NOVEMBER 2019 VOLUME 4, ISSUE I

AKSHIPTH



SRINIVAS INSTITUTE OF TECHNOLOGY



DEPARTMENT OF AERONAUTICAL ENGINEERING



FROM H.O.D 's DESK :



With the current semester coming to an end it is heartening to note that the 4th volume and 1 issue of the department E-news letter "Akshipth" is bringing the memories of the series of events activities and the

achievements of the department on time. The department has signed an MOU with Ziegler Aerospace and two more are in the pipeline. I am also happy that with the full support from the management and the Principal, the first ever "Centre of Excellence" was inaugurated in the campus, which is in line with the vision of the management. If properly utilized it could be highly beneficial to the students of SIT, Mangaluru in the coming days. Congratulations to Mr. Venkatesh Rajput, 7th semester, Aeronautical Engineering for representing the college and India for Asia World Model United Nations, Bali. During the semester department conducted many activities and events for the personality development of the students. Students demonstrated their social responsibility by involving themselves in many outreach programs along with the general public. With the semester end exams approaching, I request all the students to focus on studies and prioritize their works. Not to forget to be present 30 minutes early in the exam hall. In the coming days department is fully geared up for more!

- Dr. Ramakrishna N. Hegde, HOD

DEPARTMENT VISION:

To become a global centre, by consistently improvising and disseminating the knowledge of Aeronautical Engineering to its stakeholders with a firm commitment on academic excellence, professionalism and societal expectation.

DEPARTMENT MISSION:

To impart state of the art knowledge and practical skill to the students by imbibing leadership qualities, team spirit, ethical values to be a successful Entrepreneur.

ZIEGLER MOU & CENTRE OF

EXCELLENCE





On October. 24th, 2019, Department of Aeronautical Engineering, Srinivas Institute of Technology (SIT), Mangaluru, AND Ziegler Aerospace, United Kingdom, officially signed a Memorandum Of Understanding (MoU) by Dr. A Srinivas Rao (Pro chancellor of Srinivas university, Vice president of Srinivas Group of Institutions, Mangaluru) along with Mr. Naresh S Solipur (Founder & **CEO of Ziegler Aerospace) chaired the MOU Signing Ceremony.**



ಎಸ್ಐಟ- ಝೀಗ್ಲರ್ ಏರೋಸೇಸ್ ಒಡಂಬಡಿಕೆ

ಮಂಗಳೂರು: ಶ್ರೀನಿವಾಸ ತಾಂತ್ರಿಕ ರಾವ್, ಶ್ರೀನಿವಾಸ ಸಮೂಹ ಸಂಸ್ಥೆಗಳ ಸ್ನಾಗತಿಸುತ್ತಾ, ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಗುಣ ವುಹಾವಿದ್ಯಾಲಯ (ಎಸ್ಐಟಿ)ದೆ ಉಪಾಧ್ಯಕ್ಷ ನರೆಲ್ ಎಸ್. ಸೋಲಿಪುರ್ ಮೆಟ್ಟದ ತಾಂತ್ರಿಕ ತಿಕ್ಷಣದ ಜತೀ ವೈಮಾನಕ ಎಂಜಿನಿಯರಿಂಗ್ ವಿಭಾಗ ಹಾಗೂ ಮುಗ್ಗರ್ ಖರೋಸ್ಟೇಸ್ ಮಹಾವಿದ್ಯಾಲಯವು ಹೇಗೆ ಸಮಾಜ ಹಾಗೂ ಯುನೈಟೆಡ್ ಕಿಂಗ್ ಡಮ್ ನ ಸಂಸ್ಥಾಪಕ ಮತ್ತು ಸಿಣಒ ಸಹಿ ಮತ್ತು ಉದ್ಯಮ ಅಗನ್ನೆಗಳನು ಝಿಗ್ಲರ್ ಎರೋಸ್ಟೇಸ್ ನಡುವಿನ ಹಾಕಿದರು. ಶ್ರೀನಿವಾಸ ತಾಂತ್ರಿಕ ಪೂರೈಸಲು ನೈತಿಕ ಮೌಲ್ಯಗಳೊಂದಿಗೆ **ಒಡಂಬಡಿಕೆ ಪತ್ರಕ್ಷೆಸಹಿಹಾಕಲಾಯಿತು. ಮಹಾವಿದ್ಯಾಲಯದ** ಪ್ರಿನ್ನಿವಾಲ್ ಡಾ. ಸಮರ್ಥ ವೃತ್ತಿಪರ ಮಾನವಶಕ್ಷಿಯಾಗಿ ಶ್ರೀನಿವಾಸ ವಿಶ್ವವಿದ್ಯಾಲಯದ ಉಪ ಶ್ರೀನಿವಾಸ ಮಯ್ಯ ಡಿ. ಅವರು ತರಬೇತಿ ನೀಡುತ್ತಿದೆ ಕುಲಾಧಿಪತಿ ಡಾ. ಎ. ಶ್ರೀನಿವಾಸ ಝೀಗ್ಲರ್ ಏರೋಸ್ಟೇಸ್ ನಿಯೋಗವನ್ನು ವಿವರಿಸಿದರು.

Published in Deccan Herald, 3rd November, 2019

- Published in Vijaya Karnataka, 3rd November, 2019

INTERNATIONAL REPRESENTATIVE

Srinivas Institute of T... · 09 Sep · #Congratulations to Venkatesh Rajput of 7th Sem AE has been selected to represent INDIA for DISEC Council & European country ALBANIA for Asia World Model United Nations in Bali Indonesia. bit.ly/2kCRVFJ #sitmangalore #mangalore

#Bangalore @MangaloreCity @HRDMinistry



sitmng Proud moment for SIT, Mangalore and AE department

#congratulations to Venkatesh Rajput of 7th Semester Aeronautical Engineering has been selected to represent INDIA for DISEC Council (Disarmament and International Security Committee) and also European country ALBANIA for Asia World Model United Nations in Bali Indonesia in November 2019 and also listed as one of the International "Agent of Change" and also with him featuring is the Srinivas Institute of Technology name among International Universities/colleges of the world.

NATIONAL STUDENTS SPACE

CHALLENGE-2019, IIT KHARAGPUR



The National Students Space Challenge - 2019, an All India Level Competition was conducted by IIT, Kharagpur and Kalpana Chawla Space Cell, IIT Kharagpur in association with ISRO from 1st November 2019 to 3rd November 2019. **Dhanush DB**, 7th sem, Aeronautical Engineering was awarded with The Best Student Ambassador and Team of Dhanush DB, Deepak M Kurubar, Santhosh S, 7th sem, Aeronautical Engineering won **3rd prize in the Designer Event**.

<u>ARTICLE</u>

STRUCTURAL HEALTH MONITOR-ING (SHM) SYSTEM IN AIRCRAFT

SHM is the ability to sense and diagnose potential threats to its structural integrity. It uses sensors that are permanently bonded or embedded in the structure. Composite materials which are highly susceptible to hidden internal flaws which may occur during manufacturing and processing of the material or while the structure is subjected to service loads, require a substantial amount of inspection and defect monitoring at regular intervals. With sensor signal processing power continuously increasing, a variety of approaches have been developed allowing integration of such sensing options onto or into structural components. Sensors are used to identify and even localize damage within the structure. Microcontroller is used to read the data obtained from the sensors.



This data is transmitted wirelessly through antenna to the receiver where again the data is read from the micro controller. Then the damages found are displayed on the screen.

In recent years, Fibre Optic Sensors (FOS) have proved to be potentially excellent technique for real time monitoring of these structures due to their numerous advantages, such as immunity to electromagnetic interference, small size, light weight, durability and high bandwidth, which allows a great number of sensors to operate in the same system, and possibility to be integrated within the material. However, more effort is still needed to bring the technology to fully mature readiness level.

> Sangeetha N 7th SEM AE

TRACKING OF SPACE DEBRIS

The Department of Defense maintains a highly accurate satellite catalog on objects in Earth orbit that are larger than a softball

NASA and the DoD cooperate and share responsibilities for characterizing the satellite (including orbital debris) environment. DoD's Space Surveillance Network tracks discrete objects as small as 2 inches (5 centimeters) in diameter in low Earth orbit and about 1 yard (1 meter) in geosynchronous orbit. Currently, about 15,000 officially cataloged objects are still in orbit. The total number of tracked objects exceeds 21,000. Using special groundbased sensors and inspections of returned satellite surfaces, NASA statistically determines the extent of the population for objects less than 4 inches (10 centimeters) in softball.

Collision risks are divided into three categories depending upon size of threat. For objects 4 inches (10 centimeters) and larger, conjunction assessments and collision avoidance maneuvers are effective in countering objects which can be tracked by the Space Surveillance Network. Objects smaller than this usually are too small to track and too large to shield against. Debris shields can be effective in withstanding impacts of particles smaller than half an inch (1cm)

> Gowtham 5th SEM AE

ENDLESS RUNWAY...

on in Aeronautical field Aeronautical engineers used by more than one aircraft but, are not only concentrating on Mach number of winds are strong, there will only be one the aircraft they are also started researches on m a I runways in Airports.

According to the International Civil Aviation organisation Runway is a defined rectangular area on a land aerodrome prepared for the landing and take-off of the aircraft. apart from this some of the engineers or researchers focusing on circular type of runways called endless runway.



Fig. Endless runway.

lowing the paths of other aircraft could be craft could fly straight in and out of the airport. during each phase of flight. Aircraft would have to circle the airport less and use less fuel. The route between the terminal and the runway would be shorter, reducing taxi times. Reduction in noise pollution as aircraft could avoid flying over some residential Wait around and see ... areas.

And also it has disadvantages or some backlogs like, All pilots using the airport would need to be trained in new landing procedures, perhaps even having to have a new license with a circular rating. Although the optimal take-off

position could be determined, it is not pos to know exactly when the aircraft will rotate Now a days many researches are going The signers propose that the runway can be if opti-Take-off position Other concerns include building costs. It is not practical to rebuild an existing airport with a circular runway, so a new one would have to be built from scratch. Because of the longer and larger runway, construction of such an airport could be 110% - 160% higher than for a conventional airport. There is also a lack of flexibility in the inner infrastructure, as all the airport facilities must be located within the circle where only limited space is available. This infrastructure could also not be expanded if demand increases.

> The report estimates that development of the endless runway concept could take another 20 years to come to fruition, by which time aircraft and ATC systems would be sufficiently matured to enable computers to control the landings to precisely line up with the runway.

The researchers have also performed simula-An Endless Runway is an aircraft runway which tions using a PC-based flight simulator and an loops around to form a shape such as a circle. air traffic control simulator to investigate how The main advantages of endless runway are: current operations and procedures would need Such an airport would take up only a third of the to be changed and what new developments will space of a conventional airport. Difficult be necessary. The next stage of development manoeuvers in harsh weather conditions, such would be to fly drones on an off a curved track, as crosswinds, will be unnecessary as pilots after which flight tests could be conducted uscan land in whatever direction is most favoura- ing larger aircraft. These would include tests on ble. Aircraft can land and take off at any point in the standard behaviour of the aircraft on the the circle. The risk of wake turbulence from fol- endless runway during take-off and landing, different operational circumstances, different avoided. Flight times could be reduced as air- weather conditions and emergency procedures

> Will the concept of an endless runway forever spin around in circles or will it rotate and spiral up to success?

VEERENDRA D 5th SEM AE

<u>SPACE JUNK</u>

Also known as space debris, space waste, space trash, space litter or space garbage. Space debris is defined as all nonfunctional, human made objects, including fragments and elements there of, in earth orbit or re-entering into earth atmosphere.

Human made space debris dominates over the natural meteoroid environment, except around millimeter sizes. The sources of space junk are inactive satellites, the upper stages of launch vehicles discarded bits left over from separation and even frozen clouds of water and tiny flecks of paint all remain in orbit high above earths atmosphere. When one piece colloids with another, even more debris is released.

more than 5,00,000 pieces of debris or space junk are tracked as they orbit the earth. They travel at speeds up-to 17,500mph fast enough for a relatively small piece of orbital debris to damage a satellite or a space craft, On a average a total of between 200 to 400 tracked objects enter earths atmosphere every year according to NESDIS [National Environmental Satellite, Data and Information Service].



According to NASA an average of one cataloged piece of debris has fallen back to earth each day for the past 50 years. Despite their size, there has been no significant property damage from the debris. Debris left in orbits below 370 miles(600Km) normally fall back to earth within several years.

SPACE JUNK REMOVAL

The first experiment designed to demonstrate active space-debris removal in orbit has just reached the international space station abroad Space X Dragon Capsule. The Removal Debris experiment, designed by a team led by the University of Surrey in UK as a part of a 15.2 Million Euro. European Union (EU) funded project is about the size of a washing machine and weighs 100Kg.

It carries 3 types of technologies for space debris capture and active deorbiting. The team decided to carry up their own pieces of space junk due to legal issues that don't allow the manipulation of space object that belong to someone else, even if the objects are no longer functional.

Once the spacecraft reaches a safe distance from the space station it will eject the two cube sats. After that the chaser spacecraft will develop the net aiming to capture the cube sats.

The space junk harpoon, built by Airbus Defense and Space in the UK will be later fired into a fixed target that will be extended from the main satellite on a boom .After it completes the harpoon, net and lidar experiments, the removal of debris spacecraft will deploy the drag sail that will speed up its deorbiting process. These technologies are under testing and if they work, then these technologies could be used on further mission.

> Muskan 5th SEM AE

CHANDRAYAAN 2

Mission Chandrayaan-2 is the second lunar exploration mission developed by the Indian Space Research Organisation (ISRO), after Chandrayaan-1. It consisted of a lunar orbiter, the *Vikram* lander, and the *Pragyan* lunar rover, all of which were developed in India. The main scientific objective is to map and study the variations in lunar surface composition, as well as the location and abundance of lunar water.

The spacecraft was launched on its mission to the Moon from the second launch pad at the Satish Dhawan Space Centre on 22 July 2019 at 2.43 PM IST (09:13 UTC) by a Geosynchronous Satellite Launch Vehicle Mark III (GSLV Mk III). The craft reached the Moon's orbit on 20 August 2019 and began orbital positioning manoeuvres for the landing of the *Vikram* lander. *Vikram* and the rover were scheduled to land on the near side of the Moon, in the south polar region at a latitude of about 70° south on 6 September 2019 and conduct scientific experiments for one lunar day, which approximates two Earth weeks.



However, the lander deviated from its intended trajectory starting at 2.1 kilometres (1.3 mi) altitude, and had lost communication when touchdown confirmation was expected. Initial reports suggesting a crash were confirmed by ISRO chairman K. Sivan, stating that "it must have been a hard landing". The Failure Analysis Committee concluded that the crash was caused by a software glitch that operated only one of its five main engines during the final landing

phase.

ISRO may re-attempt a soft landing by November 2020 with Chandrayaan-3. The proposed configuration would include a detachable propulsion module, a lander and a rover.

The mission was launched on a Geosynchronous Satellite Launch Vehicle Mark III (GSLV Mk III) with an approximate liftoff mass of 3,850 kg (8,490 lb.) from Satish Dhawan Space Centre on Sriharikota Island. As of June 2019, the mission has an allocated cost of ₹ 9.78 billion (approximately US\$141 million) which includes ₹ 6 billion for space segment and ₹ 3.75 billion as launch costs on GSLV Mk III. Chandrayaan-2 stack was initially put in an Earth parking orbit of 170 km perigee and 40,400 km apogee by the launch vehicle.

In November 2019, ISRO officials stated that a new lunar lander mission is being studied for launch in November 2020; this new proposal is called Chandrayaan-3 and it would be a re-attempt to demonstrate the landing capabilities needed for the Lunar Polar Exploration Mission proposed in partnership with Japan for 2024. If funded, this reattempt would not include launching an orbiter. The proposed configuration would have a detachable propulsion module, a lander and a VSSC rover. According to director. S. Somanath, there will be more follow up missions in the Chandrayaan program.



MAKADIA JEET 7th SEM AE

ION PROPULSION ROBOTS

lon propulsion engines are currently powering satellites outside our solar system, but so far, the technology's applications have been limited here on Earth. These engines work by propelling electrons into a gas-filled chamber; when the electrons collide with gas atoms, the collision bumps an electron off the atom, rendering its charge positive (and making it into an ion). A grid at the end of the chamber with a negative charge then pulls the atom out of the thruster with a force that propels the craft forward.

That tiny atom-sized force, however, can't compare to the power of battery or fuel powered engines, so ion thrusters have never been practical for any applications on Earth. Their uses are limited in larger scale applications save space travel, where efficiency is king and the surrounding vacuum provides no resistance.

Now, however, this futuristic source of power might run Earthbound miniature robots created for a wide range of uses.

University of California, Berkeley engineering student Daniel Drew grew up immersed in science fiction as a child, a background that inspired him to study miniature robots as an adult. Drew imagined miniature robots like insects that could take on a range of practical problems, and wanted to create them. The problem was finding a way to power these tiny robots without making them bigger. Enter the ion thruster.



After designing ion thrusters on a tiny scale, Drew began to integrate them into the designs of his miniature robots. He called <u>the</u> final product "ionocraft": robots that are approximately one-half of one inch square — small enough to fit on the face of a penny — and fly linked to a tether.

TINY ROBOT TIMELINE

Drew's tiny robots might someday be used to monitor air quality, search for disaster survivors in confined spaces, and even pollinate plants in place of real-life insects during local extinction events. However, the technology will need some more time for development. Right now, the ionocraft is much like a quad copter and can't be steered, although the team can control its altitude. Thanks to its ion propulsion power and absence of moving parts, the ionocraft moves silently, "like a UFO." Drew and his team are now working to make their ionocraft robots more power and faster, and to make them steerable. Ultimately, he imagines humans psychologically interacting with swarms of tiny robots, teaming up with them in VR simulations. Drew aims to make the ionocraft efficient enough to carry tiny on-board batteries and stay aloft for ten minutes at a stretch.

Drew's team is not the only group hoping to harness the power of tiny robots. Scientists at Japan's Hokkaido University have developed <u>a miniature robot</u> created from organic compounds that move when exposed to blue light. These miniature robots might one day be used to deliver medicine inside the body to targeted areas. NASA has also been working on a lightweight bot called the <u>Pop-Up Flat</u> <u>Folding Explorer Robot (PUFFER)</u>. This tiny robot is able to climb steep slopes and adapt its shape to fit through tight spots.

> Mr. Avinash H.S Assistant Professor Department of Aeronautical Engineering

POEM

Everything I feel so natural Of the glamorous beauty of Earth, which makes our lives so special. The life of us, the children of one's are all special one's made for none's.

The way we consider Earth, the way it shatters.... **Everything had** a focus to generate..... but never regenerate. The day we opposed 9.8km/s, is The day we came more close to extinction. The resources created for equality, Utilized to destroy humanity. The feelings of e ee gs o attraction, **Utilized for** Monetization.... Everything, whole thing, we study, we research, is the end product of a process. **NO Creatures** born to discover the origin of this UNIVERSE. HAVE **HUMANITY WITH DIGNITY**, but **Never ROYALTY** WITH CRUELTY

> NITHESH BIRADAR 3RD SEM AE

<u>POEM</u>

ಗಿಅವು ತನ್ನ ಕಟ್ಟಿನ ಕಣ್ಣಿಯ ಎನ್ನು ซุธรุงว่ มANA สุสุทิ นาเชินที่สม. ॥ ವನ್ನೆ ಮೆಯ ಗುಡಿಹುತ್ತರು ದೇವಿಯು ನೀನು।। ഋ ട്യേൽ എഷ്പെ പ്രാഭാം നെറ്റ് . ಚೀಡುವೆಸು ದೇವಕಲ್ಲ ಒಂದು ವಕವನ್ನು ನಾನು।। 11 ಕರುಣಿನೆ ಎನ್ನನ್ನು ವಾಲುಯಾಗಿ ಪ್ರತಿ ಜನುವು ಬಿಡಬೇರೇನು. ರಿಳಾಸೊಬ್ಬ ನೀ ನನಗೆ ಪ್ರೀತಿ ಎಂದ ತೇನು।। 11 ನ್ ಓಾಡುವ ಆ ಪ್ರೀತಿಯ ವರ್ಗಿಕರಾರೆ ನಾನು. ភាមេត ಒಂದು ಜನ್ನ ಪ್ರೀತಿನಲು ನಿನ್ನ ನಾನು। 11 ಚ್ ಡುವೆಸು ದೇವಕಂ ಇನ್ನೊಂದು ಜನುಮರನು. ॥ ನನ್ನ ಬದುಕಿನ್ನಡುವ ದಾರಿ ದೀಪವು ನೀನು।। മവനർ താംപ് പ്പേട്ട് ലാര്ധ നപ്. । ಮೊಜಹುವುರಣಕಕೆ ಆ ರಣವರನ್ನು ನಾನು ॥ ಶವಾನನ್ನ ವಾಪಾಡುವ ದೇವರ ಸ್ತ್ರಮಪ್ ನೀನು, اا ന്വാർത്വർത്ത പ്രോതാം 3 പെട്ട് പുട്ടാ നിന്നു 11 ಆ ಮುತ್ತನ್ನು ಷಿಂಕರುವ ನಾಹನಿ ನಾನಾಗಲೇನು. ತೀನು ಜೊರೆಗರದ ಆ ಎನವನ್ನು ಕೆಲ್ಲತಂಕ ನಾನ್ಸೆ 11 11 பேற்கும் குக் விடி குடி குக் குக் குடி குக் குடி குடி វិទេហ៍ រដុរ្ភ០វ ជាAហA ៥៤៩ភាភិសារ 11 പ്പർദ്ദേദ്യ പ്രാദേശർ കുറ്റ് പ്രിയേഷ് കാഷ്യ

> Dinanth 3RD SEM AE

DRAWING & ART







SOURABH NIDWANAYA 5th SEM AE



Nikhil OY 7th SEM AE



Jyothsna 5th SEM AE





RITA 8th SEM AE







JAI HIND !!!



<u>TEACHERS DAY</u>



Teachers day was celebrated in honour of Dr. SARVAPALLI RADHAKRISH-NAN on 5th of September.

ENGINEERS DAY



AMARA organized engineers day celebration on 16th September on memory of Sir M. VISVESVARAYA

INAUGURAL FUNCTION





AMARA Inaugural function followed by technical talk by chief guest Mr. Santosh Shetty on 18th September.

<u>FRESHER'S DAY</u>



Fresher's day was celebrated on 24th September.

TECHNICAL TALK



Technical talk on "INDIAN AERONAUTICS AND AEROSPACE PROJECTS AND VI-SION 2020" by resource person Mr. JAYAPRAKASH RAO from DRDO.

SWACHH BHARAT





Department of Aeronautics participated in SWACHH BHARAT program conducted by Ramakrishna mission.



Amara conducted A² Quiz on Behalf of Students Day celebration

3D PRINTING WORKSHOP

AIRETARDS in Association with Srinivas Aero Club conducted a Workshop on 3D Printing on 12th October.

SPACE QUIZ AND MATH ORIGAMI

Quiz Competition was conducted by Students of aeronautical Engineering in Association with IIT Kharagpur and ISRO.

ALTIUS (2K19)

Various events were conducted by AMARA in association with Srinivas Aero club and AIRETARDS on the occasion of ALTIUS.

IPR REPORT

Department of Aeronautical, in association with IPR (Intellectual Property Rights) Cell organized a hands on "Prior Art Search for Patenting" on 29th August 2019 for all final year students. The resource person for this event was Mr. Deepak Raj, Associate Professor of Aeronautical Engineering and Member of IPR cell. He explained about the Indian Patent Organizations, Google Patents, European Patents and how one can search about the information about getting the patents and search for patent owners. The above things are explained with hands-on experience.

INDUSTRIAL VISIT

2nd year Aeronautical Engineering students visited Agni Aero Sports Aviation Academy, Bangalore.

3rd year Aeronautical Engineering students visited Jet Aerospace Aviation Research Centre, Kerala.

PLACEMENT

<u>INFOSÝS</u>

MAKADIA JEET

BHARTI V AGASIBAGIL

JET AEROSPACE

JAGDEESH B K 4SN16AE014

DEEPAK M K 4SN16AE010

MEGHAHK

M K PUNIT 4SN16AE019

SHIPRA S SHETTY 4SN15AE037

MEGHA H K 4SN16AE022

INTERNSHIP

NAME	COMPANY NAME		
ABHILASH A P	Air India Engineering Services Ltd, Hyderabad		
AJAY KUMAR J RAO	Air India Engineering Services Ltd, Hyderabad		
ANJANEYA	Air India Engineering Services Ltd, Hyderabad		
CHAITHRA P	Air India Engineering Services Ltd, Hyderabad		
GOKUL R	Air India Engineering Services Ltd, Hyderabad		
JAGADEESH B K	Air India Engineering Services Ltd, Hyderabad		
MAKADIA JEET SHAILESHBHAI	Air India Engineering Services Ltd, Hyderabad		
MOHAMMED HIFAAZ	Air India Engineering Services Ltd, Hyderabad		
NIKHIL O Y	Air India Engineering Services Ltd, Hyderabad		
PRAKRUTHI M	Air India Engineering Services Ltd, Hyderabad		
RAVI ASHOK PASHCHAPUR	Air India Engineering Services Ltd, Hyderabad		
ROHITH M	Air India Engineering Services Ltd, Hyderabad		
SACHIN P D	Air India Engineering Services Ltd, Hyderabad		
SHEKH SHAFA NOORAHMED	Air India Engineering Services Ltd, Hyderabad		
SUMAN PUJAR	Air India Engineering Services Ltd, Hyderabad		
TUSHAR SUBHASH DHULASAWANT	Air India Engineering Services Ltd, Hyderabad		
YAKSHITH GOPAL G	Air India Engineering Services Ltd, Hyderabad		
RAHUL V	Air India Engineering Services Ltd, Hyderabad		
VENKATESH ANILSINGH RAJPUT	AEQUS AEROSPACE, BELAGAVI		
SAATVIK M	NAL, Bengaluru		
PRASANNA KUMAR S	Ziegler Aerospace, Hyderbad		
PRAVEENA B	Ziegler Aerospace, Hyderbad		
SANGEETHA N	Ziegler Aerospace, Hyderbad		
STEVE JOHNSON LOBO	Ziegler Aerospace, Hyderbad		
SWATHI P SHETTY	Ziegler Aerospace, Hyderbad		
SHIPRA S SHETTY	Ziegler Aerospace, Hyderbad		

NAME	COMPANY NAME		
ABHISHEK	BEML Ltd, Mysuru		
ABHISHEK N D	BEML Ltd, Mysuru		
RAJESH M S	BEML Ltd, Mysuru		
THILAKRAJ	BEML Ltd, Mysuru		
VYSHNAV MOHAN	BEML Ltd, Mysuru		
YAJNANARAYANA AITHAL K	L K BEML Ltd, Mysuru		
BHOOMIKA M R	Helicopter - MRO Division(HAL), Bengaluru		
HARSHITHA R	Helicopter - MRO Division(HAL), Bengaluru		
JEEVAN SHETTY S	Helicopter - MRO Division(HAL), Bengaluru		
PRINCY ROSELIN A	Helicopter - MRO Division(HAL), Bengaluru		
SACHIN S M	Helicopter - MRO Division(HAL), Bengaluru		
SUNIL KUMAR M N	Helicopter - MRO Division(HAL), Bengaluru		
RITA ANGILINA A	Helicopter - MRO Division(HAL), Bengaluru		
KAVYA G ACHARYA	Foundry & Forge Division(HAL), Bengaluru		
GAGAN A	Foundry & Forge Division(HAL), Bengaluru		
AMOGH K RENUKAMATH	KGTTI, Bengaluru		
KUSHAL KUMAR REDDY J	KGTTI, Bengaluru		
MALLIKARJUN HOTHPET	KGTTI, Bengaluru		
SANTHOSH S	KGTTI, Bengaluru		
VISHWANATHARADDI P RADDER	KGTTI, Bengaluru		
BHARATI V AGASIBAGIL Master Control Facility - ISRO, Hassan			
DHANUSH D B	Master Control Facility - ISRO, Hassan		
KANAKASHREEGANDHI V M Master Control Facility - ISRO, Hassan			
SUBRAHMANYA K S	Master Control Facility - ISRO, Hassan		
DEEPAK M KURUBAR	Jet Aerospace Aviation Research Center, Palakkad		
M K PUNIT	Jet Aerospace Aviation Research Center, Palakkad		
МЕДНА Н К	Jet Aerospace Aviation Research Center, Palakkad		
BOYSON MARVIN GOVEAS	Terrazzo Dubaj Co. L. L. C. UAF		

#AEROTWEETS

22

OFFICE BEARER

PRESIDENT	VII AE	JAGADEESH B K	
ORGANIZING SECRE-			
TARY			
JOINT SECRETARY	V AE	MUSKAN	
JOINT TREASURER	VII AE	SUMAN PUJAR	
SAC PRESIDENT	VII AE	MAKADIA JEET SHAILESHBHAI	
	V AE	M SHERLYN SUPRIYA REDDY	
	V AE	GANESHA H J	
OFFICE BEARERS	III AE	SHWETA IRAGAR	
*	III AE	RAKSHITHA B N	
	III AE	DEVEGOUDA	

EDITORIAL

YAKSHITH GOPAL G	1	VII AE
HAR S DHULASAWAN	T ALL T	VII AE
CHAITHRA P		VII AE
MEGHA H K		VII AE
SANDHYA SJ		V AE
RASHMI K.N		V AE
GOWTHAM SHETTY		V AE
VEERENDRA		V AE
KIRAN		III AE
SUHANA KHANUN		III AE
SURAJ K		III AE
GOWTHAMI G		III AE
	YAKSHITH GOPAL G HAR S DHULASAWAN CHAITHRA P MEGHA H K SANDHYA SJ RASHMI K.N GOWTHAM SHETTY VEERENDRA KIRAN SUHANA KHANUN SURAJ K GOWTHAMI G	YAKSHITH GOPAL G HAR S DHULASAWANT CHAITHRA P MEGHA H K SANDHYA SJ RASHMI K.N GOWTHAM SHETTY VEERENDRA KIRAN SUHANA KHANUN SURAJ K GOWTHAMI G

UPCOMING EVENTS

- **ENVISION 2020**
- WORKSHOP ON PILOT RADIO COMMUNICATION & ATC
- WORKSHOP ON DESIGNING & ANALYSIS

XP0/2020

- UPCOMING EVENT IN INDIA INDIA'S PREMIER AEROSPACE AND DEFENCE COMPO-NENTS MANUF ACTURING EXHIBITION" 18 20 DEC 2019
 - 3RD AEROSPACE & DEFENCE MRO SOUTH ASIA 2020 SUMMIT 06.02.2020
 - INTERNATIONAL CONFERENCE ON AEROSPACE ENGI-NEERING, FLYING VEHICLES AND AERODYNAMICS ICAEFLVA ON FEBRUARY 2020 IN MUMBAI, INDIA
- AEROMART SUMMIT INDIA JUNE 2020
- NEELAKANTA CONVENTION CENTER INDIA 2020
- AUTO DESK (AU INDIA 2019)