



e-news

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Welcome to e-news



Indian President Pratibha Patil flies in fighter jet - Details under Technology



SARAS prototype-3 to fly by 2010 - Details under Current Affairs

READER'S RESPONSE

The editorial team invites your views, suggestions, to the News
about Members Column and contributions to the e-news.

'Speed Testing' Gets Fillip

Bangalore lab sets up Combustor Testing Facility, a key element in the development of high Mach propulsion systems such as missiles. A high-speed combustor testing facility at National Aerospace Laboratory's (NAL) propulsion division in Bangalore. The centre is jointly funded by ISRO, DRDO and CSIR. Inaugurated by ISRO chairman Mr Madhavan Nair, the facility will help test the aero-engine gas turbines being developed by the Gas Turbine Research Establishment (GTRE), Bangalore. Mr Nair said the facility will allow the indigenous development of the critical advanced subsonic/ supersonic combustor technologies for India's high Mach number propulsion systems. "A comprehensive design data base should be quickly built up by carrying out extensive testing, which will now be possible in India," he felt. According to officials, the high Mach number air-breathing propulsion is an area of R&D vital to India's strategic needs. Propulsion is an important technology for high speeds at which advanced aerospace vehicles such as trans-atmospheric vehicles and missiles fly.

Source: Bangalore Mirror

SARAS prototype-3 to fly by 2010

The final certification of the aircraft is expected to take place by December 2011. The National Aerospace Laboratories (NAL) is now building a third prototype of the light transport aircraft, SARAS-PSA1. This aircraft will have a reduced airframe weight by about 500 kg, according to Dr M S Chidananda, head of Centre for Civil Aircraft Design and Development (C-CADD). He was speaking at the valedictory of the NAL golden jubilee celebrations and inauguration of its aircraft Hangar at NAL's Belur campus. The 14-seater SARAS prototype 2 had suffered an accident on March 6 this year, during flight testing, resulting in the loss of flight crew and hardware. Dr Chidananda said that the design had been completed for the prototype and fabrication activities were underway. "The prototype-3 is expected to fly by 2010 and the final certification is expected to fly out by 2010 and the final certification is expected to take place by December 2011," he said. The NAL is also finalizing talks with Hindustan Aeronautics Limited (HAL) for the production of SARAS. The Indian Air Force has already placed orders for the supply of 15 aircraft, followed by the delivery of another 30 at a later stage.

Source: Deccan Herald

Our aviation history has remained in memory

She is probably the only woman aviation historian in India. Having felt the exhilaration of flying, Ms Anuradha Reddy knew her calling early in life. Her personal connect with planes, airfields and airports led her to chronicle the aviation history of Hyderabad,

Delhi and now, Mumbai. India, she tells Ms Shobha John, is careless about its aviation history, unlike other countries, which maintain their archives well: How did you decide to choose this unlikely vocation? I am basically a photographer and a researcher of monuments and natural heritage. The history of aviation fits into this. I realised that over a period of time, this magnificent history, including countless individual anecdotes, had not been documented by anyone, including airlines and airports. This bothered me. It's imperative for the younger generation to understand how the aviation sector evolved, from the time when flying was a luxury meant for the affluent, to now, when it's a common form of transport. My book, Aviation in the Hyderabad Dominions, is a step in this regard – it covers a period from 1910 to 1953, the year private airlines were nationalised.

Source: Times of India

Tejas trainer jet makes smooth flight

The two-seater trainer version of the Light Combat Aircraft, Tejas (PV-5) made its maiden, successful flight here on Thursday, adding a feather in the cap of India's defence establishment. The flight took off from HAL airport at 1 pm and touched an altitude of 9 km and speed of Mach number 0.85, meeting all its initial flight requirements, according to defence sources. The prototype was flown Captain Ritu Raj Tyagi. Air Commodore Rohit Varma, project director (flight test) flew in the rear cockpit. A Defence Research Development Organisation release said, "All the objectives set out for the flight were achieved and all the systems on board the new prototype performed well through out the sortie." The release said the successful flight of the trainer was a major milestone for the Tejas programme and a significant achievement for all the stake holders. According to aeronautical industry sources, the flight of the prototype is proof of the capability of the country's aircraft design engineers. With the Tejas scheduled to be cleared for initial operations with the Indian Air Force (IAF) 2010, the successful maiden flight of Tejas trainer has given a fillip to the programme.

Source: Deccan Herald

Call for strategic vision for flagging aviation industry

To make the future of the airline industry secure, India needs a strategic vision, said Capt G.R. Gopinath, Chairman and Managing Director, Deccan 360. He was speaking at the inauguration of *The Hindu Business Line Club* – Campus Interface to the corporate world, at the New Horizon Leadership Institute. The club has been launched for the 2009-10 academic year by *The Hindu Business Line* in association with Syndicate Bank. Capt. Gopinath said that only 3 per cent of the population could afford air travel. In India, around 50 million tickets are sold and there are only about 15 million frequent fliers. "This is a shame, as in other

Third World countries at least 25 per cent of the population can afford air travel. The mindset that air travel is for the rich must go." He was of the opinion that the aviation industry would not have been under such a loss if they had focused on expanding their consumer base, instead of taxing the existing customers. Airlines today need to be innovative and must bring down costs, he said. He also said that the Government has been "quite opaque" in its vision.

Source: *Hindu*

Russia's grounding of IL-76 concerns India

Russia's move to ground its entire Ilyushin-76 fleet after one of the heavy-lift military aircraft crashed in Siberia on Sunday, killing the 11 crew members on board, has sparked widespread concerns in India. IAF has two IL-76 'Gajraj' squadrons (around 12 aircraft in all), one based in Nagpur and the other in Chandigarh, as well as six IL-78 mid-air refuellers in Agra. The aircraft crash in Russia on Sunday, soon after taking off from Mirny airport in the Sakha Republic, was the second such accident of IL-76, the mainstay of the Soviet and Russian Air Force since the 1970s, in less than a month. "We have received no official word from Russia till now. We are trying to find out what led to the crash. Checks will be carried out on our IL-76s but there is no plan to ground them as of now," said a senior IAF officer. "Russia had grounded its entire MiG-29 fleet earlier this year but we did not follow suit with our MiG-29 fighters. We have proper maintenance procedures in place and carried out extensive checks," he added. While the IL-78 tankers acquired from Uzbekistan are relatively new, the IL-76s were inducted from Russia in the mid-1980s. Serviceability of the IL-76s, which perform crucial strategic air-lift work for IAF, has been quite a problem.

Source: *Times of India*

HAL to implement e-procurement system

Defence PSU major, Hindustan Aeronautics Limited (HAL) would implement e-procurement and e-payment of tenders in a time-bound manner as part of its e-governance initiatives, its chairman Ashok Nayak said here. "Today's mantra is e-governance and HAL would implement the policies of e-procurement and e-payment of the tenders," he said after Governor Mr H R Bharadwaj launched HAL's Vigilance Awareness Week at the Ghatge Convention Centre here. Mr Nayak said HAL had adopted the Integrity Pact, which envisages an agreement between prospective vendor, bidder and the buyer for fair practices. HAL's Chief Vigilance

Officer Mr Anurag Sahay said the vigilance set-up in HAL was focussed on preventive aspects and getting rid of bottlenecks and time delays. Speaking on the occasion, Governor Mr Bharadwaj hailed the efforts of HAL in nation building and said the defence PSU had lived up to expectations with unmatched credibility. Stating that proper procedures would bring greater transparency, the Governor said that India has a great history of leaders with high integrity.

Source: *Deccan Herald*

China to supply 36 fighter jets to Pakistan

In a major move to boost its air warfare capability, Pakistan is to purchase 36 J-10 fighter aircraft from China in a deal worth more than \$ 1.4 billion, with options open for induction of more similar aircraft. China will supply 36 J-10 fighter jets, enough to equip two squadrons, under a preliminary agreement that could lead to "more sales", a Pakistani official has said. Pakistan might buy "larger numbers" of the multi-role aircraft in the future but has not signed any deal to purchase as many as 150 jets, the official told the 'Financial Times'. The J-10 or Jian 10 is China's most advanced combat aircraft and is the third generation fighter comparable to American F16 Fighting Falcons. Islamabad and Beijing are also collaborating to build an advanced fighter — JF-17 or "Thunder" — and the first of these aircraft are expected to roll out end of this month, air force chief Air Chief Marshal Rao Qamar Suleman said recently. China is one of the main arms suppliers of Pakistan and has sold combat jets to it for over three decades. But Beijing has seldom supplied Pakistan with advanced fighter aircraft like the J-10.

Source: *Deccan Herald*

Pilot killed, 3 feared dead in copter crash

A senior IAF pilot was killed and three others were feared dead after their Mi-17 helicopter crashed into the Chenab river in the mountainous Doda district of Jammu and Kashmir. While the charred body of pilot, Wing Commander R Garg, had been fished out by late afternoon, search operations were still in progress for the other three victims — co-pilot Flight Lieutenant S Tomar and technicians junior warrant officer Kundan Singh and sergeant P K Deepak. The ill-fated Mi-17-1V, in formation with another helicopter on a regular sortie, was flying quite low over the Chenab when it apparently got entangled in a cable of a bridge and crashed into the water reservoir of Baglihar hydro-electric power project at Tringel Assar, 150 km northeast of Jammu. The helicopters were returning from the mountain-locked Nawapachi area of Kishtawar district, where IAF undertakes regular sorties to supply rations, arms and ammunition for the troops stationed there. This is the 10th aircraft crash in IAF this year, already making it one of the worst years for the force in recent times. From 1971-72 to 2003-04, IAF's consolidated average rate stood at 1.09 accidents per 10,000 hours

of flying, roughly translating into the loss of 23 aircraft and the death of 10-14 pilots every year.

Source: Times of India

AAI's ESL Defence Ltd. Sells 500th Baringa Missile Warning System Test Set

AAI Corporation, an operating unit of Textron Systems, a Textron Inc. (NYSE: TXT) company, announced today that its United Kingdom (U.K.) based strategic business ESL Defence Ltd. has sold its 500th Baringa Missile Warning System Test Set. This milestone occurred with a sale to the U.K. Ministry of Defence — also the first customer to purchase a Baringa — which utilizes the Baringa system to support its operations worldwide. Baringa test sets are used in more than 15 countries including the U.S., U.K., Australia, India, France, Germany, Italy and Turkey. "The Baringa is a highly reliable piece of equipment that can stimulate multiple types of missile warning systems," says ESL Managing Director Bob Fox. "It is used for pre-flight confidence testing, depot-level maintenance, and product acceptance and systems integration laboratory testing. Each design iteration has given the Baringa additional capabilities that benefit the operator."

Source: Business Wire

Asteroid missed earth by just 14k km

A 26-foot-wide asteroid almost hit the earth when it passed within 14,000km of the planet recently, NASA has said. The asteroid, called 2009 VA, was noticed only 15 hours before it made its closest approach towards the planet last Friday. It came 30 times nearer than the moon, which is 250,000 miles away, NASA said. Similar sized objects pass by this close to earth about twice a year and impact on the planet about once in every years, it said. This was the third closest known non-impacting earth approach by any asteroid. Astronomers believe the asteroid would have almost completely burned up when entering the earth's atmosphere causing a brilliant fireball in the sky but no major damage to the surface, the Daily Mail reported. The asteroid, discovered by the Catalina Sky Survey on November 6, was identified by the Minor Planet Centre in Massachusetts as a near earth object. In March this year, a 100 foot asteroid passed 45,000 miles above the earth's surface.

Source: Indian Express

NASA finds buckets of water on moon

NASA has found a significant amount of water ice on the Moon! Holy Haleakala! On October 9, the LCROSS spacecraft watched as a Centaur rocket booster slammed into the south pole of the Moon, hoping to determine if any water ice exists under the lunar surface. The idea is that over millions of years, comet impacts and other events have brought water to the

Moon. Most of it goes away over time, but if any water happens to accumulate at the bottoms of craters at the poles, where the Sun never shines, it can stay put, frozen forever in shadow. By impacting a spacecraft into the Moon, it can eject the ice where it gets hit by raw sunlight. The water breaks down into hydrogen and hydroxyl molecules (OH-), which can be directly detected. The target crater, Cabeus, has a temperature on its floor of -230 Celsius, cold enough to store ice. The Centaur slammed into it at high speed, making a new crater about 20 meters across and splashing debris over an even bigger area. A plume went up and out of the crater, and it was that tower of ejected material that had the telltale signs of water. The infrared spectrometer on LCROSS definitely detected absorption lines from water, and the ultraviolet spectrometer saw it in emission. Not only that, the emission got stronger with time, which clinches the deal! That's exactly what you expect by a plume containing water.

Source: Bangalore Mirror

Indian President Pratibha Patil flies in fighter jet

Indian President Pratibha Patil has flown in a fighter jet, becoming the country's first woman to fly in a combat plane. Mrs Patil, 74, described her 30-minute flight in a two-seater Sukhoi jet as "a wonderful and unique experience". The president was a co-passenger in the jet that flew above an air force base near the city of Pune in western India. She also set a world record by becoming the oldest woman to be airborne in a combat jet, Indian officials claim. "I was familiarised with the manoeuvring of the aircraft which has a very sophisticated way of handling it. I had the opportunity to fly in the most technically advanced aircraft," Mrs Patil told a press conference in Pune city after her flight.

Source: *BBC News*

Night-time Agni II missile test-fired

Adding another milestone to the history of India's missile development programme, the Defence Research and Development Organisation (DRDO) and the Indian Army for the first time test-fired a night-time missile off the Orissa coast on Monday evening. A sophisticated Agni II missile, which can hit a target at a distance of more than 2,000 km, carrying both conventional and nuclear warheads up to 1000 kg, was launched at 7.50 pm from the DRDO-run missile launching facility located on Wheelers Island in north Orissa Bhadrak district, sources said. Never before since the country began its indigenous missile development programme, a missile was test-fired after sunset. Till now the DRDO was test firing all its missiles including the Agni series from its two facilities in Orissa – one on Wheelers Island and another in Chandipur in neighboring Balasore district – only during daytime. According to sources, the 20 metre long surface-to surface Agni II missile which weighs about 17 tonnes was test-fired from launch pad number IV of the missile testing centre. Many senior DRDO scientists as well representatives of the Army were present during the function. Result not known The result of the test-firing is not yet known. "The results of the test-firing could only be known after a detailed analysis", a DRDO source said.

Source: *Deccan Herald*

Captive flight trials of Astra missile take off

India's missile programme took a crucial step forward on October 24 this year with Indian Air Force test pilots carrying out the captive flight trials of the indigenously designed and developed Astra beyond visual range air-to-air missile (BVRAAM). A Su-30MKI combat aircraft especially tasked for the trials took off from Air Force Station, Lohegaon

(Pune), for a 90-minute sortie with the Astra missile. The active, radar homing Astra India's first air-to-air missile which, at its design altitude of 15 km, will enable fighter pilots to lock on, evade radar and shoot down enemy aircraft about 80 km away, is part of India's Integrated Guided Missile Development Programme and has been under development at a number of Defence laboratories, led by the Hyderabad-based Defence Research and Development Laboratory. Astra can be compared to the AIM-120 Advanced Medium-Range Air-to-Air Missile of the U.S., or AMRAAM, France's MICA (Missile d'Interception et de Combat Aérien, "Interception and Aerial Combat Missile") and Russia's R77 (RVV-AE) missile.

Source: *Hindu*

IISc's reusable missile soon

Scientists at the Indian Institute of Science (IISc) along with Indian defence agencies are developing technology to build recoverable hypersonic missiles which will be half the size of the current missiles. This missile will have the potential of hitting a target over 5,000 km away at more than five times the speed of sound (Mach5) and can also be used to launch satellites at low cost, a top scientist working on the project told ET. No time frame has been announced as yet on when the missile work will be completed. This is of special significance as institutions like the NASA is experimenting on unmanned projects where they will use hypersonic flights to conduct space exploration. Missiles which fly at Mach 3-4 (three to four times the speed of sound) belong to the high supersonic class, while hypersonic missiles can fly at more than Mach 5. India's longest-range missile, Agni III, is capable of hitting targets 3,500 km away and the forthcoming Agni V which has a range of about 5,000-6,000 km is expected to be test-fired in 2010. "The missile will be much smaller than the current ones.

Source: *Economic Times*

Robots to Conquer Space

Mr Wolfgang Fink, visiting associate in physics at the California Institute of Technology (Caltech) says we are on the brink of a paradigm shift in planetary exploration, the next round of robotic explorers will be nothing like what we see today. "The way we explore tomorrow will be unlike any cup of tea we've ever tasted," said Fink. "We are departing from the approach of a single robotic spacecraft with no redundancy that is Earth-commanded, to one that allows for having multiple low-cost robots that can command themselves or other robots." Fink and his team at Caltech, the US Geological Survey and the University of Arizona are developing autonomous software and have built a robotic test bed that can mimic a field geologist or astronaut, capable of working independently and as part of a team. This software will allow a bot to think on its own, identify problems and hazards, determine areas of interest and prioritise targets. For now, engineers command spacecrafts to carry out tasks and then wait for them to

be done. There is no flexibility in changing their tasks as events unfold; for example, to image a cryovolcanic eruption as it happens.

Source: *Bangalore Mirror*

Space hotel says it's on schedule, to open in 2012

A company behind plans to open the first hotel in space says it is on target to accept its first paying guests in 2012 despite critics questioning the investment and time frame for the multi-billion dollar project. The Barcelona-based architects of The Galactic Suite Space Resort say it will cost 3 million (\$4.4 million) for a three-night stay at the hotel, with this price including an eight-week training course on a tropical island. During their stay, guests would see the sun rise 15 times a day and travel around the world every 80 minutes. They would wear Velcro suits so they can crawl around their pod rooms by sticking themselves to the walls like Spiderman. Galactic Suite Ltd's CEO Xavier Claramunt, a former aerospace engineer, said the project will put his company (www.galacticsuite.com) at the forefront of an infant industry with a huge future ahead of it, and forecast space travel will become common in the future.

Source: *Hindu*

Artificial leaf to power vehicles

Scientists are making progress toward development of an "artificial leaf" that mimics the process of photosynthesis and converts sunlight and water into a liquid fuel such as methanol for cars and trucks. Kazunari Domen, of the University of Tokyo, said the goal of artificial photosynthesis is to produce a liquid fuel, such as methanol, or "wood alcohol."

Source: *Times of India*

IISc initiative for green technology

While policy makers and politicians around the globe are gearing up for brainstorming sessions at

the Copenhagen summit on climate change, one of the desolate corners of IISc is charting a new course with an industry partner for reducing green house gas emissions. The Combustion, Gasification and Propulsion Laboratory (CGPL) at IISc in Bangalore and Singapore-based Filtrex have come together for finding emission free production of activated carbon in India. Coconut shell-based activated carbon is extensively used for the refining and bleaching of vegetable oils and chemical solutions, water purification, recovery of solvents and gold. It is also used in gas masks and a wide range of filters. "The production of char from coconut shells for activated carbon generates methane and other greenhouse gases. To keep away from these problems, we approached the CGPL to come up with innovative green technology to reduce emission," said CEO of Filtrex Technologies Mr Govind Bommi. The unique pyrolysis and gasification technology evolved reduces greenhouse gas production and also gives greater quality for activated carbon. "Based on the new technology, we erected a Rs 10 crore plant at Tiptur. The new technology has improved our production capacity. Our company is going to sign a memorandum of understanding (MoU) with CGPL to commercialise this technology," he adds.

Source: *Deccan Herald*

Eye in the sky

Unmanned Aerial Vehicles (UAVs) will be used for the first time to detect Naxal hideouts in dense forests and hilly terrains and monitor the movement of ultras to help ground forces carry out precision attacks. The UAVs, with inbuilt camera, well-equipped data link and video link, will gather and record information which will be shared among the security forces engaged in anti-Naxal operations, specially in Chhattisgarh, Jharkhand, Orissa, Maharashtra and West Bengal. The trials of the UAVs, developed by the Hindustan Aeronautics Ltd (HAL), have recently been conducted in Hissar and Delhi while more trials will be conducted in jungles of Chhattisgarh and Jharkhand soon. "Since Maoists are keep changing their movements, deployment of UAVs

Source: *Bangalore Mirror*

The Indian Air force is Going Shopping

The Indian Air Force (IAF) is going shopping for aircraft. The budget is a cool \$10 billion, and manufacturers across the world are racing to bag the contract. The aircraft in question are the Medium Multirole Combat Aircraft (MMRCA). Field trials for the contract, in which all the parameters that the manufactures have claimed are put to test, have begun in Bangalore and the action will soon shift to the deserts of Rajasthan and Leh, where the six contenders will be put through their paces. The aircraft will beef up future strike capability of the force, whose fighter strength has been dwindling.

Estimates are that fighter squadrons have gone down from about 39 (each with 12-18 aircraft) and may reach 27 in a few years, bringing it to the level of the Pakistani Air Force. No matter which manufacturer bags the contract though, India is likely to benefit in more ways than one. The contract has a huge commercial implication for Indian industry. According to India's offset policy, the manufacturer that wins the contract will have to either re-invest at least 50 percent of the contract value in India, or source the same amount through Indian industry.

Source: *Business*

Embraer plans to sell three fighter to IAF

Brazilian aeronautics company Embraer — now on a flying demo tour of India, displaying its Phenom 100 executive jet — is looking to sell its three fighter aircraft variants for the Indian Air Force (IAF). The three fighter aircraft are: the EMB4, a multi intel jet, the EMB MP for marine patrolling and the EMB 14, early warning craft. "The IAF already has five of our aircraft and the Indian government owns other versions for flying its ministers and officials," Vice President, Sales and Marketing for Asia Pacific Jose Eduardo Coastas told reporters here on Wednesday. Mr. Coastas' division sells Embraer executive jets, including the Phenom 100. Forty five of them had been delivered worldwide and with orders coming in, for nearly 30 jets, Indamer Pvt. Ltd. had been appointed as authorised service centre for India, he said. Each executive jet would cost upwards of \$40 million in India. Embraer has marketing and service centres across Europe and an assembling plant in the U.S. Embraer, privately held since 2007, with the Brazilian government as a significant shareholder, had stepped up work to develop new generation aircraft, and was spending \$48 million for this purpose, he said.

Source: *Hindu*

ISRO to outsource rocket-work

For the first time since the success of India's maiden unmanned moon mission, the Indian Space Research Organisation (Isro) is ready to outsource more high-

end work to private companies everything from building more complicated systems to assembling it. According to aerospace industry officials and others familiar with the discussions, proposals are being readied wherein private participation will be invited to build and run competing systems. The commercial-aerospace industry is now eager to play a larger role in the space missions and tap the outsourcing work offered by Isro which has an annual budget of \$1.01 billion for 2009-2010. It has a spending blueprint of Rs 12,400 crore (\$3 billion) for its manned space exploration and around Rs 425 crore will be spent for the second unmanned lunar mission — Chandrayaan-2. It also has huge spending plans for missions to Mars and various domestic and international satellite launches. This is particularly relevant as India has now stepped up the number of satellites it sends into space. Isro's senior space scientist Mr George Koshy who had also worked on Chandrayaan-1 as mission director for PSLV, says: "Earlier, we used to do one launch in two-three years. Now, we do three-five PSLV launches alone in a year. For that, we need more low-cost manpower and better collaborations." Mr Koshy says the confidence other countries are reposing on Indian capability to make good satellites is increasing and they need more private partners to share the work load. "We work at just 15-20% of the cost spent by the US on their missions," he says.

Source: *Economic Times*

Scientists honoured

Veteran Scientists Mr M.D. Rajnarayan, Mr Venugopal and Mr K N Tiwari were honoured with Lifetime Achievement Award by Micro Electronic Devices and Applications Society. Microwave Tube Research and Development Centre, a DRDO unit in Bangalore, is celebrating its silver jubilee. Senior scientist Mr S K Dutta was presented the 'Best Scientist' award.

Source: *Times of India*

T Mohan Rao gets Eminent Engineer National Award

Mr T Mohan Rao, Director of Gas Turbine Research Establishment here, has been conferred upon 'Eminent Engineer National Award', for his contribution to aerospace engineering. The Institution of Engineers (India) presented the award to the Scientist, who had played a major role in the development of indigenous Kaveri aero engine at the GTRE. The engine, which is in the final stage of testing, is likely to be fitted on the indigenous light combat aircraft 'Tejus'. The award was presented here today at the convention of Aerospace Engineers by ISRO Chairman K Radhakrishnan. Others who received similar awards were Professor P N Murthy of IEI Hyderabad, Air Cmde (Rtd) Joseph Varkey of Bangalore, Mr J K Sharma, former scientist in CEMILAC, Bangalore, Mr K M Unni, Director (Engineering) Air India, Dr Parminder Singh from DRDO headquarters in Delhi and Mr Chandrashekar of ISRO.

Source: *Mangalorean.com*

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