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THE ZENITH

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TECHNICAL NEWS

This “robot bird” flies at 45 mph through forests— With no GPS or light

The team has developed the Safety-Assured High-Speed Aerial Robot (SUPER), capable of flying at speeds exceeding 20 meters per second and avoiding obstacles as thin as 2.5 millimeters - such as power lines or twigs - using solely on onboard sensors and computing power. With a compact design featuring a wheelbase of just 280 mm and a takeoff weight of 1.5 kg, SUPER demonstrates exceptional agility, navigating dense forests at night and skillfully avoiding thin wires.

Professor Zhang describes this invention as a game-changer in the field of drone technology, "Picture a 'Robot Bird' swiftly maneuvering through the forest, effortlessly dodging branches and obstacles at high speeds. This is a significant step forward in autonomous flight technology. Our system allows MAVs to navigate complex environments at high speeds with a level of safety previously unattainable. It's like giving the drone the reflexes of a bird, enabling it to dodge obstacles in real-time while racing toward its goal."

The breakthrough lies in the sophisticated integration of hardware and software. SUPER utilizes a lightweight 3D light detection and ranging (LIDAR) sensor capable of detecting obstacles up to 70 meters away with pinpoint accuracy. This is paired with an advanced planning framework that generates two trajectories during flight: one that optimizing speed by venturing into unknown spaces and another prioritizing safety by remaining within known, obstacle-free zones.

By processing LIDAR data directly as point clouds, the system significantly reduces computation time, enabling rapid decision-making even at high velocities. The technology has been tested in various real-life applications, such as the autonomous exploration of ancient sites, and has demonstrated seamless navigation in both indoor and outdoor environments.

"The ability to avoid thin obstacles and navigate tight spaces opens up new possibilities for applications like search and rescue, where every second counts. SUPER's robustness in various lighting conditions, including nighttime, makes it a reliable tool for round-the-clock operations." said Mr Yunfan Ren, the lead author of the research paper.

The research team envisions a wide range of applications for this innovative technology, including autonomous delivery, power line inspection, forest monitoring, autonomous exploration, and mapping. In search and rescue missions, MAVs equipped with SUPER technology could swiftly navigate disaster zones - such as collapsed buildings or dense forests - day and night, locating survivors or assessing hazards more efficiently than current drones. Moreover, in disaster relief scenarios, they could deliver crucial supplies to remote and inaccessible areas.

Source:<https://sciencedaily.com/>



Source: The University of Hong Kong

EXPERT LECTURES / SEMINARS / COURSES ORGANISED

Seminar on Studentpreneurship at K. K. Wagh Institute

The Entrepreneurship Development Cell of the Electronics & Telecommunication Engineering Department at K. K. Wagh Institute of Engineering Education and Research, Nashik, in collaboration with IETE, successfully organized a seminar titled “Studentpreneur’s Playbook: Start Smart, Scale Fast” on 5th April 2025.

The session, conducted from 10:25 AM to 12:15 PM at the AV Hall of the E&TC Department, featured eminent speaker Ms. Kanishka Thakur, who inspired students with insights into entrepreneurial thinking and growth strategies. The event was aimed at encouraging innovative thinking and providing students with a roadmap to smart and scalable startup ventures.

K. K. Wagh Education Society's
K. K. Wagh Institute of
Engineering Education and Research, Nashik
Entrepreneurship Development Cell of
Electronics & Telecommunication Engineering Department
In collaboration with IETE
Organizes Seminar on
**"STUDENTPRENEUR'S PLAYBOOK:
START SMART, SCALE FAST"**

Speaker
Ms. Kanishka Thakur

Vision
To enable technical education and research in Electronics and Telecommunication (E&TC) Engineering for sustainable development of industry and empowerment of society.

Mission
1. To provide quality education for the empowerment of technically and professionally competent E&TC engineers.
2. To build an environment to promote entrepreneurship and start-up culture.
3. To provide students' continuous knowledge and capability to promote research culture.

Attendees: SY (E&TC) Students

Dr. S. A. Patil (Gale) UG Co-ordinator
Dr. D. M. Chaudhkar HOD (E&TC)
Dr. K. N. Nandurkar Principal

5th April 2025
10:25 am - 12:15 pm
AV Hall, E&TC Department



Experi Lectures / Seminars / Courses organised

Workshop on IPR and Startups Conducted at K. K. Wagh

The Department of Electronics and Telecommunication Engineering, in collaboration with the Institution's Innovation Council (IIC), organized a two-day workshop on "IPR and Startups" on 25th and 26th April 2025 at 10:30 AM.

The workshop was conducted by Ms. Swati Varshney from 1STOPIP Solutions, Delhi, who guided students on the fundamentals of Intellectual Property Rights, patents, trademarks, and startup development processes. The session aimed to promote innovation and entrepreneurial awareness among students.

The event received active participation from students, contributing to their understanding of protecting innovations and building a startup mindset.

K. K. Wagh Education Society's
K. K. Wagh Institute of
Engineering Education and Research, Nashik
Electronics & Telecommunication Engineering Department
in collaboration with IIC

Online Workshop on
"IPR AND STARTUPS"

Vision
Excel in quality technical education and research in Electronics and Telecommunication (E&T) Engineering for a sustainable development of industry and betterment of society

Mission
M1: To provide quality education for the preparation of technically and professionally competent E&T engineers.
M2: To generate an environment to embrace the long learning and 21st century skills.
M3: To ensure constant process of training and capability to promote research culture.

Speaker
Swati Varshney
ISTOIP Solutions,
Delhi

Meeting ID: 613 596 0075
Passcode: 123

25th & 26th
April 2025

10:30 am Onwards

Dr. S. A. Patil (Ugate)
UG Co-ordinator

Dr. D. M. Chandwadkar
HOD (E&T)

Dr. K. N. Nandurkar
Principal

Experi Lectures / Seminars / Courses organised

Hands-on Workshop on PCB Design and Fabrication at K. K. Wagh

The Department of Electronics and Telecommunication Engineering, in collaboration with IETE, organized a one-day “Hands-on Workshop on PCB Design and Fabrication Process” on 26th April 2025 at 10:00 AM. The workshop provided practical exposure to PCB layout designing, etching, and fabrication techniques. Students actively participated and gained valuable insights into the complete PCB development cycle, bridging the gap between theory and real-world applications.



K. K. Wagh Education Society's
K. K. Wagh Institute of Engineering Education and Research, Nashik
Website: www.engg.kkwagh.edu.in
(An Autonomous Institute from A.Y - 2022-2023)

Department of Electronics & Telecommunication Engineering
in collaboration with IETE

Organizes Workshop On

“Hands-on Workshop on PCB Design and Fabrication Process”

Mr. Ashwin Bhole
(IPC Certified Designer CID)

On 26th April, 2025 From 10:00 am onwards
Venue: :- Vishvesharaya Hall, Civil Department, KKWIEER

Dr. S. A. Patil(Ugale) U.G. Co-ordinator | Dr. D. M. Chandwadkar Dean, Student Affairs, HOD, E & TC Engg. | Dr. K. N. Nandurkar Principal



CAMPUS PLACEMENTS / ACHIEVEMENTS

9 Students Placed at Mahindra & Mahindra



We are proud to announce that 9 students from the Electronics & Telecommunication Engineering (E&TC) department have been placed at Mahindra & Mahindra with a package of ₹3.9 LPA.

Selected Students:

1. **Aarya Satish Gupta**
2. **Anushka Narendra Hire**
3. **Disha Pravin Pagar**
4. **Durgesh Gulab Badgujar**
5. **Komal Sanjay Sonawane**
6. **Nisha Anil Tambe**
7. **Prabodh Anil Joshi**
8. **Shruti Triyogi**
9. **Pranav Vijay Ahire**

This achievement reflects the department's commitment to excellence and the students' consistent hard work and determination.

BE E&TC Students Win 1st Prize at IEEE Divisional Level Competition

Students of Final Year Electronics & Telecommunication Engineering (BE E&TC) from K. K. Wagh Institute of Engineering Education and Research, Nashik, achieved 1st prize in the prestigious IEEE Divisional Level Hardware Model Competition held at KBTCOE, Nashik.

The competition witnessed participation from top engineering institutes across the division, where teams showcased innovative hardware-based solutions to real-world problems. The winning project by K. K. Wagh students impressed the judges with its technical depth, creativity, and practical applicability.

This achievement reflects the students' dedication, problem-solving skills, and the department's emphasis on hands-on learning and research-driven education.



VISION & MISSION



VISION

Excel in quality technical education and research in Electronics and Telecommunication (E&TC) Engineering for sustainable solution development for industry and betterment of society.

MISSION

M 1: To provide quality education for the preparation of technically and professionally competent E&TC engineers.

M 2: To create an environment to enhance life-long learning and 21st century skills

M 3: To inspire students' innovative thinking and creativity to promote research culture.

MEET OUR TEAM

FACULTY ADVISOR

Prof. S. D. Raut

STUDENTS FROM THIRD YEAR

Kshitija Deshmukh
[TY - A]

Shreya Bhakare
[TY - A]

Om Dhokane
[TY - A]

Devashri Shastri
[TY - A]

Harsh Gavali
[TY - A]

Bhavi Sankhala
[TY - A]

Jay Ikhe
[TY - B]

STUDENTS FROM SECOND YEAR

Sayali Patil
[SY - A]

Anushka Patil
[SY - A]

THE ZENITH

"Believe you can and you're
halfway there."

– Theodore Roosevelt



Published by Department of of E&TC

**K. K. Wagh Institute of Engineering Education &
Research, Nashik**

Hirabai Haridas Vidyanagari, Amrutdham,
Panchavati, Nashik-422003.