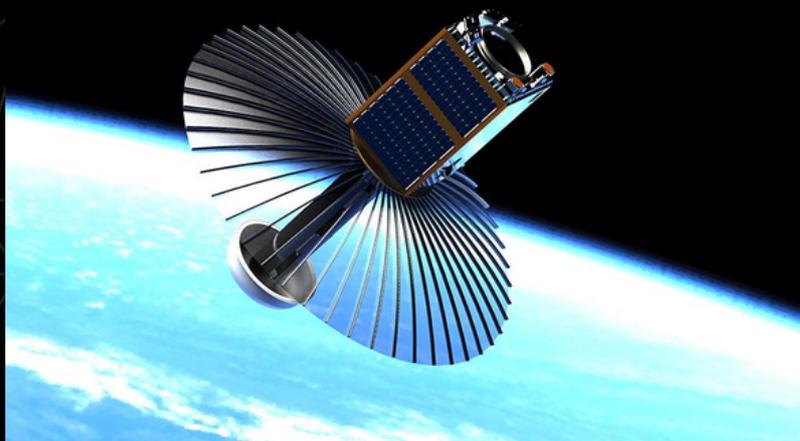


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DIGITRONIX

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*"Electronics &
Communication
Engineering"*



SRK INSTITUTE OF TECHNOLOGY

ENIKEPADU, VIJAYAWADA-521108

Secretary's Message

I would like to offer my best wishes to you all. The need for quality education has never been so acute than it is today. Understanding this need of the time, the SRKIT has gone a long way in promoting quality education through its various endeavors.

In the new era of globalization, all round efforts are being made to facilitate transformation of India from a developing nation to a developed nation. This transformation could obliterate a number of challenges our former president honorable A P J Abdul Kalam had a dream of India becoming the super power. He believed that the key to this success will be youth of India. In other words, we help in creating progressive and positive citizens. This prospectus is a reflection of the ethers of the college. I wish the institution and students here to have an ever growing success.



Sri B.S. Sri Krishna
Secretary
SRK Foundation



Sri B.S. Appa Rao
Chairman
SRK Foundation

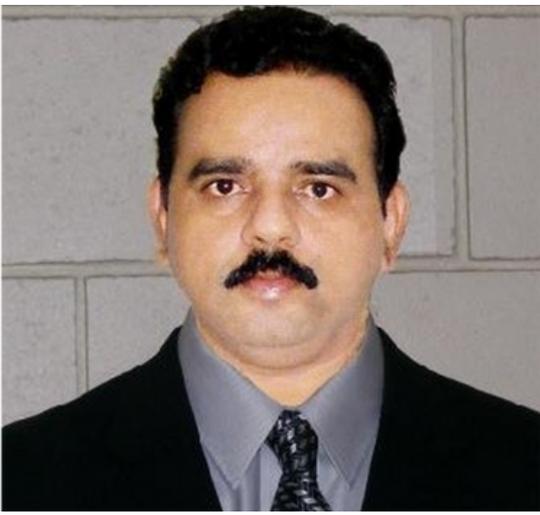
Chairman's Message

I delightfully welcome you to the SRKIT family. It is my vision to provide the nation with motivated, responsible and disciplined youth to shape a better future.

Education is the most powerful weapon which you can use to change the world. This is not only a key to unlock the golden door of freedom but it launches one in the world with equipped skills of mind and reasoning. Our endeavor at SRKIT is to equip the youth with relevant education which will help them not only to excel in their field of profession but also to contribute to the development of the country.

Our experienced and dedicated faculty nurtures and ignites the young minds through strong academics, co-curricular and extra-curricular activities which are aimed at total personality development of the students. We equip them to take on challenges and develop in them a strong will power to assume social responsibility. We give the students the necessary support and encouragement they need to reach their full potential.





Dr. M. Ekambaram Naidu
Principal

Principal's Message

It gives me great pleasure to invite you to take an initial peek into the heart that beats behind the appealing façade of SRKIT. I thank you for your interest in this exceptional institution which has recorded five decades of constant development, in the course of which it has accomplished much, making it one of the colleges recognized for its excellence and therefore, much sought after by the fresh applicants.

SRKIT tradition happily brings together sound academic achievement with an extensive, vibrant co-curricular programme that includes sports, and leadership training programmes. Our mission is to inculcate the love of knowledge in our students and, for this, we aim to develop the skills and demeanour of lifelong 'learning,' essential for making responsible global citizens. This will make them immensely capable of facing the future with resilience and optimism. On the deeper level, we try to instil the values of respect and trust in relationships that are the foundation of real success.

HoD's Message

I am hugely impressed by the commitment of the college and the staff to the provision of an excellent all-round education for our students in our facilities. The cultural, sporting and other successes of all of our students and staff are also proudly celebrated together.

Education is a life-long learning process. Learning happens all the time; not only in a pre-designated place called the school or the College. It happens in the home, between home and college too. The home's and college's mission therefore is to provide a learning environment and opportunities to the children as the learners.



Dr. S. Sri Gowri
HoD, ECE Dept.

Program Specific Outcomes (PSOs)

PSO1: Ability to apply the acquired knowledge of core subjects in design and development of Communications /Signal and Image processing.

PSO2: Analyze and solve complex Electronics and Communication engineering problems using hardware and software tools.

PSO3: Identify and apply domain specific tools for Design, Analysis and Synthesis in the areas of VLSI and Embedded systems.

Program Educational Objectives (PEOS)

PEO1: To identify, analyze and apply engineering concepts for design of Electronics and Communication Engineering systems and demonstrate multidisciplinary expertise to handle societal needs and meet contemporary requirements.

PEO2: To attain technical competence with an aptitude to foster in higher education with an inclination towards continuous learning.

PEO3: To develop effective communication and interpersonal skills to demonstrate leadership qualities, and exhibit professional ethics.

Program Outcomes (POs)

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

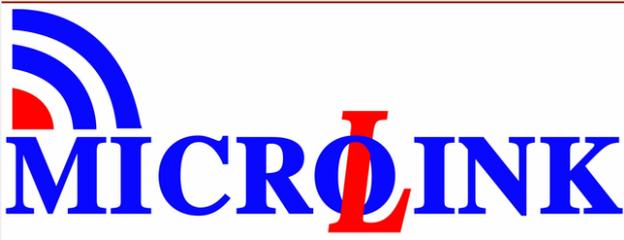
PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Co-Curricular

Field Visit

Students of II/IV BTech went on for a Field visit to DOORDARSHAN KENDRA , the visit started with the video recording room, Assistant Engineer at Doordarshan Kendra explained the concepts of lighting, cameras used with live demonstrations. Further VTR section is explained where the live news reading is tele-casted on DD National followed by different audio and video mixing techniques. Students visited main transmission section from where all the recorded programs and live programs are tele-casted through the antenna. Main objective behind the visit is to make students aware of communication systems, mechanism of broadcasting video and audio signals.



The students are able to get the detailed understanding of :-

Operate industry standard production equipment, in studio and on location, to create television, video and/or web content for multiple platforms. Deliver television, video and digital or web content via multiple platforms in formats that meet current broadcast industry standards.

Internships

Students of final year BTech went on an Internship at BSNL in the area of Advanced Telecom Technologies ,



Final year BTech students completed an internship at Apply Volt with Xilinx Vivado tool to Acquire knowledge about CAD tools used for VLSI design. Able to gather knowledge of High Level Synthesis and Able to understand Algorithms for VLSI Design Automation.

Students of third year took-up internship in Embedded system design with micro controller and programming.

The department organized workshops on Problem Solving using Python , Arduino programming and its applications for hands-on experience. The outcomes being Apply and analyze the applications in various processors and domains of embedded system, Analyze and develop embedded hardware and software development cycles and tools.

Girl Students of fourth year completed one month internship under South Central Railways Women's Welfare Organization. the area of work is Signaling and communication systems in Signal and Telecommunication department , South Central Railways, Vijayawada.



OUT REACH PROGRAMS

holds 'walk
against cancer



Awareness walk on women cancer was taken up by the NSS unit and the students of ECE department too participated in the event. One of the major health hazards in women is breast cancer. In this concern to give awareness to all women the students with NSS unit has taken a 3K walk organized by American Oncology Cancer Institute in Vijayawada. The program attracted the interest of many young women around the college and were given a detailed knowledge about the issue.

ENGINEER'S DAY: NSS UNIT HAS ORGANIZED ENGINEER'S DAY CELEBRATIONS IN SRKIT COLLEGE PREMISES. SPEAKING ON THIS OCCASION PRINCIPAL MR. EKAMBARAM NAIDU SAID THAT SEPTEMBER 15 IS CELEBRATED AS ENGINEERS DAY IN INDIA TO COMMEMORATE THE CONTRIBUTIONS OF MOKSHAGUNDAM VISVESVARAYA . ENGINEER'S DAY CELEBRATION HONORS THE HARDWORKING ENGINEERS ACROSS THE GLOBE AND INSPIRES YOUNG GENERATION TO PERUSE ENGINEERING AS PROFESSION. HE SAID THAT THE STUDENTS AT SRKIT SHOULD WORK HARD WITH INNOVATIVE IDEAS FOR THE WELFARE OF THE SOCIETY. STUDENTS EXPRESSED THEIR VIEWS AND OPINIONS ABOUT THE WAY TECHNOLOGY IS TO BE USED FOR THE UP-GRADATION OF THE ENGINEERING STANDARDS AND THUS THE QUALITY OF HUMAN LIFE. VARIOUS INNOVATIVE THOUGHTS OF THE YOUNG ENGINEERS WERE DISCUSSED AMONG THE STUDENTS

INTERNATIONAL YOGA DAY: THE NSS UNIT ON INTERNATIONAL YOGA DAY ORGANIZED YOGA SESSION IN ASSOCIATION WITH SRI AVADHUTA DATTA PEETAM .ALL THE STUDENTS PERFORMED DATTA KRIYA YOGA AS GUIDED BY INSTRUCTORS. VOLUNTEERS ALSO PARTICIPATED IN THE PROGRAM IN INDIRA GANDHI MUNICIPAL STADIUM CONDUCTED BY SRI AVADHUTA DATTA PEETAM. THE INSTRUCTORS SUGGESTED THE STUDENTS TO HABITUATE YOGA AS THE PART OF DAILY CHRONICLES FOR PHYSICAL , MENTAL AND EMOTIONAL WELL-BEING.

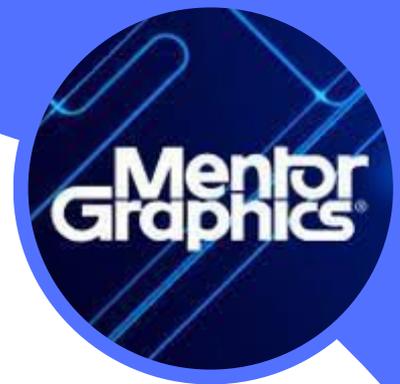
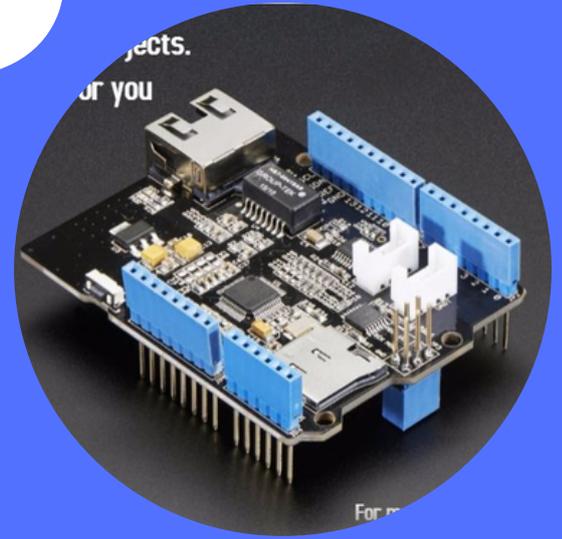
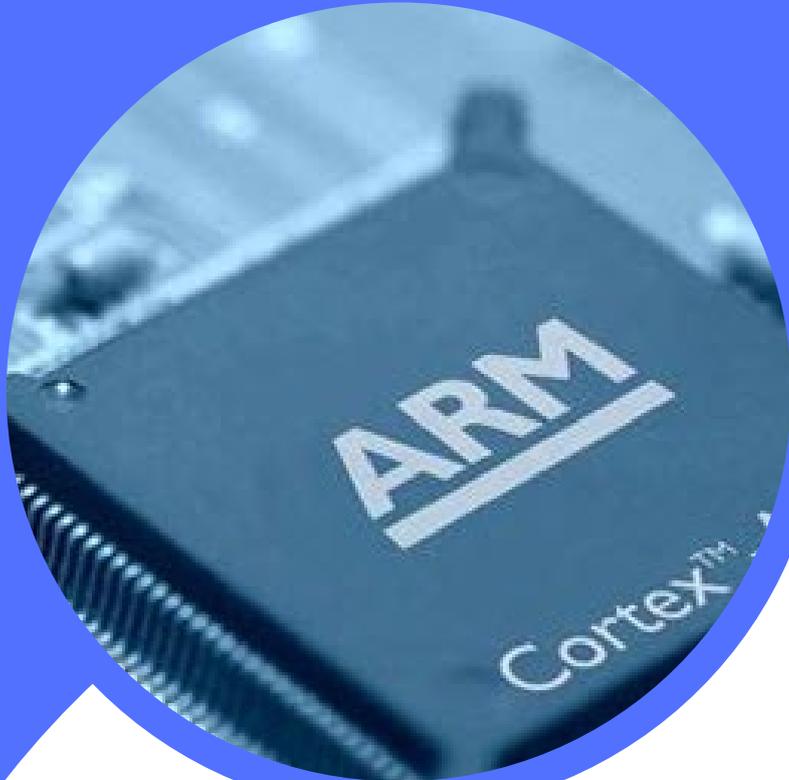
OUT REACH PROGRAMS



NSS VOLUNTEERS OF SRKIT TOOK A RALLY ON "MANA KRISHNA PLASTIC RAHITHA KRISHNA" IN VIJAYAWADA CITY TO CREATE AWARENESS ON HOW WE CAN ELIMINATE PLASTIC POLLUTION IN VIJAYAWADA CITY TO KEEP IT CLEAN AND GREEN. THE VOLUNTEERS HAVE GIVEN AWARENESS TO PUBLIC ABOUT THE DAMAGE CAUSED TO OUT ENVIRONMENT DUE TO THE PLASTIC AND ALSO PROPOSED THE ALTERNATIVES AND SUBSTITUTIONS FOR THE PLASTICS IN INDUSTRIAL AND DOMESTIC USAGES.

WORLD ORGAN DONATION DAY: THE NSS UNIT HAS ORGANISED WORLD ORGAN DONATION AWARENESS DAY IN SRKIT COLLEGE PREMISES IN ASSOCIATION WITH EENADU FM RADIO AND SUNRISE HOSPITALS. DR.M.V.SAI KRISHNA FROM SUNRISE HOSPITALS ADDRESSED THE GATHERING. HE CLEARED ALL THE MISCONCEPTIONS ABOUT THE ORGAN DONATIONS AND ENCOURAGED THE STUDENTS TOWARDS ORGAN DONATION. PRINCIPAL DR.EKAMBARAM NAIDU SAID THAT BOTH ORGAN DONATION AND BLOOD DONATION ARE NEED OF THE HOUR. ORGAN DONATION IS AN AMAZING OPPORTUNITY. THE CONCEPT OF GIVING A PART OF YOURSELF TO SOMEONE TO MAKE THEM WHOLE AND HEALTHY IS ABSOLUTELY AWE-INSPIRING.YOUR DONATION MEANS THE WORLD TO A PERSON IN NEED, AND MOST LIKELY IT WILL BE SOMEONE IN YOUR IMMEDIATE AREA, A PERSON WHO CAN DIRECTLY IMPACT YOUR COMMUNITY. AS YOU CAN IMAGINE, FINDING THE RIGHT MATCH FOR THESE DONATIONS IS NO SIMPLE TASK, BUT AS WE CREATE MORE AWARENESS, MORE ORGAN & TISSUE RECIPIENTS WILL HAVE THE CHANCE OF GETTING THEIR LIVES SAVED OR ENHANCED BY DONORS.ORGAN DONATION IS A VALUABLE ACT PERFORMED BY AN INDIVIDUAL WHILE EITHER THEY ARE ALIVE, OR DEAD, BY HIS SUCCESSORS. SUCH A PROCEDURE ALLOWS A PERSON'S ORGAN TO BE TRANSPLANTED TO ANOTHER PERSON EITHER WITH THE PERMISSION OF A DOCTOR OR WITH THE CONSENT OF THE FAMILY AFTER HE HAS EXPIRED. THE COMMON ORGANS THAT ARE GENERALLY TRANSPLANTED ARE THE HEART, KIDNEYS, LIVER, OR SKIN.

WORKSHOPS



- 1. Workshop on "Embedded Systems Using the ARM Mbed Platform from 24-08-2019 to 30-09-2019"**
- 2. Workshop on "VLSI Design" from 27-08-2019 to 30-08-2019**
- 3. Workshop on "Arduino Programming and Labs" from 27-08-2019 to 31-08-2019**
- 4. Workshop on "Vivado Design Flow , Hardware Debugging using IP Catalog and IP Integrator Applications of VGA on Xilinx FPPA" from 11-09-2019 to 13-09-2019**
- 5. Workshop on "PCB Design" from 16-09-2019 to 17-09-2019**
- 6. Workshop on "Programming for Everybody" from 04-05-2020 to 26-06-2019**
- 7. Workshop on "The Arduino Platform and C-Programming" 18-04-2019 to 22-05-2020**
- 8. Workshop on "Problem Solving and Programming Skills using Python" from 16-12-2019 to 18-12-2019**

TECH-NOTCH



Adaptive SoCs integrate both the processor and FPGA architecture into a single device while providing the necessary flexibility, scalability, and agility catering to the growing applications. The Zynq Ultra-Scale MP SoC series provide 64-bit processor scalability while combining real-time control with soft and hard engines for graphics, video, waveform, and packet processing. These Adaptive SoCs complement the decade-long availability of soft-core CPUs and other soft IP for building systems on FPGAs. Adaptive SoCs then is particularly useful when high performance is required for a portion of an algorithm that can be implemented in hardware using parallel or pipelined (or a combination) techniques -**S.SAI GEETH (16X41A0491)**

The term "**10nm class**" is often used in the DRAM industry, but this dimension generally refers to half-pitch of the active area. "10 nm" foundry structures are generally much larger. The 10 nm class generally refers to DRAM with feature sizes between 10 and 19 nm, and was first introduced ten years ago. 2016. As of 2020, there are three generations of 10 nm class DRAM. 1x nm (19-17 nm, Gen1). 1y nm (16-14 nm, Gen2); and 1z nm (13-11 nm, Gen3). 3rd generation '1z' DRAM is introduced for the first time. c. It was manufactured by Samsung in 2019 and was originally said to be manufactured using ArF lithography without using EUV lithography. Subsequent production utilized EUV lithography. Beyond 1z, Samsung will name its next node (4th generation 10 nm class) DRAM as 'D1a'



Virtual reality is a simulated 3D environment that enables users to explore and interact with a virtual surrounding in a way that approximates reality, as it is perceived through the users' senses. The environment is created with computer hardware and software, although users might also need to wear devices such as helmets or goggles to interact with the environment. The more deeply users can immerse themselves in a VR environment -- and block out their physical surroundings -- the more they are able to suspend their belief and accept it as real, even if it is fantastical in nature. VR classified depending on establishment methodologies

- Non-Immersive
- Semi-Immersive
- Full-Immersive
- Augmented Reality
- Collaborative VR



5G is the fifth generation of wireless cellular technology, offering higher upload and download speeds, more consistent connections, and improved capacity than previous networks. 5G is much faster and more reliable than the currently popular 4G networks and has the potential to transform the way we use the internet to access applications, social networks, and information. For example, technologies like self-driving cars, advanced gaming applications, and live streaming media that require very reliable, high-speed data connections are set to benefit greatly from 5G connectivity. At the same time, with its high speed, massive capacity, and low latency, 5G could help to support and scale several applications like cloud-connected traffic control, drone delivery, video chatting, and console-quality gaming on the go. **H.MAHITHA (17X41A0479)**

CORONA TIMES

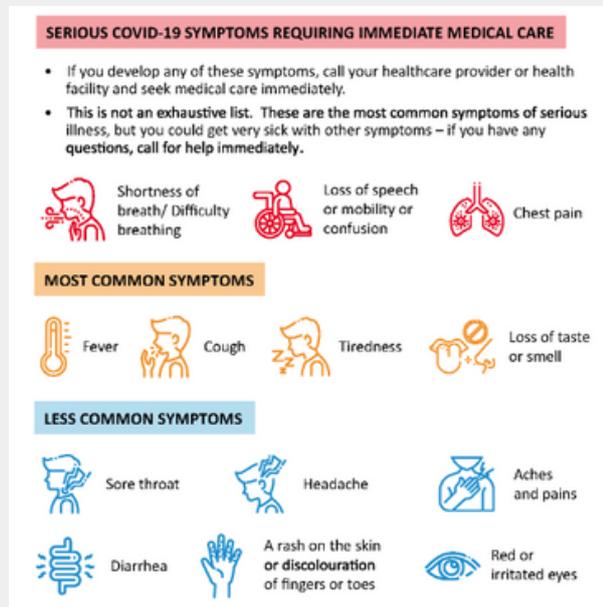
First Confirmed Case

The first cases of COVID-19 in India were reported on 30 January 2020 in three towns of Kerala among three Indian medical students who had returned from Wuhan, the epicenter of the pandemic. Lock-downs were announced in Kerala on 23 March, and in the rest of the country on 25 March. On 12 January 2020, the WHO confirmed that a novel coronavirus was the cause of a respiratory illness in a cluster of people in Wuhan, Hubei, China, which was reported to the WHO on 31 December 2019. On 30 January 2020, India reported its first case of COVID-19 in Thrissur, Kerala,^[10] which rose to three cases by 3 February 2020; all were students returning from Wuhan.

Symptoms

The most common clinical features of the early clinical cases from Wuhan, China, were fever (98.6%), fatigue (69.6%) and dry cough (59.4%)⁴. The second meeting of the Emergency Committee convened by the WHO Director-General under the International Health Regulations (2005) regarding the outbreak of novel coronavirus 2019 in the People's Republic of China on January 30, 2020, declared COVID-19 outbreak as Public Health Emergency of International Concern (PHEIC)⁵. As on February 17, 2020, except China, 25 other countries have been affected by COVID-19 outbreak with 70,635 confirmed cases and 1,772 deaths in China. Outside China, 794 cases were reported with three deaths

Estimating the burden of COVID-19 in India is difficult because the extent to which cases and deaths have been undercounted is hard to assess. The INDSCI-SIM model is a 9-component, age-stratified, contact-structured compartmental model for COVID-19 spread in India



If you have COVID-19, you can spread the virus to others. There are precautions you can take to prevent spreading it to others: isolation, masking, and avoiding contact with people who are at high risk of getting very sick. Isolation is used to separate people with confirmed or suspected COVID-19 from those without COVID-19.



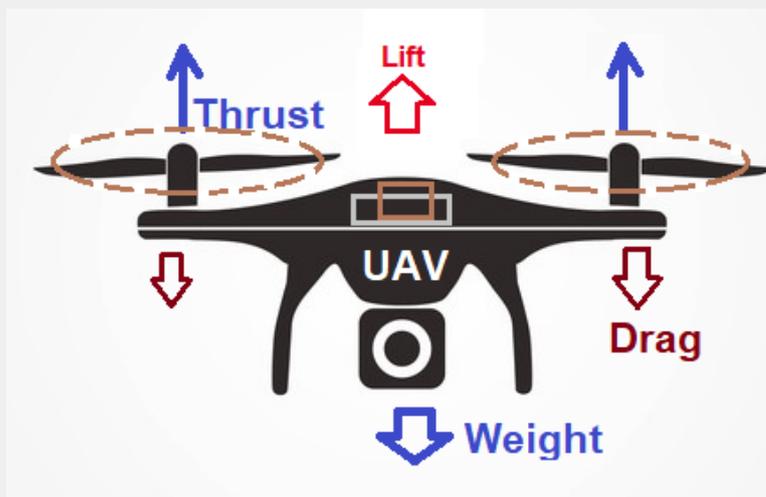
UN-MANNED AERIAL VEHICLE (DRONE) TECHNOLOGY

THE BEGINNING

Any aircraft or flying machine operated without a human pilot such machines is called an unmanned aerial vehicle (UAV). It can be guided autonomously or remotely by a human operator using onboard computers and robots. During surveillance or military operation, UAVs can be a part of an unmanned aircraft system (UAS), Drones are separately for air and water. Drones have become increasingly popular in recent years. They are used for a variety of purposes, including photography, videographs, surveying, inspection, and even delivery. But have you ever wondered how drones work? In this blog post, we'll take a look at the working principle of drones

BASIC COMPONENTS

- Frame
- Battery
- Flight controllers
- Sensors
- Motors and Propellers

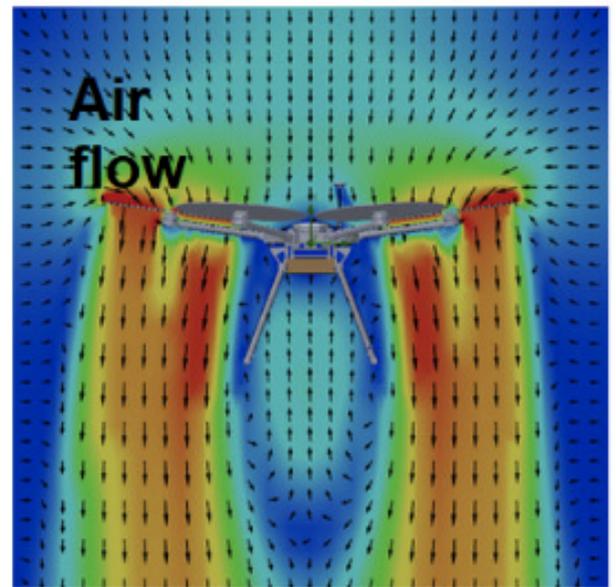


TYPES

- Fixed-Wing
- Rotor craft
- Lighter-than-air
- Flapping Wing (ornithopter)

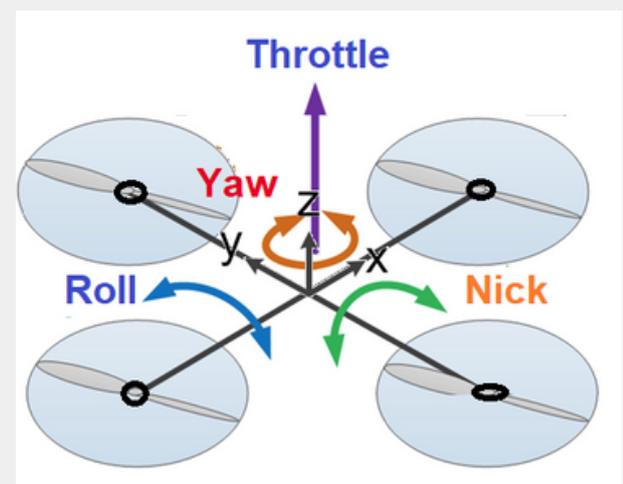
AERODYNAMIC PRINCIPLE

Velocity Contours



More propellers improve the stability of drones and load-carrying capacity but such drones need more battery power to drive more motors to get high power.

- Bicopter (2 propellers)
- Triplecopter (3 propellers)
- Quadcopter (4 propellers)
- Hexacopter (6 propellers)
- Octacopter (8 propellers)



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