾಲಯವು ಮಹತ್ವದ ನಿರ್ಧಾರವನ್ನು ತೆಗೆದುಕೊಂಡಿದೆ. ಪೂರ್ಣ ವಿಚಾರಣೆಯನ್ನು ಬಾಕಿ ಇರಿಸಿದೆ.



ಎಂದು ನ್ಯಾಯಾಲಯದ ಅಧಿಕಾರಿಯೊಬ್ಬರು ದೃಢಪಡಿಸಿದರು. ಮಾಜಿ ನಾಯಕ ಅರ್ಜುನ್ ರಣತುಂಗ ನೇತೃತ್ವದ ಮಧ್ಯಂತರ ಸಮಿತಿಯು ಕಾರ್ಯನಿರ್ವಹಿಸುವುದನ್ನು ಮುಂದುವರಿ ಸುವುದನ್ನು

ತಡೆಯುವ ನ್ಯಾಯಾಲಯದ ಆದೇಶದೊಂದಿಗೆ ಶಮ್ಮಿ ಸಿಲ್ವಾ ಅಧ್ಯಕ್ಷ ಸ್ಥಾನಕ್ಕೆ ವಾಪಸಾಗಲಿದ್ದಾರೆ ಎಂದು ಮಂಡಳಿಯ ಅಧಿಕಾರಿಯೊಬ್ಬರು ತಿಳಿಸಿದ್ದಾರೆ.

ಕ್ರಿಕೆಟ್ ಮಂಡಳಿಯೊಳಗಿನ ಸಮಸ್ಯೆಗಳನ್ನು ಪರಿಹರಿಸಲು ಸರಕಾರವು ಕ್ಯಾಬಿನೆಟ್ ಸಮಿತಿಯನ್ನು ಸ್ಥಾಪಿಸಿದೆ.

ವಿಶ್ವಕಪ್‌ನಲ್ಲಿ ಭಾರತ ವಿರುದ್ಧ ಶ್ರೀಲಂಕಾ ಹೀನಾಯವಾಗಿ ಸೋತ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಕ್ರಿಕೆಟ್ ಮಂಡಳಿಯನ್ನು ವಿಸರ್ಜಿಸಲು ಸಚಿವ ರಣಸಿಂಘೆ ನಿರ್ಧರಿಸಿದ್ದರು.

ಶ್ರೀಲಂಕಾ ಕ್ರಿಕೆಟ್ ಮಂಡಳಿಯನ್ನು ವಿಸರ್ಜಿಸಿ ಮಧ್ಯಂತರ ಸಮಿತಿಯನ್ನು ನೇಮಿಸಿದ ಸಚಿವ ರೋಷನ್ ರಣಸಿಂಘೆ ಅವರು ತೆಗೆದುಕೊಂಡ ಕ್ರಮವನ್ನು ಪ್ರಶ್ನಿಸಿ ಶ್ರೀಲಂಕಾ ಕ್ರಿಕೆಟ್ ಮಂಡಳಿಯ ಅಧ್ಯಕ್ಷ ಶಮ್ಮಿ ಸಿಲ್ವಾ ಅವರು ಸಲ್ಲಿಸಿದ ಅರ್ಜಿಯನ್ನು ಅನುಸರಿಸಿ ಈ ನಿರ್ಧಾರ ತೆಗೆದುಕೊಳ್ಳಲಾಗಿದೆ.

ಮಂಡಳಿಯ ಮರು ಸ್ಥಾಪನೆಯು ಎರಡು ವಾರದ ತನಕ ಇರುತ್ತದೆ. ನ್ಯಾಯಾಲಯವು ಪ್ರಕರಣವನ್ನು ಮತ್ತೊಮ್ಮೆ ವಿಚಾರಣೆ ನಡೆಸುತ್ತದೆ

ಐಸಿಸಿ ತಿಂಗಳ ಆಟಗಾರ ಪ್ರಶಸ್ತಿಯ ನೋಮಿನೇಷನ್ ಬಿಡುಗಡೆ

ಮುಂಬಯಿ: ಐಸಿಸಿ ಏಕದಿನ ಕ್ರಿಕೆಟ್ ವಿಶ್ವಕಪ್‌ನ
ಆಕ್ಷನ್-ಪ್ಯಾಕ್ಟ್ ಅಕ್ಟೋಬರ್ ತಿಂಗಳ ನಂತರ ಐಸಿಸಿ



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'ವ್ಲೇಯರ್ ಆಫ್ ದಿ ಮಂತ್'
ಪ್ರಶಸ್ತಿಗೆ ಐಸಿಸಿ ಮಂಗಳವಾರ
ಮೂರು ನಾಮಿನೇಷನ್
ಗಳನ್ನು ಬಿಡುಗಡೆ ಮಾಡಿದೆ.
ಐಸಿಸಿ ಪುರುಷರ ಕ್ರಿಕೆಟ್
ವಿಶ್ವಕಪ್ 2023ರಲ್ಲಿ ಅಕ್ಟೋ

ಬರ್‌ನಲ್ಲಿ ಗುಂಪು ಹಂತದ ಪಂದ್ಯಗಳಲ್ಲಿ ಅತ್ಯುತ್ತಮ
ಪ್ರದರ್ಶನ ನೀಡಿದ ಮೂವರನ್ನು ಐಸಿಸಿ ಪಟ್ಟಿ
ಮಾಡಿದೆ.

ಭಾರತದ ವೇಗಿ ಜಸ್ಮೀತ್ ಬುಮ್ರಾ, ದಕ್ಷಿಣ ಆಫ್ರಿ
ಕಾದ ಆರಂಭಿಕ ಆಟಗಾರ ಕ್ವಿಂಟನ್ ಡಿಕಾಕ್ ಮತ್ತು

ನ್ಯೂಜಿಲ್ಯಾಂಡ್ ತಂಡದ ಯುವ ಬ್ಯಾಟಿಂಗ್
ಸೆನ್ಸೇಶನ್ ರಚಿನ್ ರವೀಂದ್ರ ಅವರು ಈ ಬಾರಿಯ
ಪಟ್ಟಿಯಲ್ಲಿ ಸ್ಥಾನ ಪಡೆದಿದ್ದಾರೆ. ಮಹಿಳಾ ವಿಭಾಗ
ದಲ್ಲಿ ವೆಸ್ಟ್ ಇಂಡೀಸ್ ನಾಯಕಿ ಹೇಲಿ ಮ್ಯಾಥ್ಯೂಸ್,
ಬಾಂಗ್ಲಾದೇಶದ ಯುವ ಎಡ್‌ಗೈ ಬೌಲರ್ ನಹಿದಾ
ಅಖ್ತರ್ ಮತ್ತು ನ್ಯೂಜಿಲ್ಯಾಂಡ್‌ನ ಬ್ಯಾಟ್‌ಮನ್ ಅಮೆ
ಲಿಯಾ ಕೆರ್ ಅವರು ಅಕ್ಟೋಬರ್ ತಿಂಗಳ ವ್ಲೇಯರ್
ಆಫ್ ದಿ ಮಂತ್ ಪ್ರಶಸ್ತಿಗೆ ನಾಮಿನೇಷನ್‌ಗಳಾಗಿ
ದ್ದಾರೆ. ಐಸಿಸಿಯ ಸ್ವತಂತ್ರ ವೋಟಿಂಗ್ ಆಕಾಡೆಮಿ
ಮತ್ತು ಪ್ರಪಂಚದಾದ್ಯಂತದ ಅಭಿಮಾನಿಗಳು ವಿಜೇತ
ರನ್ನು ನಿರ್ಧರಿಸಲು ತಮ್ಮ ಮತಗಳನ್ನು ಚಲಾಯಿ
ಸಲು ಈಗ ಆಹ್ವಾನಿಸಲಾಗುತ್ತದೆ. ಫಲಿತಾಂಶಗಳನ್ನು
ಮುಂದಿನ ವಾರ ಪ್ರಕಟಿಸಲಾಗುತ್ತದೆ.

ವಿಶ್ವಕಪ್ ಅಂಕಪಟ್ಟಿ

ತಂಡಗಳು	ಪಂದ್ಯ	ಗೆಲುವು	ಸೋಲು	ರದ್ದು	ನೆಟ್ ರನ್ ರೇಟ್	ಅಂಕ
ಭಾರತ	08	08	00	00	+2.456	16
ದ. ಆಫ್ರಿಕಾ	08	06	02	00	+1.376	12
ಆಸ್ಟ್ರೇಲಿಯಾ	08	06	02	00	+0.861	12
ನ್ಯೂಜಿಲೆಂಡ್	08	04	04	00	+0.398	08
ಪಾಕಿಸ್ತಾನ	08	04	04	00	-0.036	08
ಅಫಘಾನಿಸ್ತಾನ	08	04	04	00	-0.338	08
ಬಾಂಗ್ಲಾದೇಶ	08	02	06	00	-1.142	04
ಶ್ರೀಲಂಕಾ	08	02	06	00	-1.160	04
ನೆದರ್‌ಲೆಂಡ್	07	02	05	00	-1.398	04
ಇಂಗ್ಲೆಂಡ್	07	01	06	00	-1.504	02

ದಿನಕ್ಕೊಂದು ಮಾಹಿತಿ

ಒಣಗಿದ ಎಲೆಯಂತಿರುವ ಹಲ್ಲಿ

ಅಮೆಜಾನ್ ಕಾಡಿನಲ್ಲಿ ಲೆಕ್ಕವಿಲ್ಲದಷ್ಟು ಜೀವ ಜಂತುಗಳಿವೆ. ಮೊಸ್ಸಿ ಎಲೆ



ಬಾಲದ ಗೆಕ್ಕೊ
ಸೃಷ್ಟಿಯಲ್ಲಿಯೇ
ವಿಚಿತ್ರವಾದ ಜೀವಿ.
ಪ್ರಕೃತಿ ಈ ಹಲ್ಲಿಗೆ
ಬಚ್ಚಿಟ್ಟುಕೊಳ್ಳಲು
ಒಂದು ಅದ್ಭುತವಾದ
ಶಕ್ತಿಯನ್ನು ನೀಡಿದೆ.
ಆದ್ದರಿಂದ ಇದನ್ನು
ಕಂಡು ಹಿಡಿಯುವುದು

ಮನುಷ್ಯರಿಂದ ಅಸಾಧ್ಯ. ಅಮೆಜಾನ್ ಕಾಡಿನಲ್ಲಿರುವ ಪಕ್ಷಿಗಳಿಗೂ ಸಹ
ಈ ಹಲ್ಲಿಗಳನ್ನು ಕಂಡುಹಿಡಿಯಲು ಸಾಧ್ಯವಿಲ್ಲ. 20 ಸೆ.ಮೀ.ಗಳಷ್ಟು
ಉದ್ದವಾಗಿರುವ ಈ ಹಲ್ಲಿ ಕಾಣಲು ಮರದ ಕೊಂಬೆಯ ಹಾಗೆ
ಇರುತ್ತದೆ. ಅಷ್ಟೇ ಅಲ್ಲ ಇದರ ಶರೀರವನ್ನು ಸ್ಪರ್ಶಿಸಿದರೂ ಹಾಗೇ
ಅನ್ನಿಸುತ್ತದೆ.



ಡೀಪ್‌ಫೇಕ್

ಕೃತಕ ಬುದ್ಧಿಮತ್ತೆಯ 'ಅತಿಬುದ್ಧಿ'

ನಟ ರಶ್ಮಿಕಾ ಮಂಡಣಿ ಅವರ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋವೊಂದು ಸಾಮಾಜಿಕ ಜಾಲತಾಣಗಳಲ್ಲಿ ಭಾರಿ ಚರ್ಚೆಗೆ ಗ್ರಾಸವಾಗಿತ್ತು. ನಟ ಕತ್ರನಾ ಕೈಫ್ ಅವರ ಡೀಪ್‌ಫೇಕ್ ಚಿತ್ರವೊಂದು ಮಂಗಳವಾರ ಜಾಲತಾಣಗಳಲ್ಲಿ ಹಂಚಿಕೆಯಾಗಿದೆ. ಕೃತಕ ಬುದ್ಧಿಮತ್ತೆಯ ದುರ್ಬಳಕೆಗೆ ನಿರರ್ಶನವಿದು. ಈ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ, ಚಿತ್ರಗಳ ಬಗ್ಗೆ ಕೇಂದ್ರ ಸರ್ಕಾರವು ತನಿಖೆಯನ್ನೂ ಆರಂಭಿಸಿದೆ. ಹಲವು ದೇಶಗಳಲ್ಲಿ ಇದು ಈಗಾಗಲೇ ದೊಡ್ಡಮಟ್ಟದ ಪಿಡುಗು ಎಂಬಂತಾಗಿದೆ. ಭಾರತದಲ್ಲೂ ಡೀಪ್‌ಫೇಕ್ ದೊಡ್ಡಮಟ್ಟದಲ್ಲೇ ಇದ್ದರೂ, ಅದು ಸುದ್ದಿಯಾಗಿರಲಿಲ್ಲ. ಈಗ ಗಣ್ಯರು ಮತ್ತು ಜನಪ್ರಿಯ ವ್ಯಕ್ತಿಗಳ ಡೀಪ್‌ಫೇಕ್‌ನ ಸಂತ್ರಸ್ತರಾದೊಡನೆ ಅದರ ಅಪಾಯದ ಬಗ್ಗೆ ಚರ್ಚೆ ಮುನ್ನೆಲೆಗೆ ಬಂದಿದೆ

ಪ್ರಜಾವಾಣಿ ವಾರ್ತೆ

'ನನ್ನ ಕುಟುಂಬ, ಸ್ನೇಹಿತರು ಹಾಗೂ ಹಿತಾಡಿಲಿಬಿಡಿಗಳಿಗೆ ನಾನೊಬ್ಬ ಹೆಣ್ಣಾಗಿ, ನಟಿಯಾಗಿ ಧನ್ಯವಾದ ಹೇಳಲು ಬಯಸುತ್ತೇನೆ. ಇವರೇ ನನ್ನ ರಕ್ಷಕವಳು. ನನ್ನ ಬೆನ್ನಲುಬು. ನನಗೆ ಈಗ ಆದಹಾಗೆ ನಾನು ಶಾಲೆಯಲ್ಲೇ, ಕಾಲೇಜಿನಲ್ಲೇ ಇದ್ದಾಗ ಒಂದೊಮ್ಮೆ ಆಗಿದ್ದರೇ? ಈ ಸಮಸ್ಯೆಯನ್ನು ನಾನು ಹೇಗೆ ಎದುರಿಸುತ್ತಿದ್ದೆನೋ? ನನಗೆ ಊಹಿಸಿಕೊಳ್ಳಲು ಸಾಧ್ಯವಿಲ್ಲ' ಎಂದು ನಟ ರಶ್ಮಿಕಾ ಮಂಡಣಿ ಸೋಮವಾರ ತಮ್ಮ 'ಎಕ್ಸ್' ಪೋಸ್ಟ್‌ನಲ್ಲಿ ಅಂತಹ ವ್ಯಕ್ತಪಡಿಸಿದ್ದಾರೆ.

ರಶ್ಮಿಕಾ ಅವರ ಈ ಅಂತಹವನ್ನು ಜಗತ್ತಿನ ಲಕ್ಷಾಂತರ ಮಹಿಳೆಯರು ಈಗಾಗಲೇ ಅನುಭವಿಸುತ್ತಿದ್ದಾರೆ. ಡೀಪ್‌ಫೇಕ್ ತಂತ್ರಜ್ಞಾನಕ್ಕೆ ಮಹಿಳೆಯರೇ ಬಲಿಪಶುಗಳು: ಅವರೇ ಗುರಿ. ಭಾರತದ ಮಟ್ಟಿಗೆ ಈ ತಂತ್ರಜ್ಞಾನವು ಹೊಸತಾಗಿ ತೋರುತ್ತಿರುವುದು. ಆದರೆ, ಅಮೆರಿಕ, ಯೂರೋಪ್‌ನಲ್ಲಿ ಇದೊಂದು ದೊಡ್ಡ ಸಮಸ್ಯೆಯಾಗಿ ಈಗಾಗಲೇ ಪರಿಣಮಿಸಿದೆ. ಇದಕ್ಕಾಗಿ ಕಾನೂನುಗಳನ್ನು ರಚಿಸಲಾಗುತ್ತಿದೆ. ಮನೋರಂಜನಾ ಮಾಧ್ಯಮದಲ್ಲಿರುವ ಮಹಿಳೆಯರು, ಸೋಷಿಯಲ್ ಮೀಡಿಯಾ ಇನ್‌ಫ್ಲುಯೆನ್ಸರ್‌ಗಳು... ಒಟ್ಟಾರೆ, ಸಾಮಾಜಿಕ ಜೀವನದಲ್ಲಿ ಗುರುತಿಸಿಕೊಂಡಿರುವ ಮಹಿಳೆಯರೇ ಈ ತಂತ್ರಜ್ಞಾನದಿಂದ ಹೆಚ್ಚಿನ ಸಮಸ್ಯೆ ಎದುರಿಸುತ್ತಿದ್ದಾರೆ.

ನೀಲಿಚಿತ್ರಗಳನ್ನು ಸೃಷ್ಟಿಸಲೇದೇ ಈ ತಂತ್ರಜ್ಞಾನವನ್ನು ಹೆಚ್ಚಾಗಿ ಬಳಸಿಕೊಳ್ಳಲಾಗುತ್ತಿದೆ. ಇಂಥ ಚಿತ್ರಗಳನ್ನು ಸೃಷ್ಟಿಸಲು ಖಾತ್ರಿನಾಮ ಮಹಿಳೆಯರ ಭಾವಚಿತ್ರಗಳನ್ನು ಬಳಸಿಕೊಳ್ಳಲಾಗುತ್ತಿದೆ. ಅಮೆರಿಕದ 'ಹೋಮ್ ಸೆಕ್ಯುರಿಟಿ ಹೀರೋಸ್' ಎನ್ನುವ ಸಂಸ್ಥೆಯೊಂದು '2023 ಸ್ಪೆಟ್ ಆಫ್ ಡೀಪ್‌ಫೇಕ್': ರಿಯಾಲಿಟಿ, ಫ್ರೆಟ್ ಆಂಡ್ ಇಂಪ್ಯಾಕ್ಟ್' ಹೆಸರಿನ ಸಮೀಕ್ಷೆಯೊಂದನ್ನು ನಡೆಸಿದೆ. ಅನ್‌ಲೈನ್‌ನಲ್ಲಿ ಸಿಗುವ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋಗಳಲ್ಲಿ ಶೇ 98ರಷ್ಟು ವಿಡಿಯೋಗಳು ನೀಲಿಚಿತ್ರಗಳಾಗಿವೆ. ಇಂಥ ಡೀಪ್‌ಫೇಕ್ ನೀಲಿಚಿತ್ರಗಳಲ್ಲಿ ಶೇ

ಶಿಕ್ಷಾರ್ಹ, ದಂಡಾರ್ಹ ಅಪರಾಧ

ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ ಸೃಷ್ಟಿಸುವುದು ಮಾಹಿತಿ ತಂತ್ರಜ್ಞಾನ ಕಾಯ್ದೆಯ ವಿವಿಧ ಸೆಕ್ಷನ್‌ಗಳ ಅಡಿಯಲ್ಲಿ ಶಿಕ್ಷಾರ್ಹ ಮತ್ತು ದಂಡಾರ್ಹ ಅಪರಾಧ ಎನಿಸಿಕೊಳ್ಳುತ್ತದೆ. ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ ಸೃಷ್ಟಿಸಿದವರು, ಅದನ್ನು ಹಂಚಿಕೊಂಡವರಿಗೂ ಜೈಲು ಮತ್ತು ದಂಡ ವಿಧಿಸಲು ಈ ಕಾಯ್ದೆಯಲ್ಲಿ ಅವಕಾಶವಿದೆ.

ಸಾಮಾಜಿಕ ಜಾಲತಾಣ ಮಾಧ್ಯಮ ಕಂಪನಿಗಳೂ, ತಮ್ಮ ಪ್ಲಾಟ್‌ಫಾರಂಗಳಲ್ಲಿ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋಗಳು ಹಂಚಿಕೆಯಾಗುವುದನ್ನು ತಡೆಯುವ ಜವಾಬ್ದಾರಿ ಹೊಂದಿವೆ. ಕಂಪನಿಗಳು ಇದನ್ನು ಪಾಲಿಸದಿದ್ದರೆ ಕಾನೂನು ಕ್ರಮವನ್ನು ಎದುರಿಸಬೇಕಾಗುತ್ತದೆ. ಇದಿಷ್ಟೇ ಅಲ್ಲದೆ ಖಾಸಗಿತನದ ಹಕ್ಕಿನ ಉಲ್ಲಂಘನೆ, ವಂಚನೆ, ಗೌರವಕ್ಕೆ ಚ್ಯುತಿ ತಂದ, ಮಾನಹಾನಿ ಮಾಡಿದ ಆರೋಪಗಳ ಅಡಿಯಲ್ಲೂ ಶಿಕ್ಷೆ ಮತ್ತು ದಂಡ ವಿಧಿಸಲು ಅವಕಾಶವಿದೆ.

94ರಷ್ಟು ವಿಡಿಯೋಗಳು ಖಾತ್ರಿ ನಟಿಯರು, ಗಾಯಕಿಯರಿಗೆ ಸಂಬಂಧಿಸಿದ್ದಾಗಿವೆ.

ಖಾತ್ರಿ ಮಹಿಳೆಯರು ಮಾತ್ರವಲ್ಲ, ಸಾಮಾನ್ಯ ಮಹಿಳೆಯರೂ ಈ ತಂತ್ರಜ್ಞಾನಕ್ಕೆ ಗುರಿಯಾಗುತ್ತಿದ್ದಾರೆ. ಡಚ್ಚನ್ ಎಐ ಕಂಪನಿಯಾದ 'ಸೆನಿಸಿ' 2019ರಲ್ಲಿ ಅಧ್ಯಯನವೊಂದನ್ನು ಕೈಗೊಂಡಿತ್ತು. ಇಲ್ಲಿ ಡೀಪ್‌ಫೇಕ್ ತಂತ್ರಜ್ಞಾನದ ಮೂಲಕ ಸೃಷ್ಟಿಸಲಾದ ನೂರಾರು ನೀಲಿಚಿತ್ರಗಳ ಅಧ್ಯಯನ ನಡೆಸಲಾಗಿತ್ತು. ಇಂಥ ಚಿತ್ರಗಳಲ್ಲಿ ಕಾಣಿಸಿಕೊಂಡಿದ್ದ ಮಹಿಳೆಯರನ್ನು ಕಂಪನಿ ಸಂಪರ್ಕಿಸಿತ್ತು. ಇವರುಗಳಲ್ಲಿ ಶೇ 96ರಷ್ಟು ಮಹಿಳೆಯರಿಗೆ ತಮ್ಮ ಭಾವಚಿತ್ರಗಳನ್ನು ಬಳಸಿಕೊಂಡು ಇಂಥದೊಂದನ್ನು ಸೃಷ್ಟಿಸಲಾಗಿದೆ ಎಂಬುದರ ಅರಿವೇ ಇರಲಿಲ್ಲ. ಇಷ್ಟಲ್ಲದೆ, ಗ್ರಾಹಕರ ಇಚ್ಛೆಯ ಅನುಸಾರ ಅವರು ಹೇಳಿದ

ಮಹಿಳೆಯರ ಭಾವಚಿತ್ರಗಳನ್ನು ಬಳಸಿಕೊಂಡು ನೀಲಿಚಿತ್ರಗಳನ್ನು ತಯಾರು ಮಾಡುವ ಉದ್ಯಮವೂ ಆರಂಭಗೊಂಡಿದೆ.

ಅಂತರ್ಜಾಲದಲ್ಲಿ ಮಹಿಳೆಯರ ಭಾವಚಿತ್ರಗಳು ಬಹಳ ಸುಲಭವಾಗಿ ದೊರೆಯುತ್ತವೆ. ನೀಲಿಚಿತ್ರಗಳನ್ನು ಸೃಷ್ಟಿಸಲು ಹೇಳಿಕೊಳ್ಳುವಂಥ ಕೌಶಲವೇನೂ ಬೇಕಾಗಿಲ್ಲ. ಯಾರೂ ಬೇಕಾದರೂ ಅತ್ಯಂತ ಕಡಿಮೆ ಖರ್ಚಿನಲ್ಲಿ ಇಂಥ ವಿಡಿಯೋಗಳನ್ನು ಸೃಷ್ಟಿಸಬಹುದಾಗಿದೆ. ಇದೇ ಕಾರಣಕ್ಕಾಗಿ ಮಹಿಳೆಯರೇ ಈ ತಂತ್ರಜ್ಞಾನದ ಬಲಿಪಶುಗಳಾಗುತ್ತಿದ್ದಾರೆ.

'2023 ಸ್ಪೆಟ್ ಆಫ್ ಡೀಪ್‌ಫೇಕ್...' ಸಮೀಕ್ಷೆಯಲ್ಲಿ ಮತ್ತೊಂದು ಮಹತ್ವದ ವಿಚಾರವನ್ನು ಪ್ರಸ್ತಾಪಿಸಲಾಗಿದೆ. ಡೀಪ್‌ಫೇಕ್ ತಂತ್ರಜ್ಞಾನವನ್ನು ಬಳಸಿಕೊಂಡು ನೀಲಿಚಿತ್ರಗಳನ್ನು ಸೃಷ್ಟಿಸಲು ಕೆಲವೇ ದೇಶಗಳ ಮಹಿಳೆಯರ ಭಾವಚಿತ್ರಗಳನ್ನು ಹೆಚ್ಚಾಗಿ ಬಳಸಿಕೊಳ್ಳಲಾಗುತ್ತಿದೆ. ಕೆಲವು ದೇಶಗಳ ಮಹಿಳೆಯರು ಹೆಚ್ಚು ಆಕರ್ಷಣೀಯರಾಗಿರುವುದು. ರಾಜಕೀಯ ಒತ್ತಡಗಳಿರಬಹುದು ಅಥವಾ ಕೆಲವು ದೇಶದ ಮಹಿಳೆಯರ ಬಗ್ಗೆ ಇರುವ ಕಲ್ಪನೆಗಳಿರಬಹುದು, ಗ್ರಾಹಕರ ಮನೋಭಿಲಾಷೆಯ ಕಾರಣಕ್ಕಾಗಿಯೂ ಕೆಲವೇ ದೇಶಗಳ ಮಹಿಳೆಯರ ಭಾವಚಿತ್ರಗಳನ್ನು ಬಳಸಿಕೊಳ್ಳಲಾಗುತ್ತದೆ. ಈ ಪಟ್ಟಿಯಲ್ಲಿ ದಕ್ಷಿಣ ಕೊರಿಯಾ ಪ್ರಥಮ ಸ್ಥಾನದಲ್ಲಿದೆ. ಭಾರತವು ಅರನೇ ಸ್ಥಾನದಲ್ಲಿದೆ.

ತನ್ನ ಸಂಗಾತಿಯನ್ನು ಹದುದುಬ್ಬಿನಲ್ಲಿ ಇಟ್ಟುಕೊಳ್ಳಬೇಕು ಎಂಬ ದೃಷ್ಟಿಯಿಂದ ಪುರುಷರು ಕೃತಕ ಬುದ್ಧಿಮತ್ತೆ ಮತ್ತು ಡೀಪ್‌ಫೇಕ್ ತಂತ್ರಜ್ಞಾನವನ್ನು ಬಳಸಿಕೊಳ್ಳುತ್ತಿರುವ ಪ್ರಕರಣಗಳು ವರದಿಯಾಗುತ್ತಿವೆ. ತಮ್ಮ ಸಂಗಾತಿಯ ಭಾವಚಿತ್ರಗಳನ್ನು ಅವರ ಅನುಮತಿ ಇಲ್ಲದೆಯೇ ಬಳಸಿಕೊಂಡು, ಅದರಿಂದ ಅಶ್ಲೀಲವಾದ ಕಂಟೆಂಟ್‌ನನ್ನು ಸೃಷ್ಟಿಸಿ ಇಟ್ಟುಕೊಳ್ಳುವುದು. ಇದನ್ನು ತೋರಿಸಿ, ಮಹಿಳೆಯರ ಮೇಲೆ ದೌರ್ಜನ್ಯ ಎಸಗುವುದು. ಈ ಬಗ್ಗೆ ವಿವಿಧರಗಳಲ್ಲಿ ಹಲವು ಮಹಿಳೆಯರು ದೂರು ನೀಡಿದ್ದಾರೆ. ಈ ಬಗ್ಗೆ ದೊಡ್ಡ ಮಟ್ಟದ ಚರ್ಚೆಯೂ ನಡೆಯುತ್ತಿದೆ.

ದುರ್ಬಳಕೆಯ ಅಪಾಯ ಹೆಚ್ಚಿಸಿದ ತಂತ್ರಜ್ಞಾನ

ಡೀಪ್‌ಫೇಕ್ ನೀಲಿಚಿತ್ರಗಳನ್ನು ಸೃಷ್ಟಿ ಮಾಡುವ ಮೂಲಕ ಮಹಿಳೆಯರನ್ನು ಶೋಷಣೆಗೆ ಒಳಪಡಿಸಲಾಗುತ್ತಿದೆ. ಇದು 'ಕೇವಲ' ದೌರ್ಜನ್ಯವಲ್ಲ. ಅದಕ್ಕಿಂತ ಹೆಚ್ಚಿನದು.

ಕೃಷಿಗಂಧೇಶ್, ಅಮೆರಿಕದ ಖಾತ್ರಿ ಟೆಕ್ ಸ್ಟೀಮರ್ (ಇವರ ಭಾವಚಿತ್ರವನ್ನು ಬಳಸಿ ಡೀಪ್‌ಫೇಕ್ ನೀಲಿಚಿತ್ರವನ್ನು ಸೃಷ್ಟಿಸಲಾಗಿತ್ತು. ಜನರಿಯಲ್ಲಿ ಇದು ಭಾರಿ ಸುದ್ದಿಯಾಗಿತ್ತು.)

ಕೃತಕ ಬುದ್ಧಿಮತ್ತೆ (ಎಐ) ಸೃಷ್ಟಿಸಿದ ವಿಡಿಯೋ ಮತ್ತು ಚಿತ್ರಗಳಿಗೂ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ ಮತ್ತು ಚಿತ್ರಗಳಿಗೂ ತುಂಬಾ ವ್ಯತ್ಯಾಸವಿದೆ. ಎಐ ತಂತ್ರಜ್ಞಾನ ಬಳಸಿಕೊಂಡು ಶೂನ್ಯದಿಂದ ಸೃಷ್ಟಿಸಿದ ವಿಡಿಯೋ ಅಥವಾ ಚಿತ್ರಗಳನ್ನು ಎಐ ಸೃಷ್ಟಿಸಿದ ವಿಡಿಯೋ ಅಥವಾ ಚಿತ್ರ ಎಂದು ಕರೆಯಲಾಗುತ್ತದೆ. ಈಗಾಗಲೇ ಚಿತ್ರಕಲೆಗಳನ್ನು ವಿಡಿಯೋಗೆ ಬೇರೊಬ್ಬರ ಧ್ವನಿ ಅಥವಾ ಮುಖವನ್ನು ಸಂಯೋಜಿಸುವ ಪ್ರಕ್ರಿಯೆಯೇ ಡೀಪ್‌ಫೇಕ್ ಮತ್ತು ಅದರ ಉತ್ಪನ್ನವೇ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ.

ಯಾವುದೇ ವಿಡಿಯೋ ಮತ್ತು ಚಿತ್ರವನ್ನು ಡೀಪ್‌ಫೇಕ್ ಮಾಡುವುದು ಸುಲಭದ ಕೆಲಸವಲ್ಲ. 2017ರಿಂದ ಡೀಪ್‌ಫೇಕ್ ಪರಿಕಲ್ಪನೆ ಬಳಕೆಯಲ್ಲಿದೆ. ಸಿಜಿಬಿಎಂಎಂಎಂ ಅತ್ಯಾಧುನಿಕ ಅಪ್ಲಿಕೇಷನ್‌ಗಳನ್ನು ಬಳಸಿಕೊಂಡು ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋಗಳನ್ನು ಸೃಷ್ಟಿಸಲಾಗುತ್ತಿತ್ತು. 'ಅ' ಅನ್ನುವ ಗಣ್ಯವ್ಯಕ್ತಿಯ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋವನ್ನು ಸೃಷ್ಟಿಸಬೇಕು ಎಂಬುದು ಕಷ್ಟ. ಮೊದಲಿಗೆ 'ಅ' ಎಂಬ ವ್ಯಕ್ತಿಯ ನೂರಾರು ವಿಡಿಯೋ ಮತ್ತು ಚಿತ್ರಗಳನ್ನು ಒಂದೆಡೆ ಕಲೆಹಾಕಿ, ಅವರ ಮುಖದ ಪೂರ್ವಲ್ ಅನ್ನು ರೂಪಿಸಲಾಗುತ್ತಿತ್ತು. ಅ ವ್ಯಕ್ತಿ ಮಾತನಾಡುವ ರೀತಿ, ತುಟಿ ಚಲನೆ, ಮುಖದ ಭಾವ, ಹುದ್ದಿನ ಚಲನೆ, ಕಣ್ಣಿನ ರೇಖೆ ಬಿಡಿಯುವುದು ಇತ್ಯಾದಿ ವಿವರಗಳನ್ನು ಆ ಪೂರ್ವಲ್ ಹೊಂದಿರುತ್ತಿತ್ತು. ಅಂತಹ ಪೂರ್ವಲ್ ರೂಪಿಸುವ ಕೆಲಸವನ್ನು ಎಐ ತಂತ್ರಜ್ಞಾನ ಮಾಡುತ್ತಿತ್ತು.

ನಂತರ ಸಾಮಾನ್ಯ ವ್ಯಕ್ತಿಯೊಬ್ಬರು ಮಾತನಾಡುವುದನ್ನು ವಿಡಿಯೋವನ್ನು ಚಿತ್ರೀಕರಿಸಲಾಗುತ್ತಿತ್ತು. ಅ ವಿಡಿಯೋಗೆ 'ಅ' ಎಂಬ ವ್ಯಕ್ತಿಯ ಪೂರ್ವಲ್ ಅನ್ನು ಸಂಯೋಜಿಸಲಾಗುತ್ತಿತ್ತು. ಎಐ ಈ ಕೆಲಸ ಮಾಡಿದರೂ ಅತ್ಯಂತ ಸಾಧಾರಣ



ಸಂಯೋಜನೆಗಳನ್ನು ಕಲಾವಿದನೇ ಮಾಡಬೇಕಿತ್ತು. ಹೀಗಾಗಿ ಒಂದೆರಡು ನಿಮಿಷಗಳ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ ಸೃಷ್ಟಿಸಲು ನಾಲ್ಕಾರು ವಾರಗಳಷ್ಟು ಸಮಯ ಬೇಕಾಗಿತ್ತು. ಅಂತಹ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋಗಳನ್ನು ಸೃಷ್ಟಿಸಿಕೊಡುವ ಹಲವು ಕಂಪನಿಗಳು ಕಾರ್ಯನಿರ್ವಹಿಸುತ್ತಿವೆ. ಹೆಚ್ಚು

ಸಮಯ ಮತ್ತು ದುಬಾರಿ ವೆಚ್ಚ ಮಾಡಿದರೂ, ವಾಸ್ತವಕ್ಕೆ ಹತ್ತಿರವಿರುವಂತಹ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ ಸೃಷ್ಟಿಯಾಗುತ್ತದೆ. ಹೀಗಾಗಿ 2017ರಿಂದ ಬಳಕೆಯಲ್ಲಿ ಇದ್ದರೂ, ಇದು ಜನಪ್ರಿಯವಾಗಿರಲಿಲ್ಲ ಮತ್ತು ಇದೊಂದು ಪಿಡುಗು ಎಂಬಂತೆಯೂ ಆಗಿರಲಿಲ್ಲ.

ಆದರೆ, ಈ ಎಲ್ಲಾ ಕೆಲಸವನ್ನು ಕೃತಕ ಬುದ್ಧಿಮತ್ತೆಯೇ ಮಾಡಿಮುಗಿಸುವ ಕಾಲದಲ್ಲಿ ನಾವಿರೋವೆ. ಕೆಲವೇ ನಿಮಿಷಗಳಲ್ಲಿ ಮತ್ತು ಯಾವುದೇ ಶುಲ್ಕವಿಲ್ಲದೆ ಇಂತಹ ವಿಡಿಯೋ ಮತ್ತು ಚಿತ್ರಗಳನ್ನು ಸೃಷ್ಟಿಸುವ ಹತ್ತಾರು ಅಪ್ಲಿಕೇಷನ್‌ಗಳು ಬಳಕೆಗೆ ಬಂದಿವೆ. ನಗಣ್ಯ ಎನ್ನುವಷ್ಟು ಕಡಿಮೆ ತೆರಿಗೆ ಸಾಕು, ನಿಜಕ್ಕೆ ಹತ್ತಿರ ಎನಿಸುವ ವಿಡಿಯೋ ಮತ್ತು ಚಿತ್ರಗಳನ್ನು ಅವು ಕೆಲವೇ ನಿಮಿಷಗಳಲ್ಲಿ ಸೃಷ್ಟಿಸಿಕೊಡುತ್ತವೆ.

ಸಾಮಾಜಿಕ ಜಾಲತಾಣಗಳಲ್ಲಿ ಇರುವ ಯಾವುದೇ ಒಂದು ವಿಡಿಯೋ, ಜನಪ್ರಿಯ ವ್ಯಕ್ತಿಯೊಬ್ಬರ ಮುಖವನ್ನು ಕೂರಿಸಿಕೊಂಡು ಎಂದೂ ಕೇವಲ 'ಟೆಕ್ಸ್' ಮೂಲಕ ಅದೇಶ ನೀಡಿದರೆ ಸಾಕು. ವಿಡಿಯೋ ಸೃಷ್ಟಿಯಾಗಿದೆಯೆಂದು ದುಡ್ಡುಕೊಟ್ಟು ಬಳಸುವ ಅಪ್ಲಿಕೇಷನ್‌ಗಳು ಮತ್ತು ದುಬಾರಿ ಶುಲ್ಕ ಪಡೆದು ಕೆಲಸ ಮಾಡುವ ಡೀಪ್‌ಫೇಕ್ ಕಂಪನಿಗಳು ತಾಂತ್ರಿಕವಾಗಿ ಅತ್ಯುತ್ತಮವಾದ ವಿಡಿಯೋಗಳನ್ನು ಸೃಷ್ಟಿಸುತ್ತವೆ. ರಶ್ಮಿಕಾ ಮಂಡಣಿ ಅವರ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ ಸೃಷ್ಟಿಯಾಗಿದ್ದು ಇದೇ ಶೇತಿ ಎಂದೂ ಅಂದಾಜಿಸಲಾಗಿದೆ. ಪೋರ್ಟೋಶಾಪ್, ಇನ್ಸ್ಟ್ರೀಟ್, ಸಿಜಿಬಿಎಂಎಂಎಂ ಅಪ್ಲಿಕೇಷನ್‌ಗಳ ಬಳಕೆ ಗೊತ್ತಿಲ್ಲದಂತಹ ಸಾಮಾನ್ಯ ವ್ಯಕ್ತಿಯೂ ಅಂತಹ ವಿಡಿಯೋ ಸೃಷ್ಟಿಸಲು ಸಾಧ್ಯವಾಗುವಷ್ಟರ ಮಟ್ಟಿಗೆ ತಂತ್ರಜ್ಞಾನ ಬೆಳೆದಿದೆ.

ಕಲಿಕೆಯ ಭಾಗವಾಗಿ ರಾಯಿಟರ್ಸ್ ಸುದ್ದಿಸಂಸ್ಥೆ

ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ ಒಂದನ್ನು ಸೃಷ್ಟಿಸಿತ್ತು. ತನ್ನದೇ ಇಂಗ್ಲಿಷ್ ಭಾಷಾ ವಿಭಾಗದಲ್ಲಿ ಕೆಲಸ ಮಾಡುವ ಸಿಬ್ಬಂದಿಯ ಸುದ್ದಿ ನಿರೂಪಿಯೊ ವಿಡಿಯೋ ಚಿತ್ರೀಕರಿಸಿಕೊಂಡಿತ್ತು. ಜಕ್ವೆಟ್ ಫ್ರೆಂಚ್ ಭಾಷೆಯಲ್ಲಿ ನಿರೂಪಣೆ ಮಾಡುವ ತನ್ನದೇ ಸಿಬ್ಬಂದಿಯ ಇನ್ನೊಂದು ವಿಡಿಯೋವನ್ನೂ ಚಿತ್ರೀಕರಿಸಿಕೊಂಡಿತ್ತು. ಇವುಗಳನ್ನು ಬಳಸಿಕೊಂಡು ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ ಸೃಷ್ಟಿಸುವಂತೆ ಫ್ರಾನ್ಸ್ ಡೀಪ್‌ಫೇಕ್ ಕಂಪನಿ ಒಂದಕ್ಕೆ ತಿಳಿಸಿತ್ತು. ಆ ಕಂಪನಿಯು ಕೆಲವೇ ಗಂಟೆಗಳಲ್ಲಿ ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ ಸೃಷ್ಟಿಸಿಕೊಟ್ಟಿತ್ತು. ಇಂಗ್ಲಿಷ್ ನಿರೂಪಣೆ ತನ್ನದೇ ಧ್ವನಿಯಲ್ಲಿ, ಫ್ರೆಂಚ್ ಭಾಷೆಯಲ್ಲಿ ನಿರೂಪಣೆ ಮಾಡುವಂತೆ ವಿಡಿಯೋವನ್ನು ಸೃಷ್ಟಿಸಲಾಗಿತ್ತು. ಅಕೆಯ ತುಟಿಚಲನೆಯನ್ನೂ, ಫ್ರೆಂಚ್ ಉಚ್ಚಾರಣೆ ಹೊಂದುವಂತೆ ತಿರುಗಿಸಲಾಗಿದೆ. ಇದನ್ನು ರಾಯಿಟರ್ಸ್ ತನ್ನ ಸಿಬ್ಬಂದಿಗೆ ತೋರಿಸಿತ್ತು. ಡೀಪ್‌ಫೇಕ್ ವಿಡಿಯೋ ಸೃಷ್ಟಿ ಪ್ರಕ್ರಿಯೆಯಲ್ಲಿ ಭಾಗಿಯಾಗಿದ್ದವರಿಗಷ್ಟೇ ಅದು, ನಕಲಿ ವಿಡಿಯೋ ಎಂದು ಗೊತ್ತಾಗಿತ್ತು. ಉಳಿದವರಿಗೆ ಅದು ನಕಲಿ ವಿಡಿಯೋ ಎಂಬುದು ಗೊತ್ತಾಗಲೇ ಇಲ್ಲ. ಈ ಸಾಧ್ಯತೆಯೇ, ಈ ತಂತ್ರಜ್ಞಾನದ ದುರ್ಬಳಕೆಯ ಅಪಾಯಗಳನ್ನೂ ಹೆಚ್ಚಿಸುವುದು.

ಆಧಾರ: ವಿಟಿವಿ, ರಾಯಿಟರ್ಸ್, ಎಎಫ್‌ಪಿ

ತಂತ್ರಜ್ಞಾನ



4

ಒಣಗಿದರೂ ನಾಯದ ಸೊಳ್ಳೆ!

ಸೊಳ್ಳೆಗಳ ಮೊಟ್ಟೆಗಳು ಒಣಗಿದಮೇಲೂ ಜೀವಂತವಾಗಿರುವುದು ಹೇಗೆ ಎನ್ನುವ ಗುಟ್ಟು ರಟ್ಟಾಯಿತೇ?



ಕೊಳ್ಳೇಗಾಲ ಶರ್ಮ

‘ಮಳೆ ಬಂದು ಹೋದ ಮೇಲೆ ಮಲೇರಿಯಾ’ ಎನ್ನುವ ಕಾಲ ಹೋಯಿತು. ಈಗ ಚಿಕುನ್‌ಗುನ್ಯ, ಡೆಂಗಿ ಜ್ವರಗಳ ಕಾಲ. ಡೆಂಗಿ, ಚಿಕುನ್‌ಗುನ್ಯದಂತಹ ರೋಗಗಳು ಕಾಣಿಸಿಕೊಳ್ಳುವಷ್ಟು ಆಗಾಗ್ಗೆ ಮಲೇರಿಯಾ ಕಾಣಿಸಿಕೊಳ್ಳುವುದಿಲ್ಲವಲ್ಲ ಎಂಬುದೇ ಅಚ್ಚರಿ. ಇದಕ್ಕೆ ಆ ಸೊಳ್ಳೆಯ ಮೊಟ್ಟೆ ಎಷ್ಟೇ ಒಣಗಿದರೂ ಬದುಕಿ ಉಳಿಯುವುದೂ ಕಾರಣವಿರಬಹುದು. ಡೆಂಗಿ, ಚಿಕುನ್‌ಗುನ್ಯ ಹರಡುವ ಈಡಿಸ್ ಈಜಿಪ್ಟಿ ಸೊಳ್ಳೆಯ ಮೊಟ್ಟೆಗಳು ಒಣಗಿದರೂ ಸಾಯುವುದಿಲ್ಲವೇಕೆ ಎನ್ನುವ ಗುಟ್ಟನ್ನು ಬೆಂಗಳೂರಿನ ‘ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್ ಆಫ್ ಸೈಮ್ ಸೆಲ್ ಸೈನ್ಸ್ ಅಂಡ್ ರೀಜನರೇಟಿವ್ ಮೆಡಿಸಿನ್’ (‘ಇನ್‌ಸೈಮ್’) ಸಂಸ್ಥೆಯ ವಿಜ್ಞಾನಿಗಳು ರಟ್ಟು ಮಾಡಿದ್ದಾರೆ. ಸಂಸ್ಥೆಯ ವಿಜ್ಞಾನಿ ಸುನಿಲ್ ಲಕ್ಷ್ಮಣ್ ಮತ್ತು ಸಂಗಡಿಗರ ಪ್ರಕಾರ ನೀರಿಲ್ಲದ ಒಣಗಿದ ಈಡಿಸ್ ಸೊಳ್ಳೆಯ ಲಾರ್ವಾಗಳಲ್ಲಿ ಜೈವಿಕ ಚಟುವಟಿಕೆಗಳು ಕಡಿಮೆಯಾಗುವುದಲ್ಲದೆ, ಮುಂದೊಮ್ಮೆ ನೀರು ಸಿಕ್ಕಾಗ ಮರಳಿ ಚೇತರಿಸಿಕೊಳ್ಳಲು ಬೇಕಾದ ಶಕ್ತಿಯೂ ಸಂಗ್ರಹವಾಗುತ್ತದೆ.

ಗಂಡು ಮತ್ತು ಹೆಣ್ಣು ಈಡಿಸ್ ಸೊಳ್ಳೆಗಳು (ಚಿತ್ರಕೃಷಿ: ಅಂಜನಾ ಪ್ರಸಾದ್)



ಮೊಟ್ಟೆಗಳು ಸ್ವಲ್ಪ ಮಟ್ಟಿಗೆ ಹೀಗೆ ಒಣಗಿದರೂ ತಾಳಿಕೊಳ್ಳುತ್ತವೆ. ಆದರೆ ಈಡಿಸ್ ಈಜಿಪ್ಟಿಯ ಮೊಟ್ಟೆಗಳು ಅತಿಯಾಗಿ ಒಣಗಿದರೂ ಬದುಕುಳಿಯುತ್ತವೆ’ ಎಂದು, ಈ ಸಂಶೋಧನೆಗೆ ಪ್ರೇರಣೆ ಏನೆಂದು ಸುನಿಲ್ ಲಕ್ಷ್ಮಣ್ ವಿವರಿಸಿದ್ದಾರೆ. ಈಡಿಸ್ ಈಜಿಪ್ಟಿಯ ಮೊಟ್ಟೆಗಳಿಗೆ ಒಣಗಿದರೂ ಬದುಕಿ ಉಳಿಯುವ ಸಾಮರ್ಥ್ಯ ಬಂದಿದ್ದು ಹೇಗೆ ಎನ್ನುವುದನ್ನು ಪರೀಕ್ಷಿಸಲು ಇವರ ತಂಡ ಹಲವಾರು ಪ್ರಯೋಗಗಳನ್ನು ಮಾಡಿದೆ. ಈಡಿಸ್ ಹಾಗೂ ಅನಾಫಿಲೀಸ್ ಸೊಳ್ಳೆಗಳನ್ನು ಸಾಕಿ, ಮೊಟ್ಟೆಗಳನ್ನು ಇಡಿಸಿ, ಆ ಮೊಟ್ಟೆಗಳನ್ನು ಎರಡು ತಂಡಗಳನ್ನಾಗಿ ಮಾಡಿದೆ. ಮೊದಲನೆಯ ತಂಡದ ಮೊಟ್ಟೆಗಳನ್ನು ಸಾಧಾರಣವಾಗಿ ಬೆಳೆಯುವಂತೆಯೇ ಬಿಟ್ಟು, ಎರಡನೆಯ ತಂಡದ ಮೊಟ್ಟೆಗಳನ್ನು ಸೊಂಸುವ ಕಾಗದದ ಮೇಲಿಟ್ಟು ವಿವಿಧ ಅವಧಿಗೆ ಒಣಗಿಸಿದ್ದಾರೆ. ಅನಂತರ ಮತ್ತೆ ಅವುಗಳು ಬೆಳೆಯುವವೋ ಎಂದು ಪರೀಕ್ಷಿಸಿದ್ದಾರೆ. ಅನಾಫಿಲೀಸ್ ಮೊಟ್ಟೆಗಳು ಒಣಗಲು ಆರಂಭಿಸಿದ ಮೂರನೆಯ ದಿನದಷ್ಟು ಹೊತ್ತಿಗೆ ಸತ್ತಿದ್ದವು. ಅವುಗಳಿಂದ ಯಾವುದೇ ಲಾರ್ವಾ ಹುಟ್ಟಿಲ್ಲ. ಆದರೆ ಈಡಿಸ್ ಸೊಳ್ಳೆಯ ಮೊಟ್ಟೆಗಳನ್ನು ಇಪ್ಪತ್ತೊಂದು ದಿನಗಳ ಕಾಲ ಒಣಗಿಸಿದ ಮೇಲೂ ಅವುಗಳಿಂದ ಲಾರ್ವಾ ಜನಿಸಿದುವು.

‘ಕೆಲವೇ ಮೊಟ್ಟೆಗಳಿದ್ದರೂ, ಒಣಗಿದಮೇಲೂ ತಿಂಗಳುಗಳ ಕಾಲ ಅವು ಬದುಕಿ ಉಳಿಯುತ್ತವೆ. ಒಮ್ಮೆ ತೇವವಾದರೆ ಚೇತರಿಸಿಕೊಳ್ಳುತ್ತವೆ’ ಎನ್ನುತ್ತಾರೆ, ಸುನಿಲ್ ಲಕ್ಷ್ಮಣ್. ಈಡಿಸ್‌ಗಳು ಕೂಡ ಇತರ ಸೊಳ್ಳೆಗಳಂತೆಯೇ ನೀರಿನಲ್ಲಿಯೇ ಮೊಟ್ಟೆಗಳನ್ನು ಇಡುತ್ತವೆ. ಆದರೆ ಭಾರತದಂತಹ ಸಮಶೀತೋಷ್ಣ ವಲಯದಲ್ಲಿರುವ ಪ್ರದೇಶಗಳಲ್ಲಿ ಮಳೆಗಾಲದಲ್ಲಿಯೂ ನಡು, ನಡುವೆ ಬೇಗಿಯ ದಿನಗಳು ಇರುವುದರಿಂದ ಪುಟ್ಟ ಹಳ್ಳಗಳಲ್ಲಿರುವ ನೀರು ಒಣಗಿ ಹೋಗುವುದುಂಟು. ಹೀಗಾಗಿ ಸಂಪೂರ್ಣ ಒಣಗಿದರೂ, ಸುಪ್ತ ಸ್ಥಿತಿಯಲ್ಲಿರುವ ಈ ಸ್ಥಿತಿ ಅವಕ್ಕೆ ಉಳಿವಿನ ಹಾದಿಯಾಗುತ್ತದೆ. ಸೊಳ್ಳೆಗಳು ಮೊಟ್ಟೆಗಳನ್ನು ಇಟ್ಟ ನಂತರ ಏಷ್ಟು ಹೊತ್ತಿಗೆ ಈ ಸಾಮರ್ಥ್ಯ ಬೆಳೆಯಬಹುದು ಎಂದೂ ಲಕ್ಷ್ಮಣ್‌ರ ತಂಡ ಪರೀಕ್ಷಿಸಿದೆ. ಹತ್ತು ಗಂಟೆಗಳ ನಂತರ ಒಣಗಲು ಆರಂಭಿಸಿದ ಸೊಳ್ಳೆಮೊಟ್ಟೆಗಳು ದೀರ್ಘಕಾಲ ಒಣಗಿದ್ದರೂ ಹೆಚ್ಚು ಲಾರ್ವಾಗಳನ್ನು ಹುಟ್ಟಿಸಿದುವು. ಅರ್ಧಾತ್, ಸೊಳ್ಳೆಯ ಲಾರ್ವಾದ ಬೆಳವಣಿಗೆಯ ಕೆಲವು

ಹಂತಗಳನ್ನು ದಾಟದ ಮೇಲಷ್ಟೆ ಒಣಗಿಸಿದರೂ ಬದುಕುತ್ತದೆ ಎಂದಾಯಿತು.

ಸಾಧಾರಣವಾಗಿ ಬೆಳೆದ ಸೊಳ್ಳೆಯ ಲಾರ್ವಾ ಹಾಗೂ ಒಣಗಿಸಿ, ಮರಿ ಮಾಡಿದ ಮೊಟ್ಟೆಗಳ ಲಾರ್ವಾಗಳಲ್ಲಿ ಏನೇನು ಬದಲಾವಣೆಗಳಾಗುತ್ತವೆ ಎಂದೂ ಅಧ್ಯಯನ ಮಾಡಿದ್ದಾರೆ. ಲಾರ್ವಾಗಳನ್ನು ಅರೆದು ಅವುಗಳಲ್ಲಿ ವಿವಿಧ ಸಮಯಗಳಲ್ಲಿ ಇರುವ ಪ್ರೋಟೀನ್, ಕಾರ್ಬೋಹೈಡ್ರೇಟ್, ಕೊಬ್ಬಿನ ಈ ಅಣುಗಳನ್ನು ಪರಿಶೀಲಿಸಿದ್ದಾರೆ. ಎರಡರಲ್ಲಿಯೂ ಹಲವು ಪ್ರಮುಖ ವ್ಯತ್ಯಾಸಗಳನ್ನು ಗುರುತಿಸಿದ್ದಾರೆ. ಉದಾಹರಣೆಗೆ, ಪಾಲಿ ಅಮೈನುಗಳನ್ನುವ ರಾಸಾಯನಿಕಗಳ ಪ್ರಮಾಣ ಒಣಗಿದ ಮೊಟ್ಟೆಗಳಿಂದ ಬೆಳೆದ ಲಾರ್ವಾಗಳಲ್ಲಿ ಹೆಚ್ಚು. ಜೊತೆಗೆ ಉಸಿರಾಟದಲ್ಲಿ ಪಾಲ್ಗೊಳ್ಳುವ ಕೆಲವು ಕಿಣ್ವಗಳ ಪ್ರಮಾಣದಲ್ಲಿಯೂ ವ್ಯತ್ಯಾಸಗಳನ್ನು ಕಂಡಿದ್ದಾರೆ. ಈ ಕಿಣ್ವಗಳು ವಿಶೇಷವಾಗಿ ಕೊಬ್ಬನ್ನು ಒಡೆಯುವ ಅಂಶಗಳು. ಕೊಬ್ಬಿನ ಅಂಶ ಕಡಿಮೆಯಾಗಿ ಪಾಲಿ-ಅಮೈನುಗಳ ಅಂಶ ಒಣಗಿದ ಮೊಟ್ಟೆಗಳಿಂದ ಹುಟ್ಟಿದ ಲಾರ್ವಾಗಳಲ್ಲಿ ಹೆಚ್ಚು. ಹೀಗೆ ಅರೆಗಿದ ಕೊಬ್ಬು ಮೊಟ್ಟೆ ಮರಳಿ ಚೇತರಿಸಿಕೊಂಡಾಗ ಶಕ್ತಿಯನ್ನು ತಕ್ಷಣವೇ ಬದಗಿಸಲು ನೆರವಾಗುತ್ತಿರಬಹುದು ಎಂಬುದು ಇವರ ಊಹೆ.

ಈ ಊಹೆ ಸರಿಯೇ ತಪ್ಪೋ ಎನ್ನುವುದನ್ನು ಪರೀಕ್ಷಿಸಲು ಪಾಲಿ-ಅಮೈನುಗಳ ತಯಾರಿಕೆಯಲ್ಲಿ ಪಾಲ್ಗೊಳ್ಳುವ ‘ಅರ್ನಿಫಿನ್ ಡಿಹಾರ್ಬಾಕ್ಸಿಲೀಸ್’ ಎನ್ನುವ ರಾಸಾಯನಿಕದ ಚಟುವಟಿಕೆಯನ್ನು ನಿರ್ಬಂಧಿಸಿಯೂ ಪರೀಕ್ಷೆ ಮಾಡಲಾಗಿದೆ. ಈ ಕಿಣ್ವದ ಚಟುವಟಿಕೆಯನ್ನು ತಗ್ಗಿಸುವ ‘ಡೈಪ್ಟೊರೋಮಿನ್ ಡೈಲ್’- ಅರ್ನಿಫಿನ್’ ಎನ್ನುವ ರಾಸಾಯನಿಕವನ್ನು ಹೆಣ್ಣು ಸೊಳ್ಳೆಗಳಿಗೆ ನೀಡಿ, ಅವುಗಳಿಗೆ ಹುಟ್ಟಿದ ಮೊಟ್ಟೆಗಳನ್ನು ಪರೀಕ್ಷಿಸಿದ್ದಾರೆ. ಈ ಮೊಟ್ಟೆಗಳಲ್ಲಿ ಪಾಲಿ-ಅಮೈನುಗಳ ಪ್ರಮಾಣ ಕಡಿಮೆ ಇತ್ತಷ್ಟೆ ಅಲ್ಲ, ಅವುಗಳಲ್ಲಿ ಒಣಗಿಸಿದ ನಂತರ ಚೇತರಿಸಿಕೊಳ್ಳುವ ಮೊಟ್ಟೆಗಳ ಪ್ರಮಾಣ ಕಡಿಮೆ ಇತ್ತು. ಕೊಬ್ಬಿನ ಸಂಶ್ಲೇಷಣೆಯನ್ನು ತಡೆಗಟ್ಟುವ ಔಷಧವನ್ನು ಬಳಸಿದಾಗಲೂ, ಮೊಟ್ಟೆಗಳು ಮರಿಯಾಗುವ ಪ್ರಮಾಣ ಕಡಿಮೆಯಾಗಿತ್ತು.

‘ನಮ್ಮ ಅಧ್ಯಯನಗಳ ಪ್ರಕಾರ ಈಡಿಸ್ ಸೊಳ್ಳೆಯ ಮೊಟ್ಟೆಗಳನ್ನು ಸಂಪೂರ್ಣ ಒಣಗಿಸಿದರೂ ಬದುಕಿ ಉಳಿಯುವುದರಲ್ಲಿ ಬಾಂಪಿಯನ್ನುಗಳು’ ಎನ್ನುತ್ತಾರೆ. ಲಕ್ಷ್ಮಣ್. ಆದರೆ ಈ ಸಾಮರ್ಥ್ಯ ಪೂರ್ಣ ಪ್ರಮಾಣದಲ್ಲಿ ತೋರ್ಪಡಬೇಕಾದರೆ, ಮೊಟ್ಟೆಗಳು ಸ್ವಲ್ಪ ಮಟ್ಟಿಗೆ ಬಲಿತ ಮೇಲೆ, ಅಥವಾ ಒಳಗೆ ಲಾರ್ವಾದ ಬೆಳವಣಿಗೆ ತುಸು ಆರಂಭವಾದ ಮೇಲೆ ಸಂಪೂರ್ಣ ಒಣಗಿದರೂ ಬದುಕಿ ಉಳಿಯುತ್ತವೆ, ಇಲ್ಲದಿದ್ದರೆ ಇಲ್ಲ. ಬಹುಶಃ ಒಣಗುವುದನ್ನು ತಾಳಿಕೊಳ್ಳಲು ಬೇಕಾದ ರಾಸಾಯನಿಕಗಳನ್ನು ತಯಾರಿಸಿಕೊಳ್ಳಲು ಈ ಸಮಯ ಬೇಕೇನೋ?’ ಎಂದು ಲಕ್ಷ್ಮಣ್ ತರ್ಕಿಸಿದ್ದಾರೆ.

‘ಮೊಟ್ಟೆಗಳು ಒಣಗಿದರೂ ಹೇಗೆ ಬದುಕಿ ಉಳಿಯುತ್ತವೆ ಎನ್ನುವ ಈ ಸಂಶೋಧನೆ ಜೀವವಿಜ್ಞಾನದ ಕೆಲವು ಜೀವಿಗಳಿಗೆಷ್ಟೆ ಈ ಸಾಮರ್ಥ್ಯ ಇದೆಯೇಕೆ ಎಂದು ತಿಳಿಸುತ್ತದೆ. ಜೊತೆಗೆ ಮಧ್ಯಪ್ರಾಚ್ಯದಲ್ಲಿ ಜನಿಸಿದ ಈಡಿಸ್ ಈಜಿಪ್ಟಿ ಈಗ ಪ್ರಪಂಚದ ಎಲ್ಲೆಡೆಯೂ ಹರಡಿಕೊಂಡಿರುವುದಕ್ಕೆ ಕಾರಣ ಹಾಗೂ ಸೊಳ್ಳೆಯ ಕಾಟವನ್ನು ತಡೆಯುವ ಉಪಾಯವನ್ನೂ ಸೂಚಿಸಬಹುದು’ ಎನ್ನುತ್ತಾರೆ, ಸುನಿಲ್ ಲಕ್ಷ್ಮಣ್. ಹೆಣ್ಣುಸೊಳ್ಳೆಗಳಲ್ಲಿ ಈ ಸಾಮರ್ಥ್ಯವನ್ನು ತಡೆಗಟ್ಟುವಂತಹ ಸ್ತ್ರೀಗಳು, ಮುಲಾಮುಗಳನ್ನು ತಯಾರಿಸಿದರೆ, ಮೊಟ್ಟೆಗಳು ಮರಿಯಾಗದಂತೆಯೇ ತಡೆಯಬಹುದು ಎನ್ನುವುದು ಈ ವಿಜ್ಞಾನಿಗಳ ಆಶಯ.

✧



ಉರುಳದೆ ನಿಂತಿದೆ ಹುಳುವಿನ ಕಾಲ

ಗಣೇಶ್ ಭಟ್ ನೆಲಮಾವ್

ದೇವಾಸುರ ಕಾಳಗ ಉಚ್ಚಾಯ ಸ್ಥಿತಿಯಲ್ಲಿದ್ದ ಸಮಯ. ದೇವತೆಗಳ ಪಕ್ಷಕ್ಕೆ ಸೇನಾಪತಿ ಇಂದ್ರ ಕಾರಣ ಯುದ್ಧದಲ್ಲಿ ಅಸುರರ ಕೈ ಮೇಲಾಗತೊಡಗಿ, ದೇವತೆಗಳು ಮುಚುಕುಂದ ಎಂಬ ಪರಾಕ್ರಮಿ ರಾಜನ ಬಳಿ ಸಹಾಯ ಕೇಳಿದರು. ದೇವತೆಗಳಿಗೆ 'ತಥಾಸ್ತು' ಎಂದ ಮುಚುಕುಂದ ಅವರ ಪರವಾಗಿ ದೇವಲೋಕದಲ್ಲಿ ವರ್ಷಗಳ ಕಾಲ ದಣಿವರಿಯದೆ ಯುದ್ಧ ಮಾಡಿ, ದೇವತೆಗಳು ಸೋಲದಂತೆ ನೋಡಿಕೊಂಡ. ಮುಚುಕುಂದನ ಸಹಾಯಕ್ಕೆ ಪ್ರತಿಯಾಗಿ ವರ ಕೇಳುವಂತೆ ಇಂದ್ರ ಹೇಳಿದ. ಆದರೆ ದೇವಲೋಕದ ಒಂದು ವರ್ಷ ಭೂಲೋಕದ 360 ವರ್ಷಗಳಿಗೆ ಸಮನಾಗಿದ್ದ ಕಾರಣ, ಭೂಮಿಯಲ್ಲಿ ಮುಚುಕುಂದನ ಸಾಮ್ರಾಜ್ಯ, ಪರಿವಾರ, ಸ್ನೇಹಿತರು ಮುಂತಾಗಿ ಯಾರೂ ಉಳಿದಿರಲಿಲ್ಲ. ಭೂಮಿಯಲ್ಲಿ ತನ್ನದು ಎಂಬುದು ಏನೂ ಉಳಿದಿರದಿದ್ದ, ಮತ್ತು ವರ್ಷಗಳ ಕಾಲ ಮಾಡಿದ ಯುದ್ಧದಿಂದ ಅತಿಯಾಗಿ ದಣಿದಿದ್ದ ಮುಚುಕುಂದ ತನಗೆ ಸುದೀರ್ಘವಾದ ನಿದ್ರೆ ಬರಲೆಂದೂ ತನ್ನ ನಿದ್ರೆಗೆ ಭಂಗ ತರುವವರು ಭಸ್ಮವಾಗಬೇಕೆಂದೂ ಕೇಳಿಕೊಂಡ. ಅದರಂತೆ ಗುಹೆಯೊಂದರಲ್ಲಿ ಹೋಗಿ ಮಲಗಿದ. ನೂರಾರು ಸಾವಿರಾರು ವರ್ಷಗಳು ಉರುಳಿ ತ್ರೇತಾಯುಗ ಕಳೆದು ದ್ವಾಪರ ಬರುವವರೆಗೂ ಮಲಗಿಯೇ ಮಲಗಿದ.

ಇದೇನಿದು? ವಿಜ್ಞಾನಲೇಖನದಲ್ಲಿ ಪುರಾಣದ ಕಥೆ ಎಂದುಕೊಂಡಿರೇ? ಕಾರಣ ಇದೆ. ಮುಚುಕುಂದನಂತೆಯೇ ನಿದ್ರಿಸಿದ್ದ - ಅದೂ ಒಂದೆರಡಲ್ಲ, ಬರೋಬ್ಬರಿ 45,000 ವರ್ಷಗಳ ಕಾಲ ಮಲಗಿದ್ದ - ಜೀವಿಗಳನ್ನು ವಿಜ್ಞಾನಿಗಳು ಎಚ್ಚರಗೊಳಿಸಿದ್ದಾರೆ!

ರಷ್ಯಾದ ಸೈಬೀರಿಯಾ ಜಗತ್ತಿನ ಅತ್ಯಂತ ಶೀತಲ ತಾಣಗಳಲ್ಲೊಂದು. ನಿಸರ್ಗದ ರೆಪ್ಟಿಜೀರೇಟರ್‌ನಂತಿರುವ ಈ ಪ್ರದೇಶದಲ್ಲಿ ಲಕ್ಷಾಂತರ ವರ್ಷಗಳ ಹಿಂದಿನ ಜೀವಿಗಳ ಪಳೆಯುಳಿಕೆಗಳು ದಪ್ಪನೆಯ ಹಿಮದ ಪದರಗಳ ಕೆಳಗೆ ಕೆಡದಂತೆ ಸಂರಕ್ಷಿಸಲ್ಪಟ್ಟವೆ. ಹೀಗಾಗಿ ವಿಜ್ಞಾನಿಗಳ ಪಾಲಿಗೆ ಇದೊಂದು ವಜ್ರದ ಗಣಿಯೇ ಸರಿ. ಈ ಪ್ರದೇಶದಿಂದ 2002ರಲ್ಲಿ ಸಂಗ್ರಹಿಸಿದ್ದ ಮಾದರಿಗಳಲ್ಲಿ 'ನೆಮೆಟೋಡ್' ಎಂಬ ಗುಂಪಿಗೆ ಸೇರಿದ ಜೀವಿಗಳೂ ಇದ್ದವು. ಅವುಗಳಲ್ಲಿ ಒಂದು ಹುಳು 32,000 ವರ್ಷಗಳ ಹಿಂದಿನದು ಮತ್ತು ಇನ್ನೊಂದು 45,000 ವರ್ಷಗಳ ಹಿಂದಿನದು ಎಂದು ಕಾರ್ಬನ್ ಡೇಟಿಂಗ್ ಮುಖಾಂತರ ಪತ್ತೆ ಹಚ್ಚಿದ್ದರು. ಅದೇನೂ ವಿಜ್ಞಾನಿಗಳಿಗೆ ವಿಶೇಷವಾಗಿರಲಿಲ್ಲ. ಆದರೆ 2018ರಲ್ಲಿ ಈ ಹುಳುಗಳನ್ನು ನೀರಿನ ಸಂಪರ್ಕಕ್ಕೆ ತಂದಾಗ ಅವು ಎಚ್ಚರಗೊಂಡವು. ತಮ್ಮ ಸುತ್ತಮುತ್ತ ಇದ್ದ ಬ್ಯಾಕ್ಟೀರಿಯಾಗಳನ್ನು ಸೇವಿಸಲು ಶುರು ಮಾಡಿದವು. ಸಂತಾನೋತ್ಪತ್ತಿಯನ್ನೂ ಮಾಡಿದವು. ಹಾಗಾದರೆ ಇಷ್ಟು ದೀರ್ಘಕಾಲದವರೆಗೆ ಇವು ಹೇಗೆ ಬದುಕಿದ್ದವು? ಬರಿಗಣ್ಣಿಗೂ ಕಾಣದ ಯು:ಕೆಕ್ಸಿತ್ ಜಂತುವೊಂದು, ಎಂದಿಗೂ ಯಾರಿಗಾಗಿಯೂ ನಿಲ್ಲದ ಕಾಲನನ್ನು

ಕೊರಳಪಟ್ಟ ಹಿಡಿದು ನಿಲ್ಲಿಸಿದ್ದಾರೂ ಹೇಗೆ?

ಜೀವಸಾಮ್ರಾಜ್ಯದ ಕೆಳಹಂತದಲ್ಲಿರುವ ಕೆಲವು ಜೀವಿಗಳು ಪ್ರತಿಕೂಲ ವಾತಾವರಣಗಳಲ್ಲಿ ಬದುಕಲು ಒಂದಷ್ಟು ವಿಶೇಷ ಉಪಾಯಗಳನ್ನು ಕಂಡುಕೊಂಡಿವೆ. ಅಂತಹ ಉಪಾಯಗಳಿಗೆ 'ಕ್ರಿಪ್ಟೋಬಯೋಸಿಸ್' ಎಂದು ಹೆಸರು. ಕನ್ನಡದಲ್ಲಿ 'ಸುಪ್ತಜೀವನ' ಎನ್ನಬಹುದು. ನೀರಿನ ಕೊರತೆ, ಅಮೃಜನದ ಕೊರತೆ, ಅತ್ಯಂತ ಶೀತಲ ವಾತಾವರಣ, ಮುಂತಾಗಿ ಬದುಕಲು ಅತ್ಯಂತ ಕಷ್ಟಕರವಾದ ವಾತಾವರಣಗಳಲ್ಲಿ ದೇಹದೊಳಗಿನ ಚಟುವಟಿಕೆಗಳನ್ನು ಸ್ಥಗಿತಗೊಳಿಸುವ, ಮುಂದೆ ಅನುಕೂಲಕರ ವಾತಾವರಣ ಬಂದಾಗ ಮತ್ತೆ ಸಹಜ ಸ್ಥಿತಿಗೆ ಮರಳುವ ಸಾಮರ್ಥ್ಯವನ್ನು ಈ ಜೀವಿಗಳು ಬೆಳೆಸಿಕೊಂಡಿವೆ. ಇದುವರೆಗೂ ಇಂತಹ ಜೀವಿಗಳು ಸುಪ್ತ ಸ್ಥಿತಿಯಲ್ಲಿ ಕೆಲವು ವರ್ಷಗಳ ಕಾಲ ಮಾತ್ರ ಬದುಕಿದ್ದ ಉದಾಹರಣೆಗಳಿದ್ದವು. ಹೆಚ್ಚೆಂದರೆ 39 ವರ್ಷಗಳ ಕಾಲ ಇಂತಹ ಸ್ಥಿತಿಯಲ್ಲಿ ಇದ್ದದ್ದು ದಾಖಲಾಗಿತ್ತು. ಆದರೆ ಈ ಹುಳುಗಳು 45,000 ವರ್ಷಗಳ ಕಾಲ ಸುಪ್ತ ಸ್ಥಿತಿಯಲ್ಲಿ ಬದುಕಿ ಮತ್ತೆ ಎಚ್ಚರಗೊಂಡಿದ್ದು ವಿಜ್ಞಾನಿಗಳನ್ನು ಅಚ್ಚರಿಗೊಳಿಸಿದೆ. ಜೊತೆಗೆ ಈ ಹುಳುಗಳ ಸಾಮರ್ಥ್ಯವನ್ನು ಮನುಷ್ಯನಿಗೆ ಸಿದ್ಧಿಸುವಂತೆ ಮಾಡಬಲ್ಲ ತಂತ್ರಜ್ಞಾನವನ್ನು ನಿರ್ಮಿಸಲು ಸಾಧ್ಯವಿರಬಹುದೇ ಎಂಬ ಪ್ರಶ್ನೆಯನ್ನೂ ಕೆಲವರಲ್ಲಿ ಹುಟ್ಟಿಸಿದೆ. ಸೈನ್ಸ್ ಫಿಕ್ಷನ್ ಸಿನಿಮಾ ಅಥವಾ ಸಾಹಿತ್ಯಗಳಲ್ಲಿ ನೀವು 'ಕ್ರೋನೋಸಿಕ್' ಎಂಬ ತಂತ್ರವನ್ನು ನೋಡಿರಬಹುದು. ಮನುಷ್ಯರನ್ನು ಶೈತ್ಯದಲ್ಲಿ ಕಾಪಿಟ್ಟು ನೂರಾರು ವರ್ಷಗಳ ನಂತರ ಮತ್ತೆ ಎಚ್ಚರಗೊಳಿಸುವ ತಂತ್ರಜ್ಞಾನ. ಇಂತಹ ತಂತ್ರಜ್ಞಾನದ ರಹಸ್ಯ ಬಿಡಿಸುವ ಕೀಲಿಕ್ಕೆ ಈ ಹುಳುಗಳಲ್ಲಿರಬಹುದೇ ಎಂಬ ಜಿಜ್ಞಾಸೆ ಕೆಲವು ವಿಜ್ಞಾನಿಗಳಲ್ಲಿ ಮೂಡಿದೆ. ಈ ನಾಣ್ಯದ ಇನ್ನೊಂದು ಬದಿಯಲ್ಲಿ ಒಂದು ಭಯವೂ ಕಾದಿದೆ. ಭೂಮಿಯ ತಾಪ ಏರಿ ಧ್ರುವಪ್ರದೇಶಗಳಲ್ಲಿನ ಹಿಮ ಕರಗುತ್ತಿರುವುದು ಗೊತ್ತಿರುವಂಥ ವಿಷಯವೇ. ಈ ಪ್ರದೇಶಗಳಲ್ಲಿ ಸಾವಿರ ಸಾವಿರ ವರ್ಷಗಳ ಹಿಂದೆ ಬಂಧಿಯಾಗಿದ್ದ ವೈರಸ್, ಬ್ಯಾಕ್ಟೀರಿಯಾಗಳು ಮತ್ತೆ ಮೇಲೆದು ಬಂದು ರೋಗಗಳನ್ನು ಹರಡತೊಡಗಿದರೆ ಗತಿಯೇನು? ಈ ರೋಗಗಳಿಗೆ ಮಾನವ ಶರೀರದಲ್ಲಿ ಪ್ರತಿರೋಧಕಗಳೂ ಇಲ್ಲದ ಕಾರಣ ಇವು ತರಬಹುದಾದ ಅಪಾಯ ಎಷ್ಟು ಗಂಭೀರವಾಗಬಹುದು ಎಂಬ ಪ್ರಶ್ನೆಗಳೂ ಎದ್ದಿವೆ.

ಲೇಖನದ ಆರಂಭದಲ್ಲಿ ಮುಚುಕುಂದನ ಕಥೆಯನ್ನು ನೋಡಿದವಷ್ಟೇ. ಕೊನೆಗೆ ದ್ವಾಪರದಲ್ಲಿ ಮುಚುಕುಂದನ ನಿದ್ರಾಭಂಗವಾಗಿದ್ದು ಕಾಲಯವನ ಎಂಬ ದುಷ್ಟ ರಾಜನಿಂದ. ಕಾಲಯವನ ಮುಚುಕುಂದನ ನಿದ್ರಾಭಂಗ ಮಾಡಿ ಅವನ ಉರಿಗಣ್ಣಿಗೆ ಸಿಕ್ಕು ಭಸ್ಮವಾದ. ಈಗ ನಾವು ಮನುಷ್ಯರೂ ಕೂಡ, ದಪ್ಪನೆಯ ಹಿಮದ ಚಾದರದ ಅಡಿಯಲ್ಲಿ 'ಬೆಚ್ಚಗ' (ಅಥವಾ ತಣ್ಣಗೆ ಎನ್ನೋಣವೇ?) ಮಲಗಿರುವ ರೋಗಾಣುಗಳು ಮತ್ತೆ ಎದ್ದು ಬರುವಂತೆ ಮಾಡಿ ಕಾಲಯವನರಾಗುತ್ತಿದ್ದೇವೆಯೇ? ಕಾಲವೇ ಉತ್ತರಿಸಬೇಕು.