ISSN: 2583-7222 (Online)

किरIITH

the crowning glory

A quarterly e-newsletter of IITH
Volume 5 | Issue 3 | Jul - Sep 2023

Transportation@IITH

భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

सतर्कता जागरूकता सप्ताह
Vigilance Awareness Week
2023

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Editorial Epistle

Dear Readers,

Hope you are doing well!

We have been overwhelmed by the support we have received so far and would like to offer sincere thanks to everyone who has been involved in these fourteen issues of किराIITH. This Newsletter marks a significant milestone in our journey towards fostering stronger connections and sharing valuable insights with our esteemed community that serves as the bridge that connects us, enables us to exchange ideas, and empowers us to stay informed and engaged.

Within these virtual pages, you will find a treasure trove of thought-provoking articles, informative features, event highlights, and much more. Our dedicated team has put in tireless efforts to curate content that is not only informative but also captivating, ensuring that every reader finds something of interest and value.

Like every time, this issue is also being dedicated to one of the key thrust research areas of IITH.

Following this precedence, we are back with yet another critical area of research at IITH, "Transportation @IITH"-Issue - 16 (Vol-5, Issue-3). Transportation Geotechnics is a fairly new emerging research area that addresses the practical issues of highway pavements from the geotechnical engineering point of view. There is a huge career potential in this area as India is envisioning investing heavily in infrastructure for national development.

We trust this issue will be an elucidating source of exceptional research work being carried out by the IITH fraternity in the theme area.

This issue, from this year onwards, will be released during Vigilance Awareness Week to celebrate every year the birth anniversary of Shri Sardar Vallabhbhai Patel, known to be a man of high integrity - the Iron Man of India (Oct 30 - Nov 5) and we are glad to release it on Indian Constitution Day, Nov 26, 2023.

We will be back next quarter with another significant research area in which IITH making a mark to Invent and Innovate in Technology for Humanity.

Stay connected.

We wish everyone a safe and healthy stay.

Happy Reading...

> "Excellence is a continuous process and not an accident.
>
> Dr APJ Abdul Kalam

Dr Mudrika Khandelwal
(Dean – Alumni & Corporate Relations)
{Editor-in-Chief}

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Director's Desk

Two ways of building character:
Cultivating the strength to challenge
oppression, and tolerate the resultant hardships
that give rise to courage and awareness.

Shri Sardar Vallabhbhai Patel

Dear friends,

I trust this message finds you well and thriving in all your endeavours.

It brings me immense pleasure and excitement to introduce the latest edition of our Institute's Newsletter, "किरIITH" (KirIITH) – The Crowning Glory, which delves into the remarkable technological strides we have made in the field of Transportation. The previous quarter was a time landscape filled with extraordinary initiatives that have placed IITH on the national and global stage, including the ground-breaking "Open-to-All Teaching (OAT)" program, offering real-time learning for external candidates, a first-of-its-kind initiative live-streamed from IITH's classrooms for working professionals, faculty members, and students from diverse colleges.

In our pursuit of global recognition, IITH had the privilege to host the Final Round of the Iconic Model G20 Initiative in partnership with INYAS under the Ministry of Education's umbrella, where incredible ideas for global betterment were selected under six distinct themes. Additionally, we hosted a Panel Discussion on the G20 "India Presidency - Digital Transformation and Literacy" in collaboration with Akashvani, RNU, Hyderabad, Prasar Bharati.

We are happy to release this issue on the Constitution Day of India, which reminds us of our responsibility to make India not only Atmanirbhar but also a global leader. I am delighted to share that we also joined the Pan India celebration of the 3rd Anniversary of the National Education Policy adopted in 2020. Throughout its existence, IITH has actively worked on innovative measures to enhance academic and research excellence, including interdisciplinary approaches, practice-based learning, and Fractal (modular) academics in alignment with NEP 2020. The quarter was further enriched by hosting Deans (Academics) from all IITs for the "FUTURE ACADEMICS - Opportunities & Challenges" Conference and celebrating the 12th Convocation for the Graduating Class of 2023, welcoming 966 new alumni into our adored Alumni Diary.

Research remains a cornerstone of IITH's quest for excellence. Notably, IITH's researchers, as part of the Indian Pulsar Timing Array (InPTA) consortium, made ground-breaking discoveries, including evidence for ultralow frequency gravitational waves and the "Humming of the Universe" by low-frequency gravitational waves. Several patents were also published and granted to our researchers by the Indian Patent Office.

In September, we celebrated our unique relationship with Japan through the 6th edition of Japan Day (Career Fair) and the inaugural Japan Week, strengthening our ties with various Japanese universities and organizations. IITH has also formalized its collaboration with Kathmandu University, Nepal (KU) through a Joint Doctoral Program and is hosting 10 BTech students from KU in their final year. In addition, a number of Joint PhD students are visiting from KU this semester to carry out their research at IITH. Initiatives like the joint accelerator under INDUS-X by iTIC Incubator at IITH and H4XLabs aim to equip defence Startups to expand and navigate the US defence markets.

In our commitment to global betterment, IITH has joined hands with Andhra Mahila Sabha and Neer Interactive Solutions to establish CGDT - a Center for Geo-spatial AI and Digital Twins, empowering women and advancing technology innovation. We've also partnered with the Directorate General of Quality Assurance (DGQA) to offer MTech, Executive MTech, and Certificate Programs through Hybrid Classrooms, promoting digital literacy.

On the booming campus life front, I'm excited to share that the 4th edition of Milan, our inter-hostel Sports-Tech-Cultural Fest, was launched to the resounding cheers of our enthusiastic student community. Milan, which celebrates the harmonious blend of talents across our hostels, promises a vibrant extravaganza of sportsmanship, technological prowess, and artistic creativity. Like every year, this edition also introduces the "Champion of Champions", recognizing the most outstanding hostel that excels in all aspects of the fest.

May our किरIITH inspire, engage, and trigger interesting dialogue that propels us toward a future where sustained excellence empowers us to invent and innovate in technology for humanity! Your unwavering support has been invaluable, and I express my deepest gratitude for being an integral part of our journey toward a brighter tomorrow. Your support encourages us to return with an enhanced and enriching experience in the upcoming calendar year with exciting editions of "किरIITH".

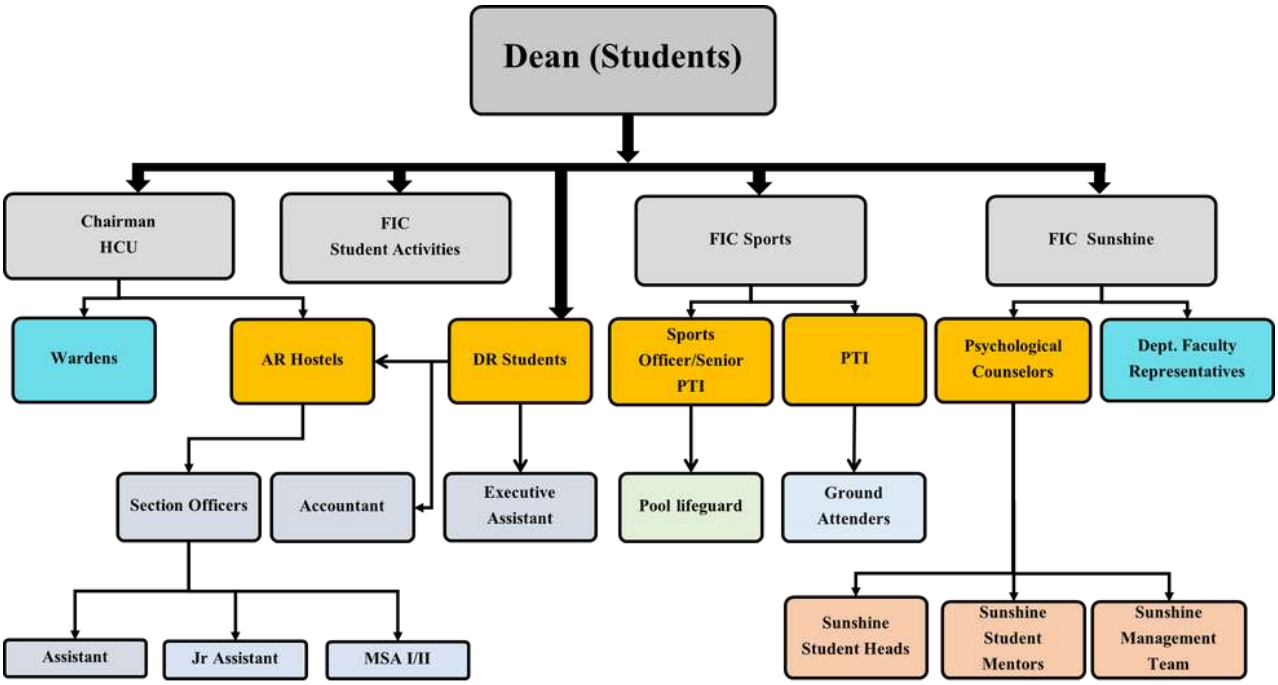
I extend my best wishes for a time filled with happiness, fulfilment, and endless possibilities as we near the new year.

~ B S Murty

Student's facilities and life at IIT Hyderabad

KID: 20230301

It is my utmost pleasure to share the information about various activities undertaken by the Dean Student's office at IITH. The Dean student's office ensures the safety and well-being of students on the campus. A lot of student activities are conducted throughout the year to improve the student's capabilities in all aspects, such as academics, games, sports, and leadership qualities, etc. The structure of the Dean student's office is given below:



Dean (Students), IIT Hyderabad - Operational Structure

Hostel life at IIT Hyderabad differs from staying home away from parents. However, this phase of a student's life will develop many lifelong connections; students become independent and disciplined in a vibrant and colourful atmosphere. With activities around the year, IITH hostels are second home and will play a huge role in transforming student's life. Currently, we have 18 hostels which can accommodate close to 4600 students. Hostels at IITH have top-class facilities like rooms with Radiant Cooling Technology, High-speed Internet Connectivity, a Pantry area, UV water purifiers, Washing Machines, Hot water facilities (Solar and electrical), Dining Halls, etc.

Amenities provided for the students include Vending Machines and Sanitary napkins vending machines, Cafeteria in old and new hostel blocks, Bank Services - 04 banks with ATM, Recreation Room and Snooker pool, Tinker's lab, Dance room, TV room, Bus/EV vehicle Facility, 24*7 CCTV Surveillance, Security Personnel (Men and Women), New amenities complex, Supermarket, Saloon and Laundry facility, Post office are within campus. Burger King, Domino's Pizza and Ishtara food courts are available for refreshments. Other facilities include a Clinic - Doctors available 24*7, 24*7 ACLS Ambulance service- 02 no., Apollo pharmacy - 24*7, Student Health Insurance policy etc.

The student life at IITH has been and continues to be very eventful. There is an obvious flow of energy with many events and celebrations almost every month. Starting from the Orientation Program and Fresher's Night at the start of the academic year until the Farewell at the very end. Our calendar is fully packed with events of all kinds, like Ice cream nights for the foodies and DJ Nights for the people who want to dance their hearts out.

The annual techno-cultural fest of IITH, ELAN & NVision, Diesta offers a host of exciting competitions to test one's skills; informal events and pro-shows make the event unforgettable. Milan - The General Championship is a 10-day-long inter-hostel celebration including activities in Sports, Cultural and SciTech to promote cohesiveness among the students. Students from IITH actively participated in the Inter IIT Tech Meet held at IIT Kanpur, the Inter IIT Sports Meet held at IIT Delhi and IIT Roorkee, and the Inter IIT Cultural Meet held in IIT Madras, bringing laurels to IITH by winning prizes in various competitions held during the meet. Various student clubs like E-Cell, Sci-tech, Cultural, Behind the Lens, Rangde Munch, Lit-Soc, Entrepreneurship Club, etc. help students discover themselves.

KID: 20230301

"EK Bharat Shrestha Bharat" (EBSB) Club of IITH organized various events/festivals, which were a huge success with participation from many students, faculty and staff.

The NSS team is actively involved in multiple community development programs like UDAAN - Study Centre, where the students teach underprivileged children free of cost, Vidhaydhaan - remedial classes to clarify the concepts/doubts of school kids through traditional, fun way and short videos, Swachhata he Seva and Plastic waste free campaigns, Orphanage visit, Blood Donation camp, National Education Day, Clean India Drive, Fit India Movement. The First Saturday of every month is identified as 'Green Day of Month', where students participate in mass plantations on the campus along with faculty and staff. Extra Mural Lectures at IITH intend to bring eminent personalities from eclectic domains on one platform to talk about various subjects like art, social work, economics, psychology, sports, science, etc. and inspire our IITH fraternity with insights that they could induce in their lives.

IITH has managed to do its best for the well-being of the students, both physically and mentally—students at IITH excel in academics as well as extracurricular activities. IITH boosts an Indoor Sports Facility with International standards, a Swimming pool, a Gymnasium, etc. Specialised dedicated sports coaches train the students in various sports based on their area of interest. Regular yoga sessions are being conducted for the students to help students maintain good health and be fit.

Students observed International Yoga Day with full enthusiasm. Students are involved in numerous sports to enable them to maintain their physical fitness and develop team spirit. Students, Faculty and Staff of IITH have won laurels in inter-IIT sports meet and sports events of national /international reputation.

Facilities available in new SNCC Complex are Indoor facilities: Badminton courts with Yonex mats 4 courts, Indoor synthetic jogging track 200mrts, GYM for boys and girls, Squash Woodend courts 4no, TT hall with acrylic flooring, Snooker room, skating ring, Volleyball courts PU flooring 4no, Basketball courts PU flooring 2no, Steam bathroom, changing rooms for boys and girls rooms, Chess room, Indoor swimming pool 50 mts, Baby swimming pool 20mrts. Outdoor facilities: Football ground with Floodlights, Cricket ground with Floodlights,400 mts synthetic Athletics track with 8 lanes.

Sunshine - The counselling cell has conducted individual, group and interactive sessions with students for mental and emotional support. Besides promoting mental health and psychological well-being, the dedicated team of Counsellors, mentors and buddies have also been working round the clock, engaging in various prevention initiatives by providing psychological support to the students who were vulnerable and at risk. They have also been trying to build a supportive environment here at IITH through activities and initiatives targeted to create awareness about the importance of mental health and the need to foster bonds that are supportive and meaningful, alongside being stress-buster sessions for the students.

Some of the programs initiated over the years in this regard are events like the Mental Health Awareness Week activities, Happiness Week activities, and the Sunshine Newsletter called Sunshine Pulse. Initiatives to Promote Mental and Psychological well-being include Initiatives for Prevention like the plantation drive, One More Chance, Heal Out Loud, movie screening and suicide prevention training, all aimed at promoting self-care, nurture, hope and resilience. Teaching and Learning Initiatives like the preplacement talk, pre-internship talk, pre-placement open house session and the weekend series, Crisis Support.

Prof K Venkata Subbaiah
Dean (Students) and,
Professor - Mechanical & Aerospace Engineering

Transportation Research @ IITH

KID: 20230302

A country's socio-economic progress hinges on the effectiveness of its transportation network. Highways, among various transportation systems, are the primary infrastructure driving growth and fostering national cohesion, particularly in developing nations like India.

As of the end of 2022, India boasts the world's second-largest road network, spanning a total of 6.33 million kilometres. Remarkably, in 2020, India set a record by constructing 13,000 kilometres of highways.

The Ministry of Road Transport and Highways (MoRTH) has sanctioned 12,376 kilometres of National Highway (NH) projects for the year 2022-23. The nation's ambitious goal is to achieve a daily road construction rate of 40 kilometres, with a government investment target of approximately 5.35 lakh crores (equivalent to US$ 74 billion) by 2023.

Furthermore, India plans to invest around 15 lakh crores (approximately US$ 213 billion) in constructing 65,000 kilometres of roads and highways under the Bharatmala Pariyojana initiative. India's highway network carries roughly 70% of freight and approximately 85% of passenger traffic.

Nevertheless, agencies and consortia involved in road construction face multifaceted challenges, from sourcing high-quality construction materials to addressing sustainability and circular economy concerns associated with the highway infrastructure.

The availability of superior construction materials is a primary hurdle for road agencies, as it takes approximately 15,000 tons of aggregates to construct just one kilometre of a National Highway. This issue is particularly acute in India's northeastern states, where the aggregates are of subpar quality. Consequently, these regions must procure aggregates from distant places like Bihar or Jharkhand, which are nearly 2,000 kilometres away, thereby inflating construction costs.

Furthermore, India is investing in enhancing last-mile freight connectivity through the Gati Shakti Scheme, a significant multi-modal transportation infrastructure project. India is also preparing for advanced technologies such as smart mobility and autonomous vehicles, although the existing highway infrastructure is not yet equipped for these futuristic advancements.

To tackle some of these challenges, the National Highways Authority of India (NHAI) has partnered with the Indian Institute of Technology Hyderabad to establish a 'Transportation Research and Innovation Hub (TRI HUB). The TRI HUB is presently engaged in cutting-edge research to develop innovative and cost-effective solutions for highway construction. These solutions include technologies like geosynthetics, reclaimed and recycled materials, and fibre-reinforced concrete for bridge construction, all aimed at enhancing structural stability lifespan and promoting a circular economy.

This collaborative effort between NHAI, IITH, and IRC exemplifies a concerted endeavour to modernize and optimize highway construction practices, ultimately benefitting both the infrastructure and the nation as a whole.

~NHAI

Pic Courtesy: Canva

KID: 20230302

NHAI encourages the deployment of these technologies in real-world conditions to assess their performance under actual traffic and loading scenarios. Notably, some of these technologies, such as geosynthetics in highways, have gained acceptance from the Indian Roads Congress (IRC) for immediate implementation in the field. **The research team at IIT Hyderabad is closely collaborating with IRC committees and NHAI to establish guidelines and standards for these innovations.**

Transportation Geotechnics is a fairly new emerging research area that addresses the practical issues of highway pavements from the geotechnical engineering point of view. There is a huge career potential in this area as India envisions investing heavily in infrastructure for national development.

NHAI's Message for IITH:

The National Highways Authority of India (NHAI) was constituted under an Act of Parliament in 1995. NHAI is responsible for the development, maintenance, and management of the National Highways in India. The Authority is not only constructing National Highways and Expressways but is also contributing towards nation-building.

Over the years, NHAI has maintained a continuous focus on the development and integration of novel technologies within the realm of highway construction. An active player in this endeavour is the transportation research group at the Indian Institute of Technology Hyderabad (IITH).

In 2022, NHAI entered into a Memorandum of Understanding (MoU) with IITH, fostering a collaborative effort to address critical issues associated with highway construction. **Currently, IITH is engaged in ten distinct projects that delve into various aspects of highways and bridges.** These endeavours aim to enhance existing technologies or introduce innovative methods to streamline construction processes and prolong the lifespan of these vital infrastructures. Additionally, these projects are geared towards cost control and the promotion of sustainability. A recent review of these projects has left NHAI deeply impressed with the progress achieved thus far. Some technologies, such as incorporating geosynthetics in various pavement layers, have already found practical applications in select highway projects. **The IITH team is closely coordinating with the Indian Roads Congress (IRC), an organization responsible for shaping codes of practice and guidelines for highway construction that incorporate these new technologies.**

Officials from IITH & NHAI during the MoU Signing in Jul 2022

Prof Sireesh Saride
Chair, TRI HUB and
Professor - Civil Engineering, IITH

परिवहन अनुसंधान @आईआईटीएच

KID: 20230303

किसी देश की सामाजिक-आर्थिक प्रगति उसके परिवहन नेटवर्क की प्रभावशीलता पर निर्भर करती है। विभिन्न परिवहन प्रणालियों में से राजमार्ग, विशेष रूप से भारत जैसे विकासशील देशों में विकास को बढ़ावा देने और राष्ट्रीय सामंजस्य को बढ़ावा देने वाला प्राथमिक बुनियादी ढांचा होता है। वर्ष 2022 के अंत तक, भारत ने दुनिया के दूसरे सबसे बड़े सड़क नेटवर्क होने का गौरव हासिल कर लिया, जिसका क्षेत्र कुल 6.33 मिलियन किलोमीटर तक फैला हुआ है। वर्ष 2020 में, भारत ने उल्लेखनीय रूप से, 13,000 किलोमीटर राजमार्गों का निर्माण करके एक नया कीर्तिमान बनाया।

सड़क परिवहन और राजमार्ग मंत्रालय (MoRTH) ने वर्ष 2022-23 के लिए 12,376 किलोमीटर की राष्ट्रीय राजमार्ग (NH) परियोजनाओं को मंजूरी दी है। देश का महत्वाकांक्षी लक्ष्य वर्ष 2023 तक लगभग 5.35 लाख करोड़ (74 बिलियन अमेरिकी डॉलर) के सरकारी निवेश लक्ष्य के साथ 40 किलोमीटर की दैनिक सड़क निर्माण दर हासिल करना है।

इसके अलावा, भारतमाला परियोजना पहल के अंतर्गत 65,000 किलोमीटर सड़कों और राजमार्गों के निर्माण में भारत लगभग 15 लाख करोड़ (लगभग 213 बिलियन अमेरिकी डॉलर) निवेश करने की योजना बना रहा है। भारत का राजमार्ग नेटवर्क लगभग 70% माल ढुलाई और लगभग 85% यात्री यातायात वहन में सहायक है।

फिर भी, सड़क निर्माण में शामिल एजेंसियों और संगठनों को उच्च गुणवत्ता वाली निर्माण सामग्री के स्त्रोत से लेकर राजमार्ग संरचना से जुड़ी स्थिरता और वृत्तीय अर्थव्यवस्था संबंधी चिंताओं का समाधान करने तक बहुआयामी चुनौतियों का सामना करना पड़ता है।

उत्कृष्ट निर्माण सामग्री की उपलब्धता सड़क एजेंसियों के लिए एक प्राथमिक बाधा है, क्योंकि राष्ट्रीय राजमार्ग के सिर्फ एक किलोमीटर के निर्माण में लगभग 15,000 टन सामग्रियों की आवश्यकता होती है। यह मुद्दा विशेष रूप से भारत के पूर्वोत्तर राज्यों में गंभीर है, जहां सामग्रियां घटिया गुणवत्ता की होती हैं। परिणामस्वरूप, इन क्षेत्रों को बिहार या झारखंड जैसे दूरदराज के स्थानों से सामग्रियां खरीदना पड़ता है, जो लगभग 2,000 किलोमीटर दूर हैं, जिससे निर्माण लागत बढ़ जाती है।

इसके अलावा, भारत एक महत्वपूर्ण मल्टी-मॉडल परिवहन बुनियादी ढांचा परियोजना, गति शक्ति योजना के माध्यम से अंतिम मील माल ढुलाई कनेक्टिविटी को बढ़ाने में निवेश कर रहा है। भारत स्मार्ट मोबिलिटी और स्वायत्त वाहनों जैसी उन्नत प्रौद्योगिकियों के लिए भी तैयारी कर रहा है, हालांकि विद्यमान राजमार्ग बुनियादी ढांचा अभी तक इन भविष्य की प्रगति हेतु सुसज्जित नहीं है।

इनमें से कुछ चुनौतियों से निपटने के लिए, भारतीय राष्ट्रीय राजमार्ग प्राधिकरण (एनएचएआई) ने 'ट्रांसपोर्टेशन रिसर्च एंड इनोवेशन हब (टीआरआई हब)' स्थापित करने के लिए भारतीय प्रौद्योगिकी संस्थान हैदराबाद के साथ साझेदारी की है।

टीआरआई हब वर्तमान में राजमार्ग निर्माण के लिए नवीन और लागत प्रभावी समाधान विकसित करने के लिए अत्याधुनिक अनुसंधान में लगा हुआ है। इन समाधानों में पुल निर्माण के लिए जियोसिंथेटिक्स, पुनः प्राप्त और पुनर्नवीनीकृत सामग्री और फाइबर-प्रबलित कंक्रीट जैसी प्रौद्योगिकियां शामिल हैं, जिनका उद्देश्य संरचनात्मक स्थिरता, जीवनकाल को बढ़ाना और एक वृत्तीय अर्थव्यवस्था को बढ़ावा देना है।

एनएचएआई, आईआईटीएच और आईआरसी के बीच यह सहयोगात्मक प्रयास राजमार्ग निर्माण प्रथाओं को आधुनिक बनाने और अनुकूलित करने के एक ठोस प्रयास का उदाहरण है, जिससे अंततः बुनियादी ढांचे और पूरे देश दोनों को लाभ होगा।

~एनएचएआई

तस्वीर सौजन्य: कैनवा

KID: 20230303

एनएचएआई वास्तविक यातायात और लोडिंग परिदृश्यों के अंतर्गत उनके प्रदर्शन का आकलन करने के लिए वास्तविक दुनिया की स्थितियों में इन प्रौद्योगिकियों के विस्तार को प्रोत्साहित करता है। विशेष रूप से, इनमें से कुछ तकनीकों, जैसे राजमार्गों में जियोसिंथेटिक्स, को क्षेत्र में तत्काल कार्यान्वयन के लिए भारतीय सड़क कांग्रेस (आईआरसी) से स्वीकृति प्राप्त हुई है। **आईआईटी हैदराबाद की शोध टीम इन नवाचारों के लिए दिशानिर्देश और मानक स्थापित करने के लिए आईआरसी समितियों और एनएचएआई के साथ मिलकर काम कर रही है।**

परिवहन भू-तकनीकी एक बिल्कुल नया उभरता हुआ अनुसंधान क्षेत्र है जो भू-तकनीकी इंजीनियरिंग के दृष्टिकोण से राजमार्ग फुटपाथ के व्यावहारिक मुद्दों का समाधान करता है। इस क्षेत्र में करियर की अपार संभावनाएं हैं क्योंकि भारत राष्ट्रीय विकास के लिए बुनियादी ढांचे में भारी निवेश की योजना बना रहा है।

भारतीय राष्ट्रीय राजमार्ग प्राधिकरण - NHAI का संदेश:

भारतीय राष्ट्रीय राजमार्ग प्राधिकरण (एनएचएआई) का गठन 1995 में संसद के एक अधिनियम के अंतर्गत किया गया था। एनएचएआई भारत में राष्ट्रीय राजमार्गों के विकास, रखरखाव और प्रबंधन के लिए उत्तरदायी है। प्राधिकरण न केवल राष्ट्रीय राजमार्गों और एक्सप्रेसवे का निर्माण कर रहा है बल्कि राष्ट्र निर्माण में भी योगदान दे रहा है।

पिछले कुछ वर्षों में, एनएचएआई ने राजमार्ग निर्माण के दायरे में नवीन प्रौद्योगिकियों के विकास और एकीकरण पर निरंतर ध्यान केंद्रित किया है। इस प्रयास में भारतीय प्रौद्योगिकी संस्थान हैदराबाद (आईआईटीएच) में स्थित परिवहन अनुसंधान समूह एक सक्रिय भूमिका निभा रहा है। वर्ष 2022 में, एनएचएआई ने राजमार्ग निर्माण से जुड़े महत्वपूर्ण मुद्दों के समाधान के लिए एक सहयोगात्मक प्रयास को बढ़ावा देते हुए, आईआईटीएच के साथ एक समझौता ज्ञापन (एमओयू) किया । **वर्तमान में, आईआईटीएच दस अलग-अलग परियोजनाओं में शामिल है जो राजमार्गों और पुलों के विभिन्न पहलुओं पर प्रकाश डालते हैं।** इन प्रयासों का उद्देश्य विद्यमान प्रौद्योगिकियों को बढ़ाना या निर्माण प्रक्रियाओं को सुव्यवस्थित करने और इन महत्वपूर्ण बुनियादी ढांचे के जीवनकाल को बढ़ाने के लिए नवीन पद्धतियों को लाना है। इसके अतिरिक्त, ये परियोजनाएं लागत नियंत्रण और स्थिरता को बढ़ावा देने के लिए तैयार हैं। इन परियोजनाओं की हालिया समीक्षा ने एनएचएआई को अब तक हासिल की गई प्रगति से काफी प्रभावित किया है। कुछ प्रौद्योगिकियाँ, जैसे कि विभिन्न फुटपाथ परतों में जियोसिंथेटिक्स को शामिल करना, पहले से ही चुनिंदा राजमार्ग परियोजनाओं में व्यावहारिक अनुप्रयोग पा चुकी हैं। **आईआईटीएच टीम भारतीय सड़क कांग्रेस (आईआरसी) के साथ निकटता से समन्वय कर रही है, जो इन नई प्रौद्योगिकियों को शामिल करने वाले राजमार्ग निर्माण के लिए अभ्यास कोड और दिशानिर्देशों को आकार देने के लिए एक उत्तरदायी संगठन है।**

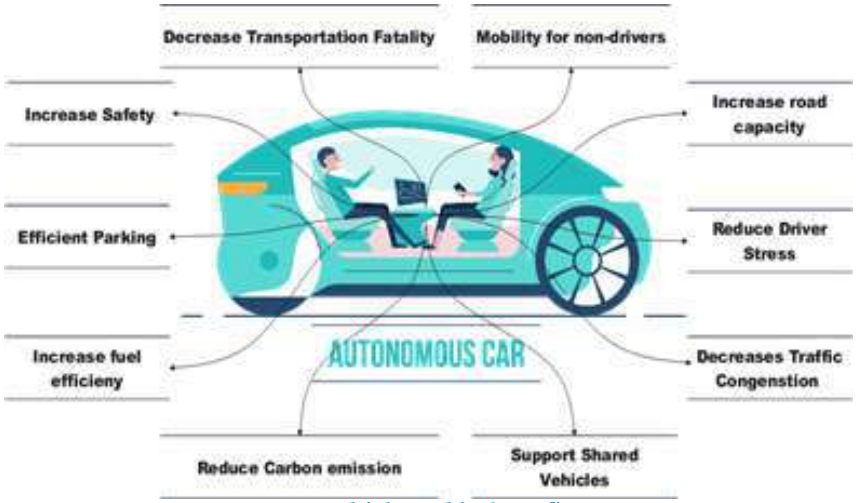
जुलाई 2022 में समझौता ज्ञापन पर हस्ताक्षर के दौरान
आईआईटीएच और एनएचएआई के अधिकारी

प्रोफेसर सिरीश सरीदे
अध्यक्ष, ट्राई हब और
प्रोफेसर - सिविल इंजीनियरिंग, आईआईटीएच

Autonomous Vehicle - Pavement Interaction

KID: 20230304

Traffic accidents cause 1.33 million deaths per year, according to the WHO (June 2022). The primary reason for these accidents is human errors. These errors can be caused by speeding or distractions (such as the use of cell phones, not wearing seatbelts, helmets, etc.). The field of Autonomous Vehicles (AV) or 'self-driving' vehicles has seen tremendous advancements in recent years, aided by developments in artificial intelligence and communication technologies. It is widely acknowledged that autonomous vehicles (AVs) possess significant potential to revolutionize the field of transportation in the future. In the context of Pavement Geotechnics research, it is imperative to consider the present state of the road infrastructure. There is a concern regarding their ability to accommodate the growing AV traffic adequately. Does the existing road infrastructure possess sufficient design features to effectively ensure the safety of autonomous vehicles (AVs) as well as human-driven vehicles (HVs)?



Autonomous Vehicle and its benefit

Autonomous vehicles (AVs) exhibit distinct characteristics compared to human-controlled vehicles (HVs) in terms of their operational capabilities, encompassing the ability to perceive their environment, establish internet connectivity, adhere to traffic regulations, utilize GPS navigation systems, make prompt decisions, and prioritize the safety of pedestrians and occupants. With the sustained and substantial allocation of resources towards autonomous vehicles, the realization of fully autonomous and self-driving vehicles is imminent. The current scenario presents a tremendous opportunity in India that requires smarter solutions, especially for transportation and logistics. Indian automakers such as Mahindra & Mahindra and Tata Motors are spearheading the development of autonomous vehicles. Minus Zero, Flux Auto, Swaayatt Robots, and ATI Motors are startups working on autonomous driving technologies for unstructured Indian roads. Minus Zero aims to create a shared mobility culture and achieve Level 5 autonomy by 2023. Flux Auto focuses on democratizing autonomous trucking, Swaayatt Robots focuses on adversarial traffic dynamics, and ATI Motors develops an autonomous industrial vehicle. Leading Indian institutes like IIT Hyderabad have partnered with the DST NM-ICPS, Gov. of India to become a global hub for next-generation smart mobility technologies with a mission to accelerate the adoption of autonomous navigation and next-generation smart mobility technologies for intelligent transportation and agricultural applications in India and worldwide.

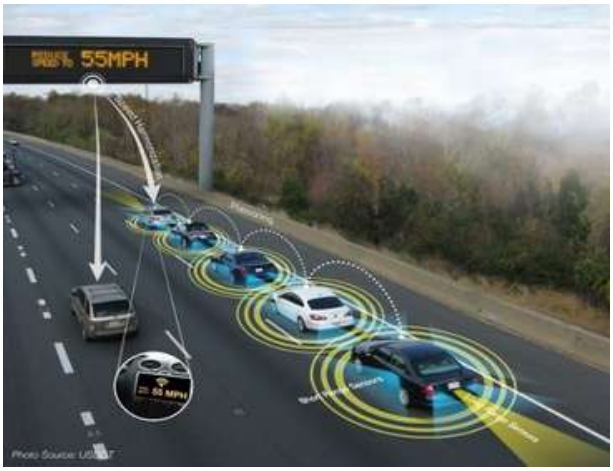
Autonomous Vehicle Startups in India

KID: 20230304

CAVs (Connected Autonomous Vehicles) exchange real-time information about traffic conditions. This is accomplished through Vehicle-to-Vehicle (V2V) technology, which allows vehicles to communicate with one another, as well as Vehicle-to-Infrastructure (V2I) technology, which involves information exchange between vehicles and the traffic management centre. The research focuses on the uncertain impact of CAV traffic on road infrastructure. CAVs prefer to stay in the centre of the lane for safety and fuel efficiency. This results in AV traffic channelization or platooning in a lane. It is speculated that as AV penetration rates increase, channelized traffic emerges, the concentration of wheel loads in individual narrow wheel paths rises, inter-vehicle distances decrease, constant speed and fewer start and stop operations occur, and premature pavement failures may occur.

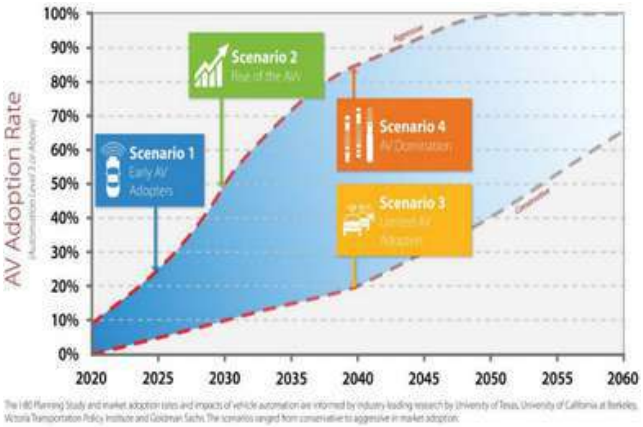
Autonomous EV trial on TiHAN Testbed at IIT Hyderabad

Researchers at IIT Hyderabad intend to closely examine the market adoption rate and future utilization of autonomous vehicles (AVs) on roadways using various surveys in order to further study the AV traffic impact on pavement structures.

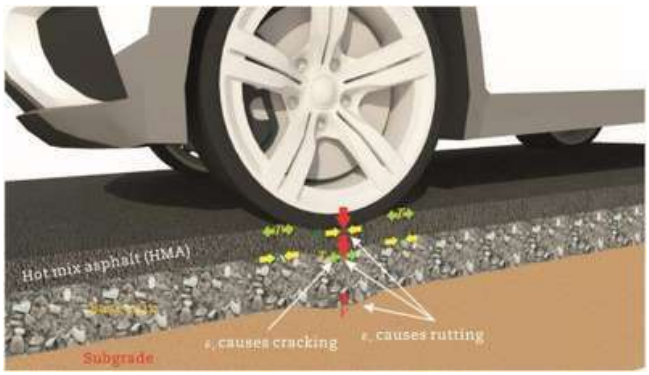


Channelization of AV traffic in a lane

Consequently, the foremost focus of researchers in the field of pavement geotechnics revolves around the impact of Autonomous Vehicles on the durability of existing pavement designs, as well as the formulation of novel guidelines for developing pavements that are compatible with AV technology.



Future market adoption rate of AVs by leading research institutes and industry



Impact of AVs on Pavement Structure due to platooning

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Professor, Department of Civil Engineering

Emissions challenges in rapidly urbanizing India: A road map to Sustainable Transportation

KID: 20230305

Air pollution is a major issue in rapidly urbanizing countries like India, where a substantial portion of the population is exposed to poor air quality. The rise in motor vehicles, primarily due to urbanization, has become a major source of air pollutants. The Indian government has implemented various measures, including technological advancements and legislation, to mitigate emissions. However, these efforts are not occurring at a sufficient rate to mitigate the growth in the number of vehicles and their usage, which has a detrimental effect on Indian cities. A significant measure is the Bharat Stage (BS) emissions standards, which aim to reduce vehicular emissions. However, emissions observed from real-world driving conditions significantly differed from the emissions observed in laboratory test.

Furthermore, a potential alternative solution to reduce tail-pipe emissions is to implement electric vehicles. However, the environmental impact of electric and hybrid electric vehicles can differ considerably from conventional vehicles, requiring appropriate driving cycles to assess their full potential. The main focus of this study is electric rickshaw (e-rickshaw) and conventional vehicles like auto rickshaws and petrol/diesel cars. The key objectives include developing a driving cycle for e-rickshaws and quantifying the real-world emissions for conventional vehicles in actual driving conditions using a portable emission measurement system (PEMS). **Figure-1** shows the overall research framework and its related outcomes.

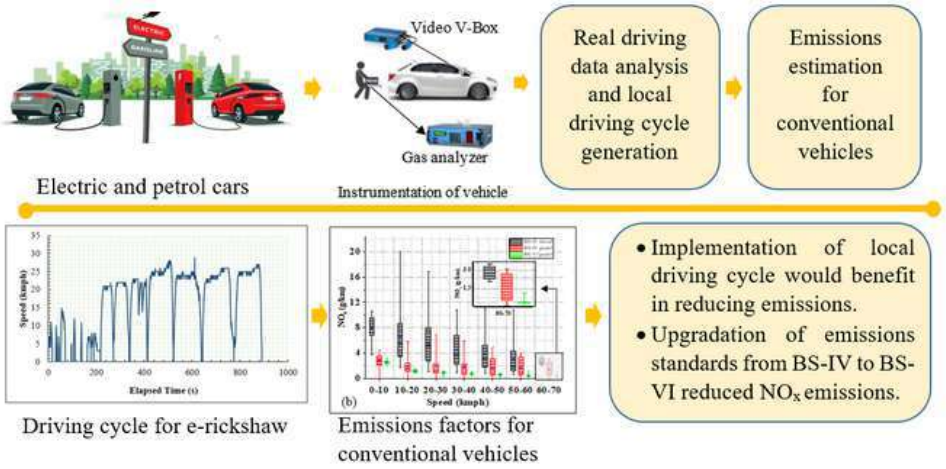

Figure-1: A comprehensive research frame work and its related outcomes

The research contribution from this study can be summarized as follows, (1) The study provides insights on the transition to electric mobility, introducing the concept of the driving cycle, (2) The study highlights the necessity of including diesel auto-rickshaws in real-world driving test protocols for future emission regulations, (3) This research provides insights into the environmental impact of transitioning from BS-IV petrol to BS-VI petrol cars. It highlights the effectiveness of the upgrade in reducing NOx emissions, which are harmful to air quality and public health. Furthermore, the study quantified the CO2 emissions vehicles from conventional vehicles highlighting the importance of addressing these emissions issues related to climate change. In summary, this study provides essential insights into the complex issue of vehicular emissions in rapidly urbanizing countries and their impact on air quality and public health.

By promoting electric mobility, addressing emissions from conventional vehicles, and examining the outcomes of upgraded fuel standards, we contribute vital information that can assist future emissions regulation and pave the path for cleaner and more sustainable transportation systems.

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Evaluating effectiveness and acceptance of Advanced Driving Assistance Systems (ADAS) using Field Operational Test

KID: 20230306

With the ever-increasing population of vehicles on the road and road network, societies are met with challenges by witnessing the loss of human life due to frequent and severe road traffic crashes. According to the World Health Organization (WHO, 2018), approximately 1.3 million people die each year as a result of road traffic crashes. According to the Ministry of Road Transport and Highways, In India, approximately 28,712 (fatal) and 81,800 (non-fatal) rear-end collisions were reported in 2021 (MORTH, 2022). These crashes (such as rear-end, sideswipe, and angle crashes) are often caused by the interaction of various factors, including the road environment, vehicles, and human factors. Several driving performance factors contribute to these collisions, including driver inattention/distractions, unintentional lane departure, speeding, poor performance due to alcohol impairment, limitations in the human visual system, and a combination of these factors. Lack of driver attention has been identified as the cause of 91% of driver-related accidents, and almost all traffic accidents are attributed to human errors. However, drivers' ability to remain continuously alert and attentive for prolonged periods is limited in real-world traffic conditions. Therefore, driver warning systems are necessary to reduce the risk of accidents by assisting drivers in advance.

One such driving aid is the Advanced Driver Assistance System (ADAS), which is designed to alert, warn, and assist drivers in unsafe situations in real-world traffic conditions. Past research studies revealed that, by integrating ADAS in vehicles, we can reduce the number of fatalities and injuries and the severity of those that cannot be avoided. The ADAS includes features such as Lane Departure Warning (LDW), Forward Collision Warning, and Traffic Speed Recognition Warning. However, the ADAS concept is relatively new in India, and it is ambiguous whether these systems can significantly affect driver behavior in actual traffic scenarios. Specifically, the acceptance and ADAS effectiveness on various roadways and with varying driver characteristics need to be justified using a Field Operational Test (FOT). With this motivation, the present research aims to evaluate the ADAS effect on driving performance and driver characteristics in various road environments based on an FOT. The real-world driving data was collected using the instrumented vehicle with Movon Driver Assistance System- 9 (MDAS-9), which alerts the driver for unintentional lane departures and following too closely (see **Figure 1**).

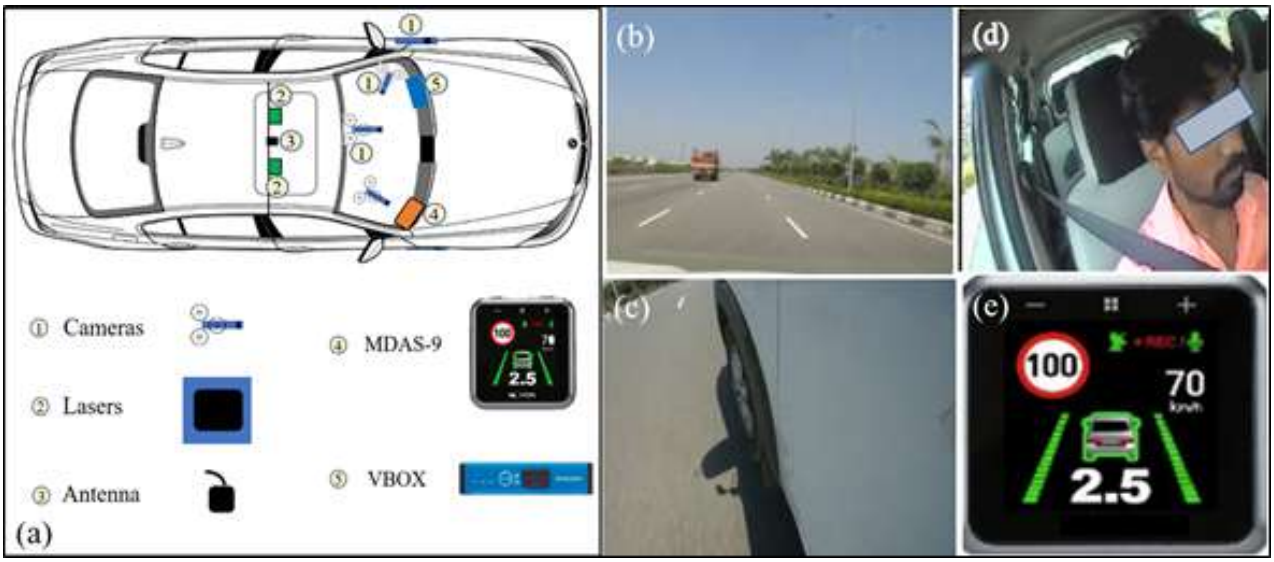

Figure-1: Instrumented vehicle
(a) Test vehicle with instruments; (b) Camera 1- road data;
(c) Camera 2- driver data; (d) Camera 3- LDW data;
(e) Camera 4- ADAS data

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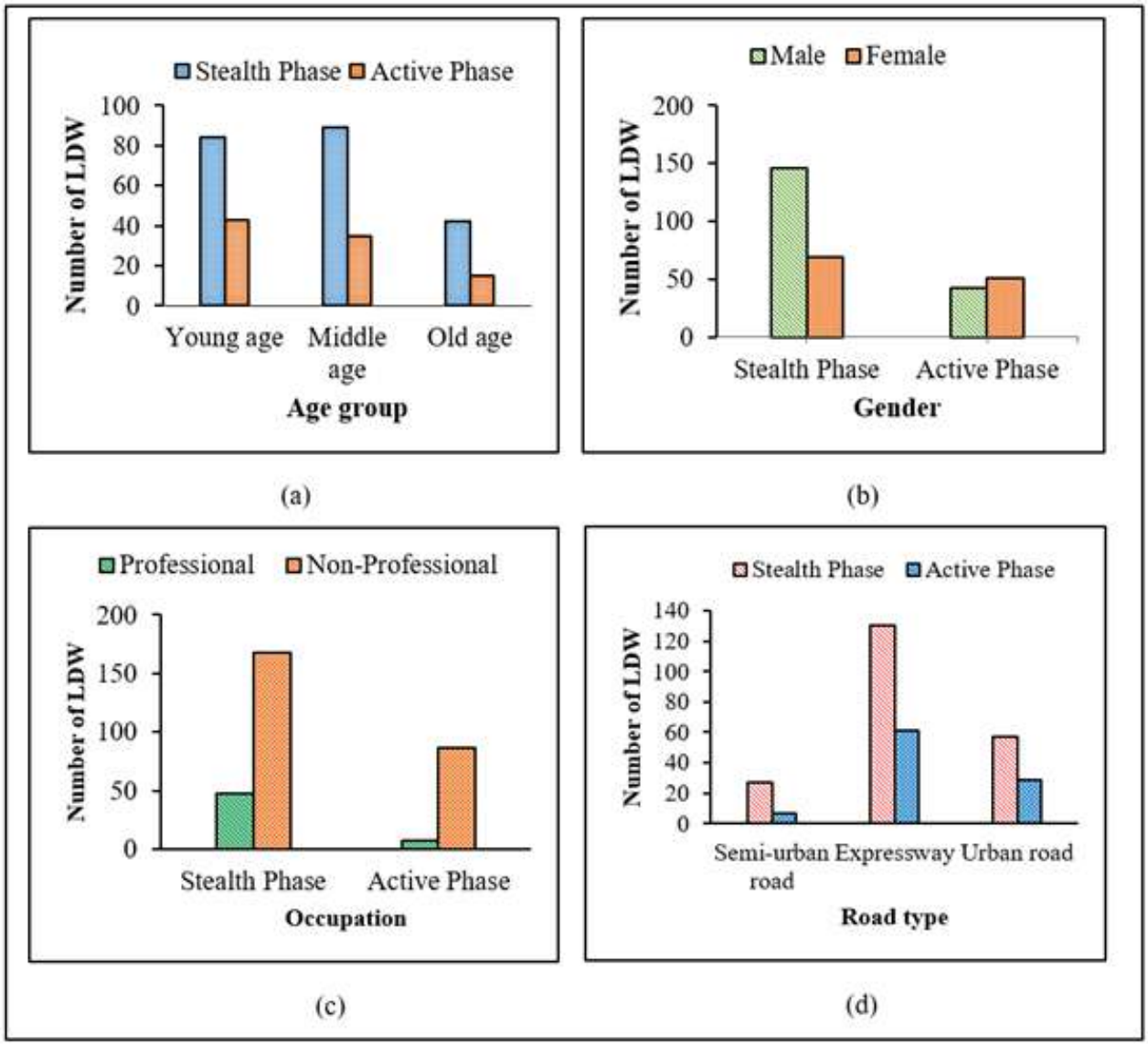

Figure-2: LDW count: a) age group, b) gender, c) occupation, and d) road type

Conclusion:

The findings of this study results showed that the number of lane departures decreased when the drivers were alerted with ADAS Support in the different road environments (see Figure 2 (d)). Male and non-professional drivers showed significant improvement in lane departure compared to female and professional drivers when provided with LDW support (see Figure 2 (b and c)). Furthermore, the drivers of the older-aged group showed a lesser number of lane departures than the young- and middle-aged groups in both stealth (Without ADAS) and active phases (With ADAS), inferring that the older drivers drive safely. Furthermore, the drivers showed a positive attitude towards the acceptance of the ADAS technology for the LDW assistant feature. The findings of this study support the future development of ADAS, policy development, and induce trust in the public for the technology adoption to improve road traffic safety in India.

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Experimental studies on narrow backfill retaining walls

KID: 20230307

In the context of urbanization and the requirement for new roads, constructing retaining walls with limited width becomes even more critical. As cities expand and available space becomes scarcer, roads often need to be built in areas with challenging terrain, such as hillsides or sloping landscapes, as shown in **Figure 1 and Figure 2.** Limited width for retaining walls is a common constraint in such scenarios. These walls are essential to provide stability, prevent erosion, and maximize the available road space. Proper engineering and innovative design are necessary to ensure that retaining walls with limited width are not only functional but also environmentally friendly, blending seamlessly into the urban landscape while accommodating the increasing urbanization demands.

Calculating earth pressure for retaining walls with limited width in urban areas can be challenging, primarily because conventional earth pressure theories like Rankine's or Coulomb's are not applicable because of the assumption that the slip surface gets developed from the heel of the wall to the top of the ground surface. The constraints of limited space, adjacent structures, and varying soil conditions demand more sophisticated analysis methods. Engineers often turn to advanced geotechnical analysis techniques, such as finite element analysis (FEA) or limit equilibrium methods, to accurately model the complex interactions between soil, the retaining wall, and adjacent structures. These approaches take into account factors like soil properties, wall geometry, surcharge loads, and construction sequences to determine the appropriate design for retaining walls in urban environments.

Figure-1: Kalka - Shimla Road NH5

Figure-2: Jammu Kashmir NH44

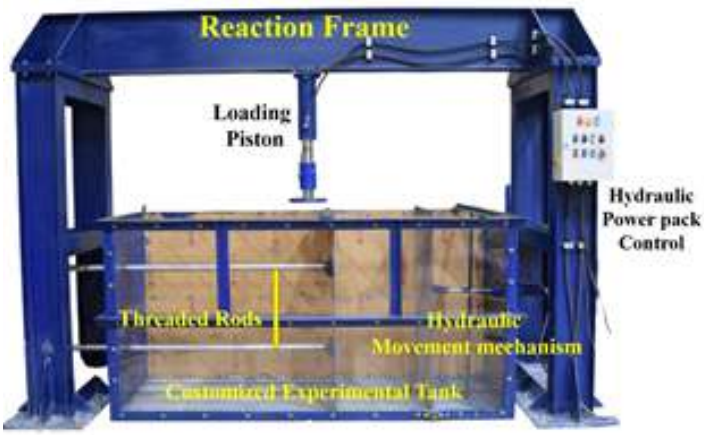

Figure-3: Customized experimental setup

KID: 20230307

The proper design of narrow backfill retaining walls is of utmost importance due to the potential catastrophic consequences of their failure on human safety. A well-designed narrow backfill retaining wall is essential for safeguarding human lives in densely populated urban areas. The importance of conducting experiments with only a limited amount of analytical work cannot be overstated, particularly when dealing with complex geotechnical challenges like calculating earth pressure for retaining walls in urban areas. While advanced analytical methods are essential, experiments in the field or laboratory provide invaluable real-world data that can validate and refine theoretical models.

In our research we have developed an experimental setup which can simulate the real world conditions of the narrow backfill retaining walls and help us study the effect of various parameters on the distribution and magnitude of the earth pressure. The setup has two sides made of acrylic sheets which facilitate the visualization of the slip surface inside the backfill as shown in **Figure 3**.

With India boasting the world's largest road network, the significance of narrow backfill retaining walls cannot be overstated. These structures are indispensable in supporting road construction in challenging terrains, ensuring safety, and enhancing connectivity. They play a pivotal role in safeguarding human lives and property while enabling access to remote regions. As India develops and expands its road infrastructure, the use of narrow backfill retaining walls will remain crucial for efficiency, resilience, and safety in this extensive transportation network.

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[2] Dr B Munwar Basha
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Mitigation of High-Speed Train Induced Ground Vibrations using EPS Geofoam In-Filled Trenches

KID: 20230308

Over the recent decades, High-speed Railways (HSR) has emerged as a highly sought-after mode of transport across the globe to cater to the transportation needs of the rapidly growing world population. HSR is often referred to as the mode of transport of the future since it provides an economically viable solution to various challenges in roadways like traffic congestion, excessive air pollution, and discomfort in long-distance travel.

Although HSR offers several benefits, the ground vibrations generated during HSR operations have detrimental impacts on the railway infrastructure and sensitive structures in the track vicinity. They also cause discomfort to the passengers and residents in the buildings close to the tracks. According to the German national standard DIN4150 and Federal Transit Administration (FTA) guidelines, the vibration limits for residential and commercial structures are 5 mm/s and 3 mm/s, respectively.

Comprehensive analyses performed by Connolly et al. (2016) on train-induced vibrations in 1604 railway track sections across 16 countries revealed that ground vibration and noise limits were surpassed in 44% and 31% of instances, respectively.

The critical appraisal of the literature portrays extensive research on the generation and propagation of ground-borne railway vibrations and several measures to mitigate them effectively.

Ground-borne vibrations can be attenuated by vibration-control measures implemented at the source or receptor, or by obstructing the wave propagation path using wave barriers. Frequently, trenches positioned at varied distances away from the railway embankment (beside the track) are used as vibration wave barriers due to their low cost and excellent vibration-damping performance. It works as a discontinuity in the path of propagating waves, causing them to undergo reflection, refraction, transmission, and absorption (**Figure 1**).

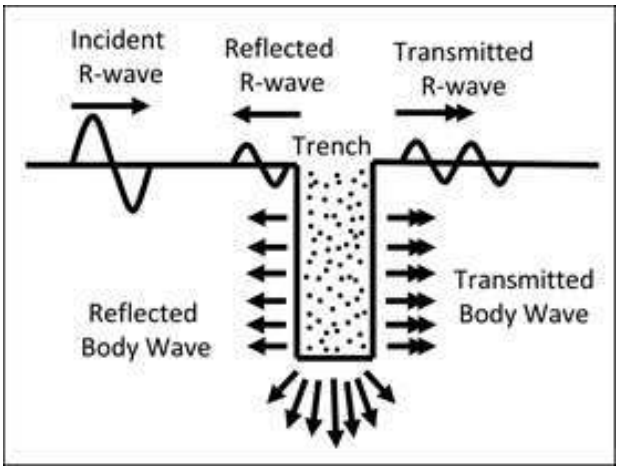

Figure-1: Propagation of surface waves through trench

KID: 20230308

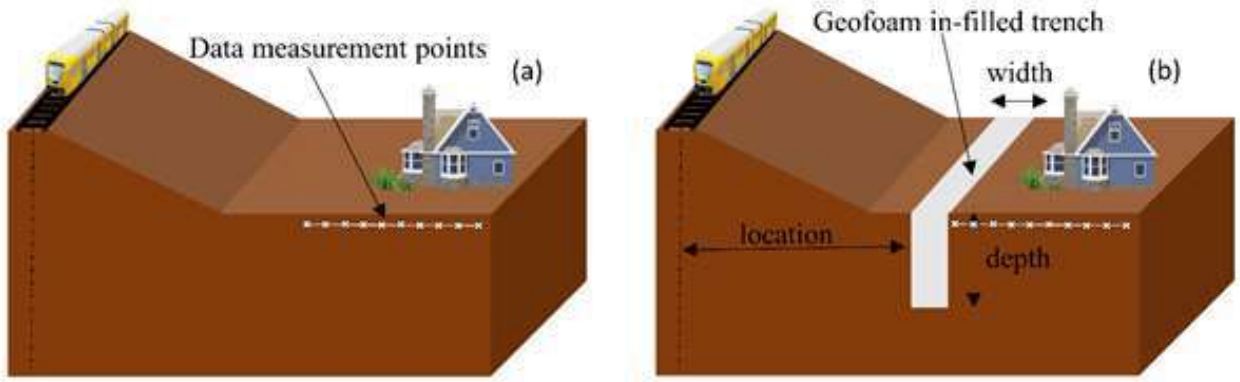

Figure-2: Railway embankment models (a) without trench (b) with EPS geofoam in-filled trench

Despite previous research works indicating that open trenches are more efficient than in-filled trenches, practical constraints in maintaining deep open trenches limit their field applications. These trenches are hence filled with construction materials like soil-bentonite mixtures, rubber-asphalt mixtures, etc., which possess excellent vibration mitigation characteristics.

The utilization of Expanded Polystyrene (EPS) geofoam as a wave barrier against ground vibrations has garnered significant attention recently. However, the survey of the literature reveals that limited research has been carried out on mitigating HST-induced ground vibrations using EPS geofoam. Research in this direction was hence carried out in the Railway Geotechnics Lab. at IITH, focusing on the mitigation of HST-induced ground vibration using EPS geofoam in-filled trenches. Finite element analyses were carried out using two-dimensional models of double-layer ballasted track segments for an axle load of 25 T using PLAXIS 2D, and the vibration attenuation efficiency of EPS geofoam trenches was evaluated in terms of reduction in the Peak Particle Velocities (PPV) of vibrations after installation of the trench beside railway embankment (**Figure 2**).

Studies were carried out on the influence of location, dimensions, and geofoam material in the trench for a wide range of train operating speeds. Results from the analyses revealed that vibration isolation trenches were most effective in mitigating vibrations when placed next to railway embankments. It was seen that deeper trenches exhibited a higher potential for attenuating vibrations and that the width of the trench was directly proportional to the efficiency of vibration attenuation.

About 44% reduction in the ground-borne railway vibrations could be achieved using optimized sections of EPS geofoam in-filled trenches. The research concluded that EPS geofoam in-filled trenches can serve as excellent passive vibration isolation barriers for attenuating ground-borne vibrations induced by high-speed trains.

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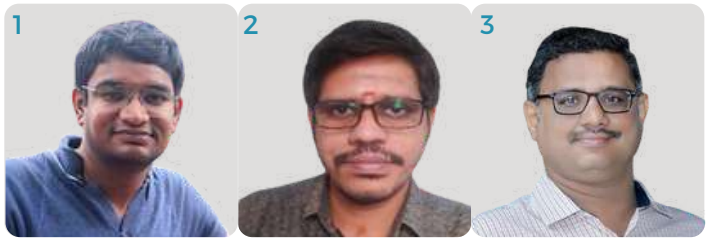
Modeling and Analysis of Back-to-Back Mechanically Stabilized Earth Walls for Highway and Railway Bridge Approaches



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Mechanically Stabilized Earth (MSE) Walls are flexible structures in which reinforcements are embedded into backfill to develop a frictional resistance between backfill soil and the reinforcements. This interaction through the mobilized frictional resistance provides stability of the MSE walls, as opposed to the conventional gravity retaining walls which achieves their stability by their self-weight.

Unlike a single MSE wall, when two MSE walls are placed in close proximity, they start to interact with each other, and a complex structure called back-to-back mechanically stabilized earth (BBMSE) walls is formed. MSE walls are designed based on the guidelines of the Federal Highway Administration (FHWA) [1]. FHWA guidelines for the design of BBMSE walls have given two extreme cases.

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Case 1(a), in which the clear distance between the two walls is large enough (such that they can be treated as two individual walls. In Case 1 (b), the overlap of reinforcements is more than 0.3 times the height of the short wall, and in this case, the active thrust can be ignored fully. **Figure 1** illustrates both cases of walls as per the FHWA. For the wall in between these two extreme conditions, FHWA recommends linear interpolation to obtain the active thrust at the end of the reinforcement.

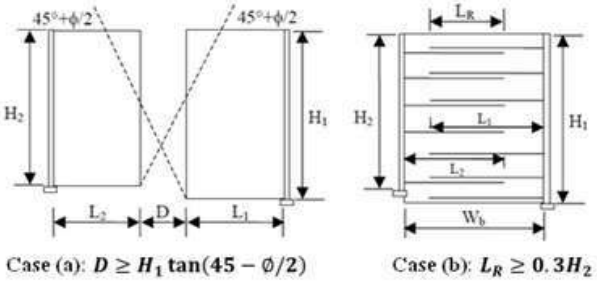


Figure-1: Two cases for the design of BBMSE wall as per FHWA (f represents the friction angle of backfill)

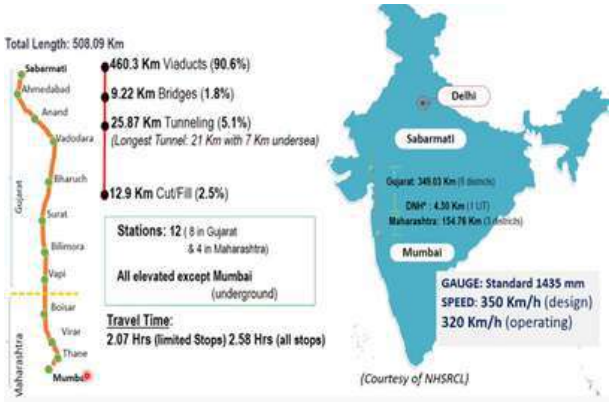
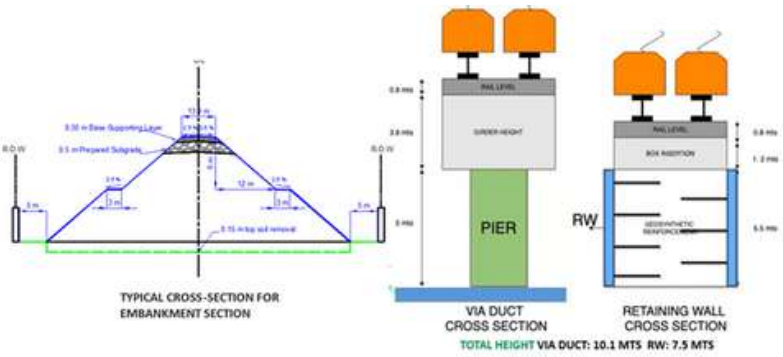


Figure-2: Railway line map of MAHSR project (courtesy: NHSRCL)

BBMSE walls are being used for highway bridge approaches worldwide, but in recent times they have also been used for railway bridge approaches. Japan made it a standard practice to use a BBMSE wall with a full-height rigid facing for the railway bridge approaches in high-speed trains. Even India's first bullet train project Mumbai to Ahmedabad high-speed rail (MAHSR), being implemented by India's National High Speed Rail Corporation Limited (NHSRCL) has proposed to adopt geosynthetic reinforced BBMSE wall for railway bridge approaches. MAHSR project consists of a railway line of 508.09 km comprising 475 km of elevated viaduct, 25.87 km of tunnels, 9.22 km of bridges, and 12.9 km of embankment section. **Figure 2** shows the railway line route for this project.



Furthermore, the proposed cross-section for the embankment, elevated viaduct, and BBMSE retaining wall for the bridge approach are illustrated in **Figure 3**.

Figure-3: Proposed cross-section of the embankment, viaduct, and BBMSE wall for MAHSR project (courtesy: NHSRCL)

Accordingly, BBMSE walls for various conditions and loading scenarios are modeled and analyzed. Initially, a BBMSE wall with varying width-to-height (W/H) ratios subjected to compaction stress and surcharge loading was simulated by Sravanam et al., 2019 [2]. Walls with W/H ratios of 1.4, 1.7, 2.0, and 3.0 were considered. It may be noted that FHWA recommends the minimum length of reinforcement as 0.7H. **Figure 4** illustrates the models for the two extremes with W/H=1.4 (i.e., reinforcements right next to each other) and W/H=3.0 (i.e., reinforcements are far apart). In this modeling, the complex interaction between different interfaces, namely, the interface between wall facing and backfill, between backfill and reinforcements, and between two adjacent facing panels was modeled (as shown in **Figure 5**). Additionally, the maximum shear strain contours were also plotted for different conditions to identify the critical slip surfaces and their interaction within BBMSE walls (refer to **Figure 6**). It was observed that the lateral earth pressure at facing was independent of W/H ratio of the wall. Sravanam et al., 2020a [3] studied the behavior of connected (i.e., a single reinforcement running from one end to the other) and unconnected (having two reinforcements one for each wall) BBMSE walls with a W/H ratio of 1.4 for the highway bridge approaches and concluded that the lateral displacements were reduced by 50% in case of the connected wall as compared to the unconnected wall.

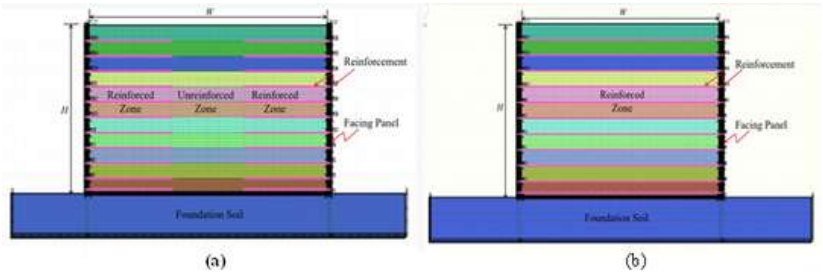


Figure-4: Models of BBMSE walls with (a) W/H > 1.4 (b) W/H =1.4

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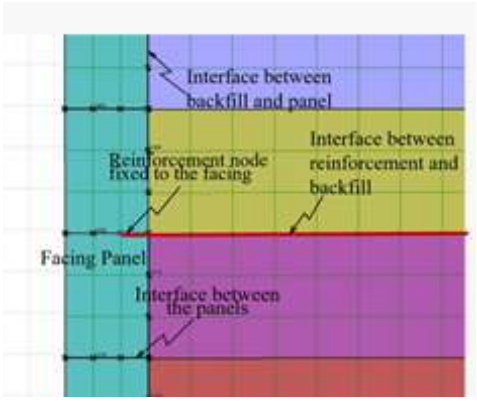

Figure-5: Interfaces between various components of BBMSE wall

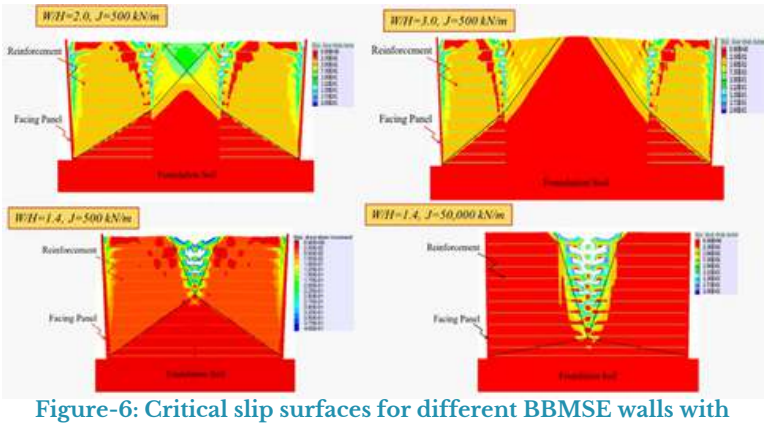

Figure-6: Critical slip surfaces for different BBMSE walls with varying W/H ratio

Furthermore, a BBMSE wall with full height rigid facing wall was studied by Sravanam et al., 2020b [4] in which an arching phenomenon was highlighted behind the wall facing because of the difference in stiffness of the wall and reinforced backfill which leads to mobilization of shear stresses along the interface between the unreinforced and reinforced zones.

Presently, a BBMSE wall with an 8.4 m wide backfill and a height of 6 m supporting a slab-track system with rails placed at a clear spacing of 1.435 m was simulated as shown in **Figure 7**. A finite element package, ABAQUS, was chosen to simulate the wall model, to analyze the interaction of connected reinforcements and backfill under the dynamic train loading. The E-5 series Shinkansen train has been proposed to be used for the MAHSR project having a wheel load of 67.5 kN, length of 253 m, and design speed of 350 km/h.

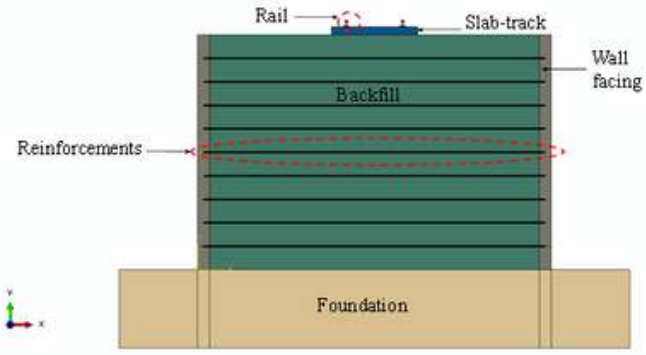

Figure-7: Developed model in the ABAQUS as a part of present study

Hence, the dynamic train load was applied in the form of a positive sinusoidal wave with a frequency of 38.8 Hz and an amplitude of 67.5 kN for a duration of 2.6 seconds. From the simulations, it was observed that the maximum vertical settlement occurring at the mid-length on top of the wall was about 17.8 mm and the maximum lateral displacement occurring on top of the wall facing was 12.5 mm.

Going forward, advanced numerical models considering the soil behaviour, the interaction between geosynthetics and backfill, and loading conditions will be developed for different width-to-height ratios. Furthermore, the research group at IIT Hyderabad, through a research project funded by the National Highway Authority of India through the Transportation Research and Innovation Hub (TRI HUB), is working extensively on developing ready-to-use design charts for lateral earth pressures and displacements for different scenarios to help the practising engineers involved with BBMSE walls.

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Modeling Driver Behavior at Exit Sections of Freeway Using Naturalistic Driving Study (NDS)

KID: 20230310

Freeways play a vital role in the roadway transportation system. With rise of traffic volumes and high speeds on freeways have created serious safety concerns and led to traffic crashes or accidents. Globally, over 1.35 million people are killed in road crashes each year. In India, there were 4,12,432 reported road crashes in 2021, with national highways and freeways accounting for a significant portion of crashes (31.2%) and fatalities (36.4%).

At the exit of freeway ramps, drivers are often at risk due to the diverging traffic operations, which can create traffic interruptions, unsafe conditions, and improper lane changes that can further aggravate the risk of crashes. According to the National Highway Traffic Safety Administration (NHTSA), human errors were responsible for 93% of traffic crashes, whereas lane-changing was responsible for 27% of all crash events. Statistics have showed that 40% of crashes occur in merging or diverging zones. Due to the diverse operating characteristic of freeways, traffic crashes may generate serious consequences. Therefore, real-time prediction of driver behaviour at critical locations of freeways imparts significant improvement in freeway operating efficiency.

To prioritize safety, drivers must perform lane changes and adjust their speed rapidly when exiting a freeway. In a lane change, a vehicle shifts position from one lane to another lane with the same direction of travel. Typically, lane-changing maneuvers are classified as either mandatory or discretionary. Mandatory lane changes occur when the vehicle must change lanes, such as merging through an on-ramp to the freeway or taking an exit from an off-ramp, avoiding an incident, or entering a restricted-use lane. In contrast, discretionary lane changes are performed when drivers are dissatisfied with their existing driving conditions and prefer to shift lanes.

This lane change is a crucial event to consider, particularly due to the higher frequency of lane changes observed near exit ramps. It has been shown that mandatory lane changes near exit ramps can have a significant impact on highway traffic, potentially creating interruptions and bottlenecks.

Figure 1 (a), and (b) depicts the bottleneck condition and diverging behavior.

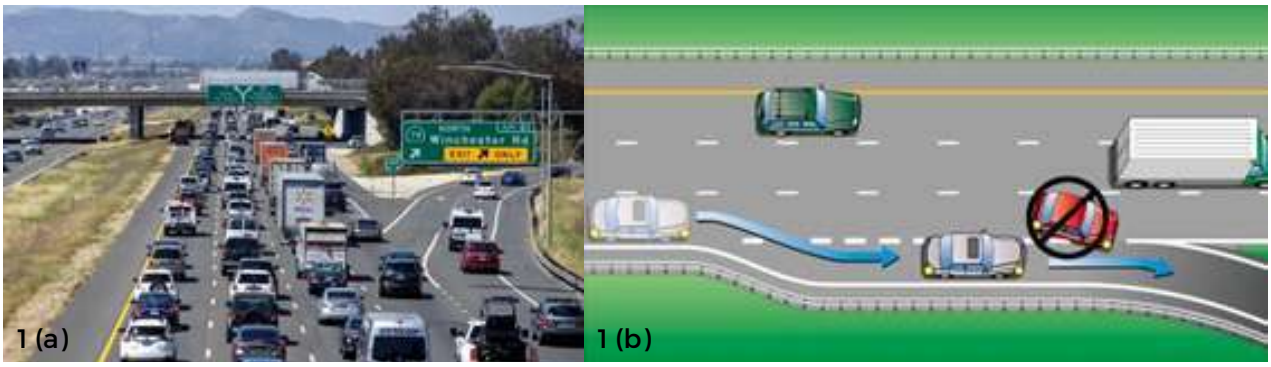

Figure-1: (a) Bottleneck condition (b) Diverging behavior

Lane change behaviour:
The distance prior to the exit is divided into three distinct zones. **Figure 2** on the next page shows that Zone 1 begins at the first information signboard provided to vehicles, located 2 km from the point of the curve, and extends to the second information signboard, located 1 km from the exit. Zone 2 commences at the second information sign board located 1 km from the exit and extends to the sign board located 0.5 km away from the exit. Zone 3 comprises the final information signboard displayed to the driver, which is located 0.5 km from the exit, and extends to the start point of gore.
Note: L1 - lane1, L2 - lane2, L3 – lane3, L 4- lane4, L5 - lane5, and L6 - lane6

Figure 3 on the next page illustrates the distribution of lane changes in each zone for four different exits. It is evident that Zone 3 experiences a higher frequency of lane changes compared to Zone 1 and Zone 2, while Zone 2 falls in the moderate, and Zone 1 has the lowest number of lane changes across all exits. This understanding emphasises that the intensity and severity of lane changes in these zones can make them more vulnerable to potential hazards.

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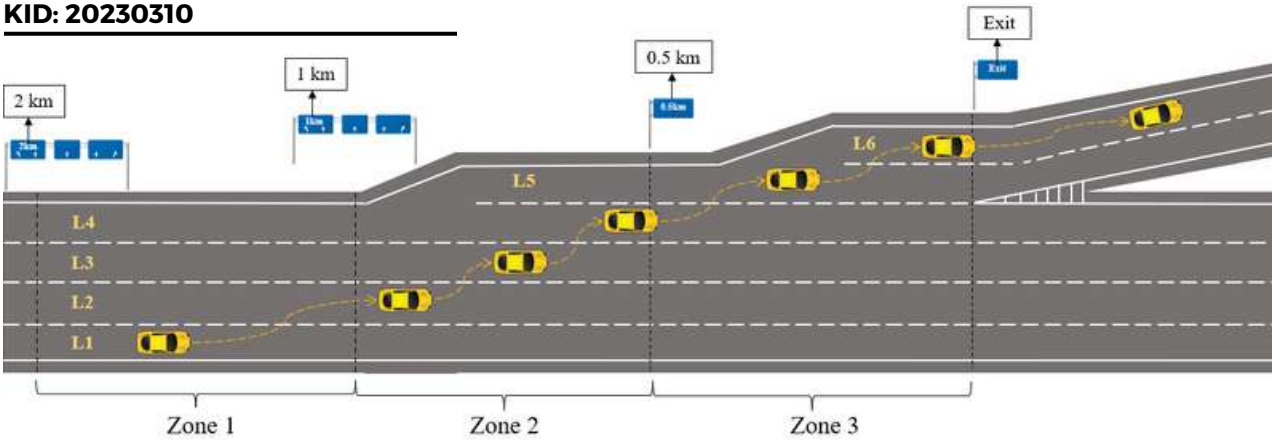

Figure-2: Depiction of Zones

Freeways play a vital role in the roadway transportation system. With rise of traffic volumes and high speeds on freeways have created serious safety concerns and led to traffic crashes or accidents. Globally, over 1.35 million people are killed in road crashes each year. In India, there were 4,12,432 reported road crashes in 2021, with national highways and freeways accounting for a significant portion of crashes (31.2%) and fatalities (36.4%). At the exit of freeway ramps, drivers are often at risk due to the diverging traffic operations, which can create traffic interruptions, unsafe conditions, and improper lane changes that can further aggravate the risk of crashes. According to the National Highway Traffic Safety Administration (NHTSA), human errors were responsible for 93% of traffic crashes, whereas lane-changing was responsible for 27% of all crash events. Statistics have showed that 40% of crashes occur in merging or diverging zones. Due to the diverse operating characteristic of freeways, traffic crashes may generate serious consequences. Therefore, real-time prediction of driver behaviour at critical locations of freeways imparts significant improvement in freeway operating efficiency.

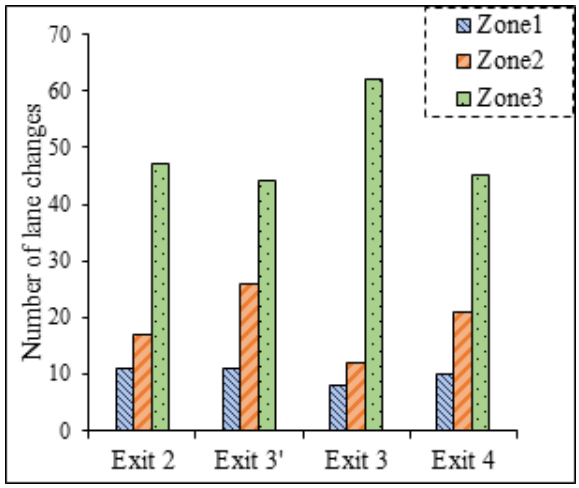

Figure-3: Number of Lane Changes in Each Zone

Conclusion:

The role of exit ramp terminals is to provide smooth diverging operations for off-ramp vehicles from mainstream. The results showed that the intense lane change is taking place 500 m from the entrance gore for all exits. In addition, particularly from L4 to L5 (here L5 indicated the auxiliary lane) is most prevalent in this 500 m zone for all exits. Thus, understanding the significance of lane changes in each zone can avoid the bottleneck conditions near exit areas and contribute to safer diverging operations.

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Modelling Lateral Acceleration: A Data-driven Approach to Interchange Safety

KID: 20230311

Interchange ramps play a crucial role in road networks as they serve as connectors between multiple freeways or major roads. To ensure efficient transfer of vehicles between different roadways, interchange ramps are designed with horizontal and vertical curves as displayed in **Figure 1**. However, these curvatures make interchange ramps more complex and crash-prone compared to the mainline segments of the freeway.

To improve safety and articulate significant safety schemes, it is important to analyse driver behaviour measures such as speed and lateral acceleration adaptation on ramp interchanges at a microscopic level. Existing studies on speed and lateral acceleration are limited to horizontal curves, and no few studies were found to deal with ramp interchanges in India.

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To address the current research gap, we developed a model using support vector regression (SVR) to estimate lateral acceleration experienced by the drivers on diagonal, loop and semi-direct ramps of service interchanges using 85th percentile speed () and geometric elements such as curvature, ramp length, grade, and superelevation. To establish these models, the continuous lateral acceleration profiles for 83 drivers were collected using an instrumented vehicle. The developed SVR models exhibited higher accuracy, measured by the values of the coefficient of determination and the root mean square error. **Figure 2** illustrates the model prediction data superimposed with actual data, indicating a good agreement between the proposed model and the actual data.

Further, a sensitivity analysis was performed to measure the relative importance of input features. The results revealed that ramp curvature and ramp length are the two most significant variables that impact lateral acceleration on diagonal and semi-direct ramps. Whereas for loop ramp connectors displayed the highest association with lateral acceleration.

Figure-1: Interchanges on outer ring road (ORR), Hyderabad City: (I) Shamshabad, (II) Nanakramguda, (III) Patancheru, (IV) Kamuni, (V) Saragudem, and (VI) Pedda Golconda

References:

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Practical Applications

Lateral acceleration is directly related to the vehicle steering maneuver and therefore decides the comfort of both driver and passengers. Studies on lateral acceleration will aid in identifying near-crash events, black-spots and estimating index parameters for assessing driving behavior. Lateral acceleration is an important driver behavior parameter reflecting the driver's choice of speed and steering angle when negotiating ramp curves. The studies on driver behavior are critical for the development of autonomous vehicles (AVs) controllers and control strategies (Farah et al. 2019) as the driver's acceptance of the AVs will increase if the vehicles are programmed to drive more closely to each driver's preferred driving behavior and driving style (Farah et al. 2019; Basu et al. 2017). The lateral acceleration models developed in this study are based on real world data thus providing quantitative and qualitative support for understanding driver's choice of speed and lateral acceleration on interchanges.

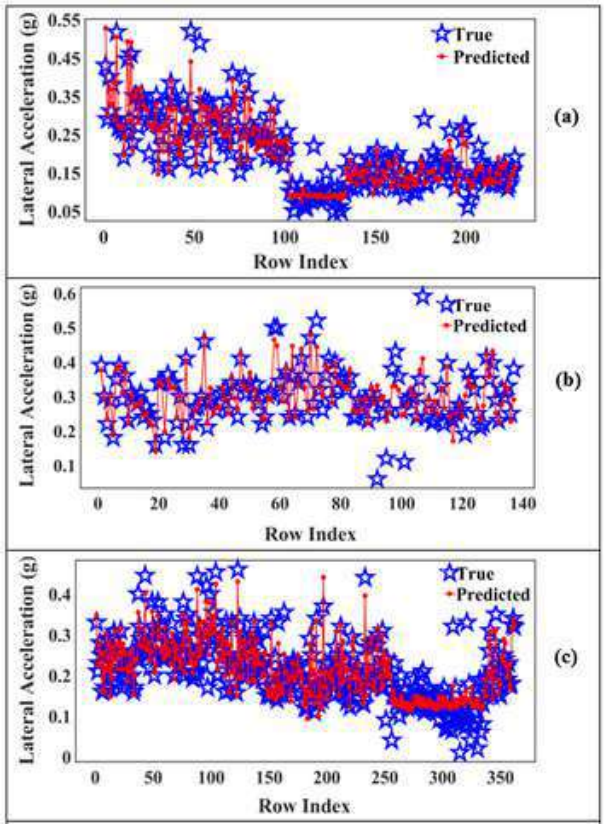

Figure-2: Implementation of the model on the training dataset (a) Diagonal ramps (b) Loop ramps (c) Semi-Direct ramps

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Performance Evaluation of an Intersection Conflict Warning System at an Unsignalized Intersection for Developing World Traffic

KID: 20230312

Unsignalized intersections are identified as critical locations due to the higher number of road accidents at these locations. In India, 24% of road crashes occur at intersections, out of which 19% of crashes taken place at unsignalized intersections, resulting in serious injuries or fatalities (MoRTH, 2021). An intelligent transportation system application known as an Intersection Conflict Warning System (ICWS) is one approach that acts as the solution to reduce crashes at unsignalized intersections. ICWS consists of four components: sensors, communication subsystem, computer processors, and driver interface. Sensors installed on major and minor road detect the location, time, and speed of a vehicle approaching the intersection and is transferred through wired or wireless communication to the central processor. In the central processor, algorithms are developed to identify the gaps at the intersection and determine the unsafe gaps obtained from sensor data. Driver interface conveys time and appropriate information to minor and major road vehicle drivers (**Figure 1**).

This situation results in reduced conflicts as drivers get alert about the possible approaching vehicle, resulting in lower intersection approach speeds and improved driver gap acceptance.

Our research mainly focuses on designing and evaluation of the intersection conflict warning system installed at an unsignalized intersection for Indian driving conditions. A passenger car (Renault Triber) instrumented with video box was used for collecting the data (**Figure 2**). Scenarios were designed to evaluate the effectiveness of ICWS towards major road drivers. Drivers kinematic and video data was considered for analysing the effectiveness of ICWS. Further, a questionnaire was prepared to assess the effectiveness of the warning system in aiding drivers to cross the intersection safely.

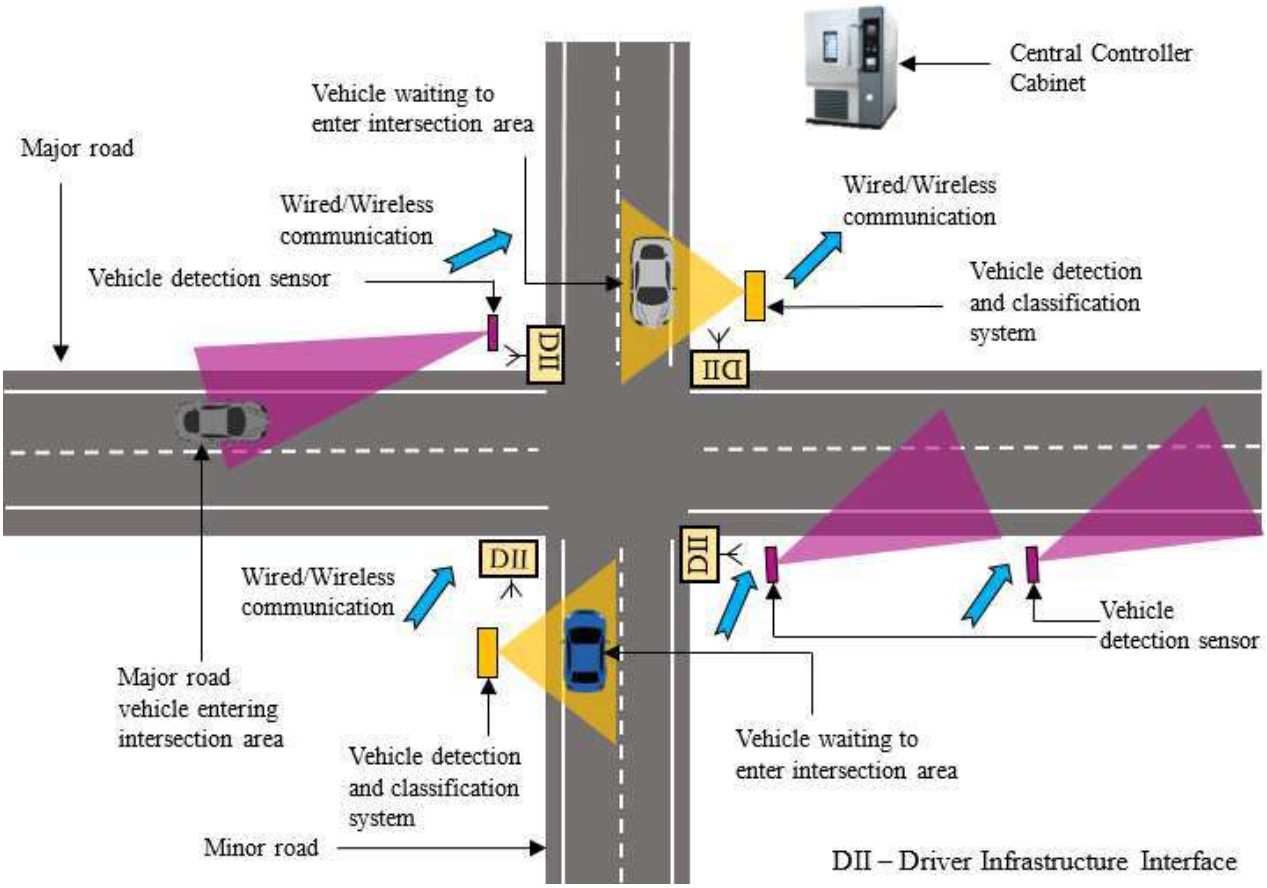

Figure-1: Schematic diagram of unsignalized intersection with different ICWS component

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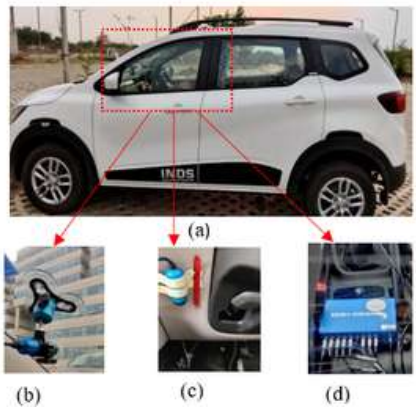

Figure-2: (a) Indian Naturalistic Driving Study (INDS) vehicle (b) Front camera (c) Camera facing towards driver brake movements (d) GPS data logger.

Conclusion:
The findings of the research suggest that drivers with activated ICWS had a lower mean speed, shorter response time and longer speed reduction time compared to those without ICWS condition (i.e., signboard not activated). It indicates that when ICWS is activated, drivers are able to apply brakes earlier and reduce their speed prior.

Thus evade collision at the intersection, since they have been provided with a piece of information in advance about the presence of vehicle on the adjacent side of the intersection.

Further, the questionnaire results exhibit a positive response from the participants, describing that the conflict warning system was found to be helpful in crossing and reducing collisions at the intersection.

The insights from the research would be helpful for transportation engineers and highway safety authorities to design and deploy the intersection conflict warning system at several unsignalized intersections for developing world traffic. This research acts as a key initiative towards designing and evaluating the ICWS for Indian driving conditions.

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Something to do with wrinkles and cracks on the pavement surface?

KID: 20230313

The wrinkles and cracks seen on the pavement surface are certainly not the artistic work of a Civil Engineer. Ever wonder why these cracks and wrinkles are seen on roads? The roads are generally designed to resist traffic loads for a certain number of years, referred to as the design life of a pavement. Due to heavy usage or temperature variation (of course one can blame it on climate change effects) and seasonal moisture fluctuations due to summer and monsoon periods, these pavements undergo huge internal stresses. Needless to say, any stress would cause strain in a body…these excessive strains (tensile) would eventually crack the bituminous layers to show fatigue cracking on the surface, as seen in **Figure 1**.

As discussed, there are various reasons for them to develop further and deteriorate the pavement. So the next question is 'Do we have a face pack to cover it up?' Yes, we do have several options, the simplest being asphalt overlay, a thin asphalt layer (20 – 30 mm) covering all these cracks to improve the ride quality, and of course the user perception! You know, we spent about INR 1,400 Cr during 2021-22 just to repair such cracks. So, more sustainable ways are always explored for controlling these cracks. **One such solution is to introduce polyester or glass fiber grids as interlayers in the bituminous layers. A small study demonstrates that the cracks have moved laterally instead of vertical direction because of the presence of interlayers.**

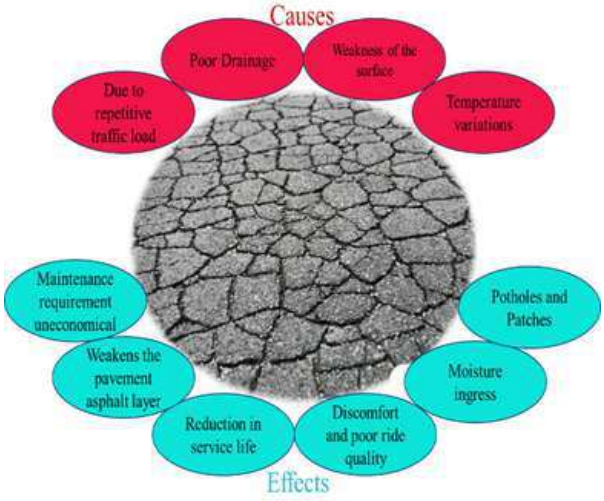

Figure-1: Causes and effects of fatigue surface cracks on asphalt pavements

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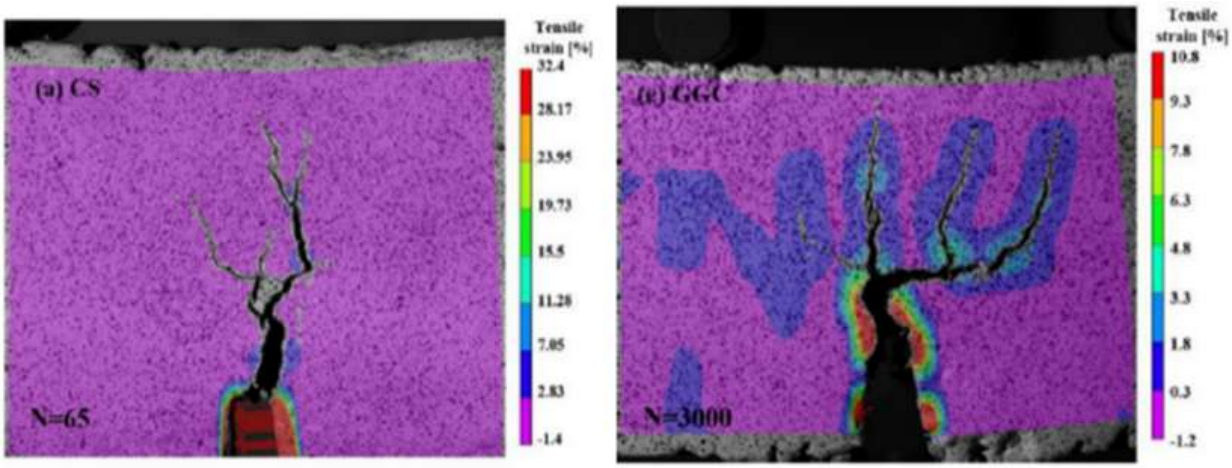

Figure-2: Reflection cracks in unreinforced (CS) and reinforced section (GGC) using the DIC technique

A digital imaging technique would certainly help understand the pattern of cracks, the energy required, tensile strains, etc., to understand the crack propagation mechanisms better, **as shown in Figure 2**. Currently, the National Highways Authority of India (NHAI) and the National Technical Textiles Mission (NTTM) are heavily supporting research on these aspects.The research group at IITH collaborating with leading industry partners to improve these products for better future national highways.

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Sustainable surface courses for pavements: Performance evaluation of CGBM containing RAP material

KID: 20230314

A growing number of organizations, institutions, industries, companies, agencies, and governing bodies are keenly focusing on the principle of sustainability to manage their activities and achieve their goals. A sustainable approach emphasizes considering the key environmental, economic, and social factors in the decision-making process. A sustainable pavement is a solution that fulfils its specific engineering objectives such as, (1) satisfies structural and functional characteristics, (2) efficiently utilises resources, and (3) protects/restores surrounding ecosystems. Six key pavement life-cycle phases are considered for sustainability best practices, as illustrated in **Figure 1**. One such efficient sustainable pavement technologies is semi-flexible pavement containing cement grouted bituminous mixtures as a surface layer.

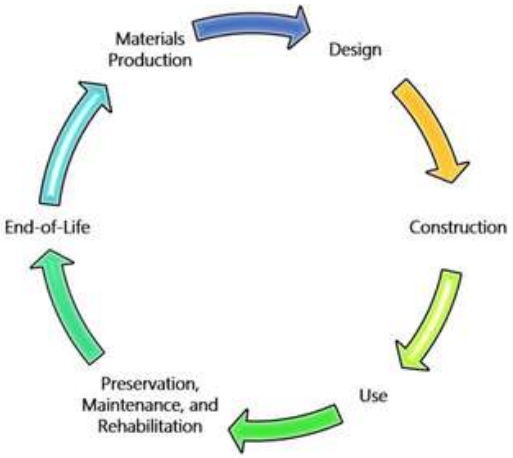

Figure-1: Pavement life-cycle phases (FHWA-HIF-14-012, 2014)

Cement grouted bituminous mix (CGBM): CGBM is an innovative type of composite pavement material consisting of a porous asphalt mixture injected with cementitious grouting material. Initially, open-graded asphalt mixtures are prepared with 20-35% air voids **(refer to Figure 2a)**, and cementitious grouting material is injected into the air voids of the porous asphalt mixture **(refer to Figure 2b)**. Over the past few decades, CGBM has gained attention due to its numerous advantages over conventional flexible and rigid pavements.

Applications: The application of CGBM is wide and particularly effective in places of tunnels, heavy loading yards, airport pavements, locations where the pavement needs to take heavy stationary loads, and pavement with the possibility of exposure to petroleum and chemical attacks.

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Reclaimed asphalt pavement (RAP): RAP is a removed/processed pavement material taken from the existing pavement after the completion of service life **(refer to Figure 3)**. The proper use of RAP materials provides greater economic and environmental benefits by reusing valuable non-renewable resources (aggregate and asphalt) and reducing the disposal and dumping of waste materials. Literature studies infer that the consumption of RAP up to 30% in the bituminous mixes led to a saving in cost up to 30% and a reduction in energy consumption and CO2 emission was observed to be around 16%.

Currently, the literature on the utilization of RAP in CGBM mainly focuses on micromechanical analysis. The possibility for the utilization of RAP material in the CGB mixes needed to be studied to understand the design, mechanical, and performance characteristics of CGB mixes containing RAP material. The current research work focuses on the design of porous asphalt mixture and the selection of suitable cementitious grouting material that provides full-depth penetration into the porous asphalt mixtures containing RAP material, mechanical properties, rutting, fatigue, moisture damage resistance, fuel, and abrasive resistance of CGBM containing RAP material. The outcome of the current study provides a detailed understanding of the performance characteristics of CGBM containing RAP and helps the industries and government bodies in moving forward with the construction of CGBM containing RAP material with higher confidence levels, which ultimately results in greater economic and environmental benefits.

Figure 2 (a) Porous asphalt mixture containing 50% RAP material; (b) Cement grouted bituminous mixtures containing 50% RAP material

Figure-3: Milling of RAP material (Source: dykespaving.com)

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The Future of Transportation: Revolutionizing Mobility through Vehicle Autonomy

KID: 20230315

In today's transportation, smooth traffic flow and safer roads are the needs and desires of every individual. According to the World Health Organization (WHO), road crashes kill nearly 1.3 million people each year, and the majority of these crashes (around 90%) occur due to human errors. With the rapid advancements in the area of research in sensor devices, robotics, and intelligent transport systems, we can foresee autonomous vehicles (AV) taking over conventional, manually driven cars. Since these AVs are equipped with technology that helps them sense the road infrastructure and detect other vehicles around them with the least input from the human driver, they greatly reduce the cognitive burden and physical exhaustion of driving. AVs not only reduce human error but also contribute with other positives, such as allowing for work on-the-go, better fuel efficiency, improved road capacity, and mobility to the elderly and disabled. AVs are charaterized by varying levels of autonomy; the Society of Automotive Engineers (SAE) classifies AVs into levels 0 to 5. The Level-0 AVs are majorly limited to warning systems, with no significant control taken over by the vehicle itself.

Level-1 AVs integrate driving assistance systems that occasionally support the driver in lateral or longitudinal driving tasks. Level-2 AVs automatically provide multi-dimensional assistance. Level-3 AVs are empowered to autonomously handle acceleration, deceleration, and steering within specific environments. At Level-4, AVs operate autonomously under defined constraints, relieving the driver from driving duties unless a critical software malfunction occurs. Lastly, Level-5 entails complete AV autonomy across all environmental conditions, negating the need for driver intervention.

The Incorporation of AVs into the existing traffic environment comes with the need to overcome some prominent challenges.

The technological risks involved and the mandatory infrastructural requirement of AVs are among the major challenges to overcome (refer **to Figure 1**).

KID: 20230315

Figure-1: Technological risks and mandatory infrastructure for AV inclusion in India

The technological risks that pose as major challenges to be addressed include safety testing, liability, insurance, privacy, cyber security, and industrial influence of AV inclusion on roads. Also, since the AVs require specially designed entities for their efficient functioning, the necessary infrastructural requirement for AV operation include specifically designed road infrastructure, digital communication systems, cloud storage facility, safe harbor area, service stations, and parking facilities.

Once we are able to resolve the various technological challenges and infrastructural demands that AV inclusion brings in, the next step ahead would be the safety testing of the AVs on simulated and real world like road conditions, before the AVs can actually be launched in real traffic. AV testing scenarios have been classified into 6 major categories which include a) Basic traffic manoeuvres, b) Navigation through varying road geometry, c) Interaction with surrounding vehicles, d) Interaction with vulnerable road user (VRU), e) Interaction with road signs and markings, and f) Crash prone/risky scenarios.

Figure-2: Plan of Connected Autonomous Vehicle Testbed at IITH

KID: 20230315

Figure-3: AV testing procedure at CAV Testbed IITH

The TiHAN Connected Autonomous Vehicle (CAV) Testbed at the Indian Institute of Technology Hyderabad is one of its kind in India and can be effectively used for carrying out the designated safety test scenarios on AVs. **Figure 2 and 3**, illustrates the details of the CAV testbed facility at IITH. This CAV testbed facility is being effectively used by Researchers and development firms in India for conducting safety tests on AVs.

In July 2023, the Transportation Engineering Research Group at the Indian Institute of Technology Hyderabad (IITH), conducted a perception survey to gauge the public perceptions on the incorporation of AVs on public roads in India. The questionnaire was designed to capture the perception of the local public concerning the AV inclusion into mainstream traffic. The survey findings disclosed that 88% of the respondents believed that establishing a regulatory framework and guidelines for AV inclusion was necessary, before proceeding with AV testing on actual roadways. Furthermore, a clear inclination was observed towards intermediate autonomy levels in AVs (up to Level 3). In terms of the timeline, the responses indicated that the inclusion of AVs might extend until 2050, considering the existing conditions in India (refer **Figure 4**).

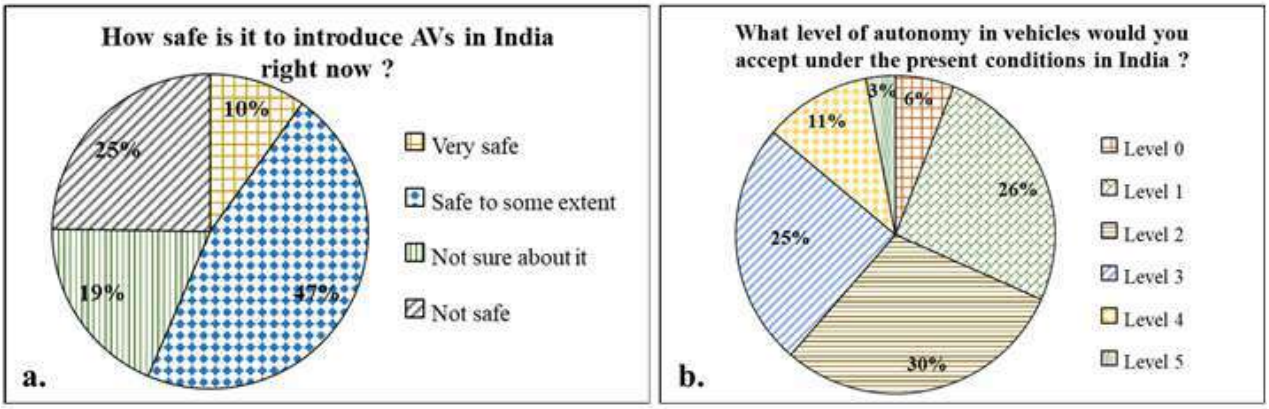


Figure-4: Perception of the public on a. Degree of safety of AV inclusion, b. Acceptable levels of autonomy in AVs

Conclusion:

The autonomy of vehicles holds great promise for the future but only with adequate preparation. With the AV industry seeing drastic advancements, our Transportation Research team at IITH is actively engaged in a collaborative effort to calibrate, improve, and safely induce AVs under Indian road conditions. **Currently, an AV shuttle facility has been deployed on IITH campus to help students reach the main gate from the main hostel blocks.** The ongoing research endeavors are dedicated to evaluating the efficacy of this deployed technology and understanding public perceptions on the adoption of AV technology.

AV Shuttle deployed on the IITH Campus

[1] Mr Ankit Singh
Research Scholar, Department of Civil Engineering

[2] Dr Rajalakshmi Pachamuthu
Professor, Department of Electrical Engineering

[3] Dr Digvijay S Pawar
Associate Professor, Department of Civil Engineering

Embarking on Uncharted Routes!

A Fresher's Glimpse of Transportation Engineering Research at IIT Hyderabad

KID: 20230316

As I take my first steps into the world of Transportation Engineering at the IITH, I am filled with a sense of excitement and anticipation. It's not just about textbooks and lectures; it's about a journey filled with discoveries, challenges, and new friendships. In this article, I want to share my personal experience as a new MTech student at IITH about transportation research and education at IITH.

First and foremost, I want to mention about the faculty with diverse expertise within the Transportation division, namely Dr Digvijay S Pawar, Dr Ramya Sri Mullapudi, and Dr Suvin P Venthuruthiyil. Our faculty members are not only super smart but also young and full of energy, and that makes it easy for us to connect with them.

One of the best parts here at IITH has been the state-of-the-art laboratories. The Traffic Engineering and Pavement Engineering labs are equipped with cutting-edge instruments and software for hands-on analysis and modelling. As freshers, we can expect to engage with advanced equipment and cutting-edge software, gaining practical experience in analyzing, modeling, and designing transportation systems. The division's commitment to continuous improvement means that these labs are constantly evolving to incorporate the latest instruments and software, providing us with an immersive learning environment.

I have also observed that, beyond physical infrastructure, the department thrives on collaboration. Interdisciplinary interactions with experts from fields such as Electrical, Computer science, etc., can amplify research's impact.

What sets IITH apart is its commitment to bridging the academia-industry gap. As a fresh Postgraduate student, this is particularly intriguing. The research conducted here isn't confined to academic realms but extends into the real world. Students are encouraged to work on projects that have practical implications, collaborating with industry partners to develop solutions.

But it's not all work and no play here. IITH has fantastic sports facilities too and a gym to keep us fit and unwind after a day of studying and research. On the first day of our college, our faculty encouraged us to actively participate in sports and games. Currently, I am actively involved in playing basketball. I'm especially eager for the opening of the new sports complex.

As a fresh Postgraduate student, I'm super excited about the future! We're going to see more smart cities, self-driving cars, and eco-friendly transportation. IITH is the perfect place to learn about all this and make a real difference.

After joining the Transportation family at IITH, for me, traffic isn't just congestion but a puzzle waiting to be solved; roads aren't just asphalt but pathways to sustainability and efficiency.

Mr Lokesh Bucchimgari
MTech Student
Department of Civil Engineering

Believe in the Goal and Trust the Process

KID: 20230317

This is Tatineni Ugesh. I Pursued a Masters from IITH in the stream of Geotechnical Engineering during 2013-15. I have cleared the Indian Engineering Services examination 2017 with AIR-42. I am currently working in the Ministry of Road Transport & Highways (MoRTH) as Technical Secretary to the Director General (Road Development) and Special Secretary.

One of my friend's suggestions regarding the emerging status of IIT Hyderabad as one of the top institutes of India brought me IITH. The most I enjoyed was my Project work on Ground Penetrating Radar in the 2nd year of my Masters, which was very innovative and challenging. I used to Play Volleyball and cricket. Our Team won the trophy in the intra-cricket tournament held in 2014. The education and training I got at IITH helped me overcome my fears and develop interpersonal skills. **I had a lot of best moments during those two years and can't single out any.**

To believe in the Goal and trust the process is what I would like to emphasize for the existing folk @ IITH.

The Student - Teacher friendly interaction and the supportive nature of Professors is one of the best aspects of IITH. In any given way where my contribution is required, I would like to give back to my Alma matter.

The best way to contact me is on my email: ugesh.tatineni@gmail.com.

Mr Tatineni Ugesh
MTech (2015), Department of Civil Engineering
Technical Secretary to the Director General
(Road Development) and Special Secretary, MORTH

IITH has Incredible Infrastructure, build on it for better future!

KID: 20230318

Hi, I'm Vinay Kumar, currently working as a Postdoctoral Fellow at the University of Texas (UT) at Austin and soon joining Huesker USA as Technical Manager – Pavements. I was a graduate research assistant working for my PhD in the Dept. of Civil Engineering (2013-2018).

Well, I was working in the Republic of Mauritius briefly after my master's (MTech) and applied for a PhD position in Civil engineering (Geotechnical engineering) during my vacation to India (Jokes apart!). My interest to work with Dr Sireesh Saride on the topic of Transportation Geotechnics and Geosynthetics made me join IITH and work with him for my PhD.

To be frank, I did enjoy any of the subjects that I had to attend classes to get grades, since I was researching in Pavement engineering and courses were mostly on Geotechnical and Civil engineering topics. However, I enjoyed teaching (working as a TA) Advanced Soil Mechanics laboratory to the graduate students (Masters and PhD). Not many activities I was involved, but I did play cricket and volleyball, so mostly Sports. **I presume the ability to be a good researcher, even when situations are not in your favor, is an incredible take away from IITH!**

I'm actually implementing my PhD research from IITH in the Texas roadways (in coordination with Texas Department of Transportation) as part of my current job at UT Austin. It has helped me a lot. **There are many best moments from my days at IITH. However, receiving my PhD certificate during the graduation ceremony would top it all.**

IITH has been doing really well with very good infrastructure and research facilities. I'm glad the current students can make good use of it to achieve something better. However, the ability for undergraduate students to interact with the graduate students is excellent and developing new infrastructure would definitely a continuous evolving process, which I presume is already in process. I can contribute by mentoring the current Geotechnical/ Transportation students in their research activities and career.

You can contact me via email:
vinay.vasanth@utexas.edu; christite.vinay@gmail.com

Dr V Vinay Kumar
PhD (2018), Department of Civil Engineering
Postdoctoral Fellow,
University of Texas (UT), Austin

Make great friends and memories for a lifetime!

KID: 20230319

My name is S Harish. I joined IITH in 2013 for 2-year MTech Program in Geotechnical Engineering. After completing my MTech in 2015, I joined as an Assistant Executive Engineer in the Water Resources Department of the Andhra Pradesh State Government and have been working there since then. Joining an IITH has always been a dream since it was in my home state. It was even special to join, gain knowledge, and come out as a better person from a premier institute, which was my goal. I enjoyed Advanced soil mechanics the most and least enjoyed the Finite element method. I was predominantly in sports activities like volleyball.

As I am a field engineer in the Water Resources Department of the Andhra Pradesh State Government, **all the laboratory soil tests I have conducted during my MTech in Geo-technical can be reciprocated in my Job before commencing any construction, and the theoretical knowledge gained also helps me a lot.**

All the faculty members were very supportive during my 2 years at IITH, especially my guide, Dr Sireesh sir, and all the friends that I have made are still in touch. We had great moments and fun together, which I will cherish Lifelong.

I want existing students to focus on gaining sound knowledge of their academics and strive towards their ultimate goal, whatever it may be. **Most importantly, make great friends and memories for a lifetime.**

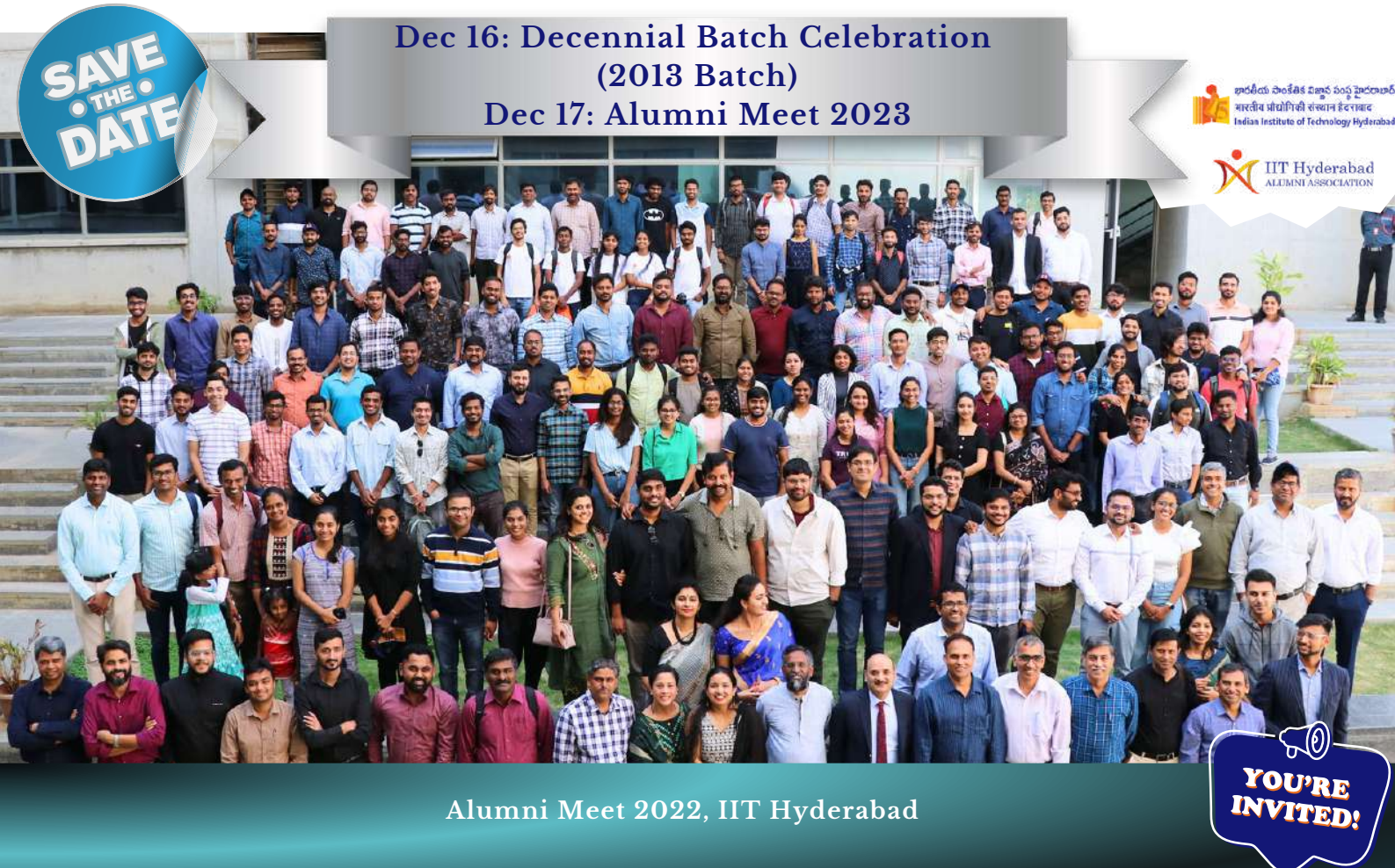
The new building of the institute is the best thing about IITH, and maintaining the whole campus and bettering it in future for years to come would be a primary task for the management.

In any capacity, if and when my institute requires me to contribute, I am available for my Alma Matter!

I am available to be contacted by mobile no: **9703023292** and can be emailed at harish.satya891@gmail.com.

I would love the Institute to conduct regular Alumni meets so that we can stay in touch with each other.

Mr S Harish
MTech (2015), Department of Civil Engineering
Assistant Executive Engineer, Water Resources Department, Andhra Pradesh State Government



Alumni Meet 2022, IIT Hyderabad

Avisa: Transforming Street Vendors' Lives with Innovative Utility Vehicles

KID: 20230320

India is home to a thriving community of over 10 million street vendors, offering a diverse range of products from food and beverages to fruits, vegetables, ice cream, and more. However, these hardworking individuals often grapple with daily challenges such as extreme weather, sun exposure, rain, standing for long hours, and fluctuating customer numbers, all of which significantly impact their livelihoods. This realization stemmed from extensive two-month research conducted during the Industrial Design-Graduation Project by founder Paresh Mistry at Woxsen University, commencing in January 2023.

To overcome these struggles, Avisa Startup embarked on a mission to create a revolutionary product – The First in India Utility Vehicle for Street Vendors. Their vision was to develop a user-centric design solution that seamlessly integrates into the daily routines of street vendors, with a focus on ease of use and a minimal learning curve. This marked the inception of Avisa Startup, founded to provide a better business platform for street vendors and uplift their quality of life. The name "Avisa," derived from the Sanskrit word meaning "ocean," perfectly encapsulates their vision – to create boundless opportunities for people through their innovative utility vehicles.

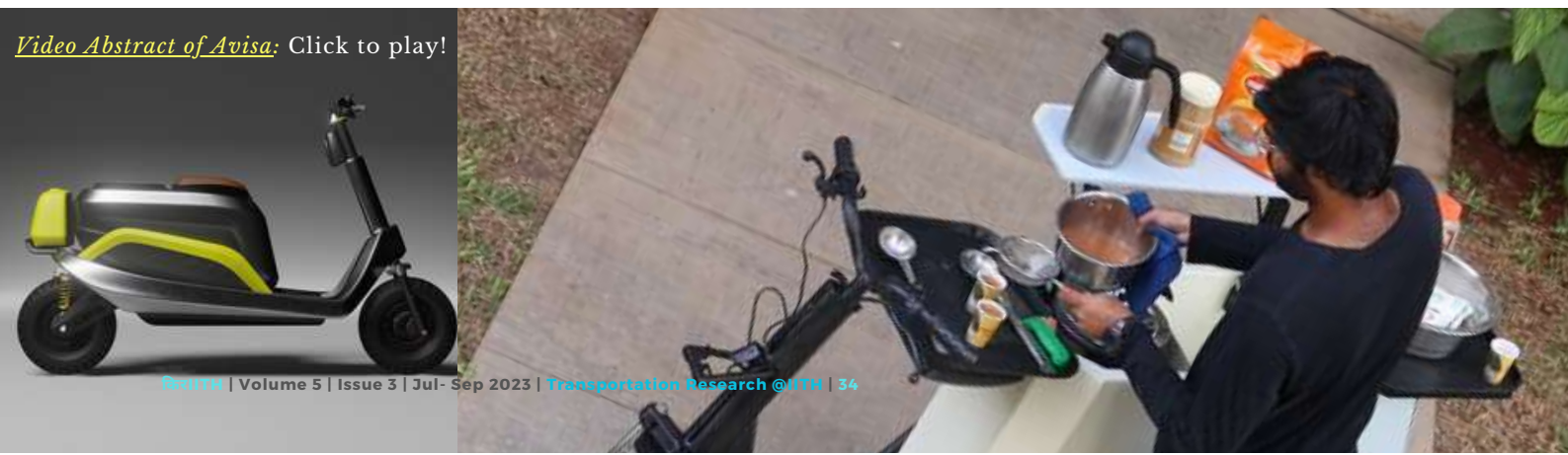
Development and Testing:
In the journey of Avisa, the first prototype was completed in June 2023, which was subsequently tested with a select group of street vendors. Their invaluable feedback was instrumental in refining the design and functionality of the vehicle, ensuring it meets the specific needs and expectations of its end users. Presently, Avisa Startup is in the pre-incubation phase at IITH under the TiHAN program.

The team is working on version 2.0 of the vehicle, incorporating improvements based on feedback and insights gained from the initial prototype. Avisa is also actively seeking to expand its core team, driven by a commitment to making a lasting impact. By addressing the real challenges faced by street vendors and providing them with a versatile, user-friendly solution, Avisa is poised to make a significant difference in the lives of millions with the vision of creating endless opportunities for individuals, much like the vast expanse of the ocean.

Avisa's Innovative Solution:
Avisa Startup promotes economic empowerment to street vendors through an electric utility vehicle that effortlessly transforms into a mobile shop within a minute. This adaptable workspace caters to dynamic customer preferences, allowing vendors to switch between various businesses seamlessly and diversify their offerings. With features designed for cooking on the vehicle, 150 litres of storage capacity, cold storage, and the ability to prepare juices and beverages, Avisa's vehicles are tailored to meet the specific needs of different street vending businesses. The mobility of these vehicles helps street vendors to easily relocate within the city, reaching a broader customer base, which in turn leads to higher profits and greater cost-effectiveness. It also addresses the issue of congestion in traditional vending activities, reducing pollution and enhancing the aesthetics of the city. Notably, the user-friendly design breaks gender stereotypes, promoting gender equality and empowering women entrepreneurs in the street vending sector.

Mr Paresh Mistry
Founder Avisa
i-TIC Incubator at IIT Hyderabad

Video Abstract of Avisa: Click to play!



IITH hosted "FUTURE ACADEMICS: Opportunities & Challenges", a conclave that brought together 32 Dean (Academics) from IITs/ NITs across the country!
Read more: https://pr.iith.ac.in/pressrelease/DAC23.pdf

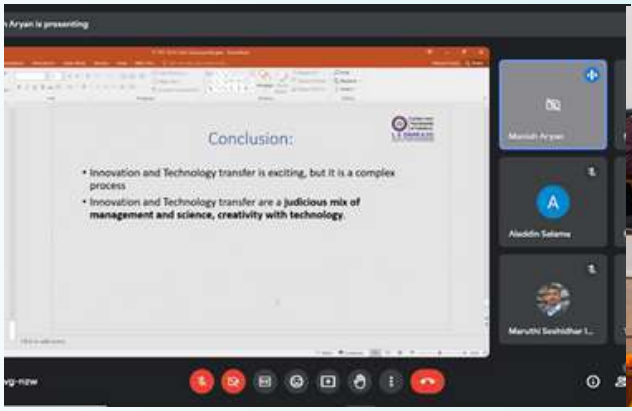
7th International Conference on Luminescence and its Applications 2023, jointly organized by IICT Hyderabad and IIT Hyderabad in collaboration with the Luminescence Society of India.

IITH showcased its "Green Innovations", at Indian Green Building Council's "Green Property Show".

Department of Liberal Arts, IITH, conducted the "Digital Urban Workshop", a collaborative initiative between UCL Geography and IIT Hyderabad.

Dept of EM & IIC, IITH hosted a talk by Dr Anita Sharma, Founder, 'Drive on my own' & 'Inkpothub', on "Lean Startup & Minimum Viable Product/Business".

Dept of EM & IIC, IITH hosted a talk by Mr Raghu Mangaraju, Senior Vice-President India, Blend360, on "Converting Innovation into a Startup/ Achieving 'Value Proposition Fit' & 'Business Fit'".



IPFC & IIC, IITH hosted a talk by Mr Manish Aryan, IP Strategist, Asst. Principal Attorney (Litigation) at L. S. Davar & Co., on "Technology Transfer".

G20 "India Presidency Panel Discussion", illuminating insights on Digital Transformation and Literacy, hosted by IITH in collaboration with Akashvani, RNU, Hyderabad, Prasar Bharati.
Read more: https://pr.iith.ac.in/pressrelease/AVIITH.pdf

Dept of EM & IIC, IITH hosted a talk by Dr Minja Bolesnikov, Head of Research, Swiss School of Business & Management, on "Building Sustainable Green Business - Emerging Technologies Perspective".

Dept of EM & IIC, IITH hosted a talk on “Innovate & Inspire by TAIM (Telangana AI Mission): From Ideation to Implementation” on World Entrepreneurs’ Day.

On 15th August ECELL, IITH, under the guidance of iTIC incubation cell and IIC, celebrated “Azadi ka Amrit Mahotsava”, with eminent speakers.

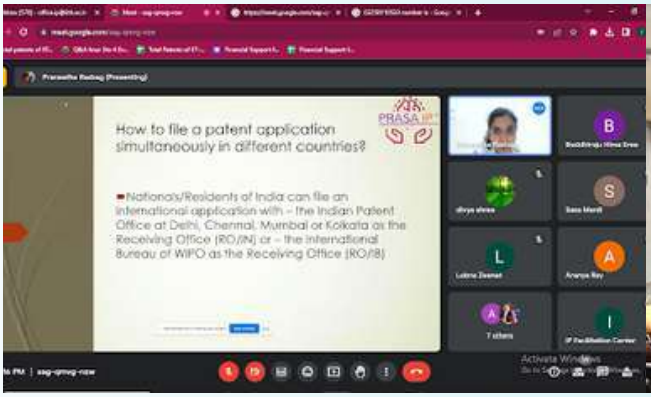
IITH has successfully concluded the Indo-German networking workshop FORGE (Fostering Opportunities for Researchers in Germany) 2023, being organized in association with DAAD.

The Committee for Gender Concerns, IITH, organized a major series of Gender Sensitization Workshops for all undergraduate and graduate students at the Institute.

Dept of EM & IIC, IITH hosted a talk by Prof Suryakumar S, Dean-Innovation, Translation and Startups, IITH, on “Accelerators/Incubation- Opportunities for Students & Faculties- Early-Stage Entrepreneurs”.

Dept of EM & IIC, IITH hosted a workshop by Mr Ajay Jain, Founder and Managing Partner, Silverneedle Ventures on “VC Funding Opportunity for Early-Stage Entrepreneurs”.

Renowned Prof Raj Reddy from Carnegie Mellon University discussed "Overcoming Language and Literacy Divide in India".



IPFC & IIC, IITH hosted a webinar by Praneetha K Rasbag, Founder - Prasa - IP, on "International Patenting Process".

The committee for Gender Concerns Organized another major round of Gender Sensitization Workshops for all incoming Masters and PhD students at the Institute.

The Department of Sports organized an orientation session of the HELM (HEARTFULNESS ENABLED LEADERSHIP MASTERY) Program for Students.

IITH Library conducted an AUTHOR WORKSHOP in collaboration with Clarivate to enable users to Conduct Comprehensive Literature Searches in various research tools ProQuest, Academic Complete, and Summon discovery tool.

IITH Researchers, in collaboration with the Indian Pulsar Timing Array (InPTA) consortium, unveiled the Humming of the Universe.

Read more: https://pr.iith.ac.in/pressrelease/InPTA23.pdf

IITH, represented by Prof B S Murty, Director, IITH, is honoured to witness, the President of India's Visitor's Conference 2023 at Rashtrapati Bhavan.

IITH live broadcasted the Akhil Bharatiya Shiksha Sangam - NEP three-year celebration inaugurated by Hon'ble Prime Minister, Shri Narendra Modi Ji.

Hosted Dr P D Vaghela (IAS:86), Chairman of TRAI, along with his team.

Called the Press Conference marking the momentous occasion of the 3rd anniversary of the NEP 2020.
Read more:
https://pr.iith.ac.in/pressrelease/NEP23.pdf

Introduced Open to All Teaching [OAT], a 1st of-its-kind, Real-Time Learning for External Candidates: Remote Real-time teaching from IITH's Classrooms.
Read more:
https://pr.iith.ac.in/pressrelease/OAT23.pdf.

Prof Chandra Shekhar Sharma, Dean (Sponsored Research and Consultancy), represented IITH during the G20 Science 20 (S20) Final Summit at Isha Yoga Centre, Coimbatore.

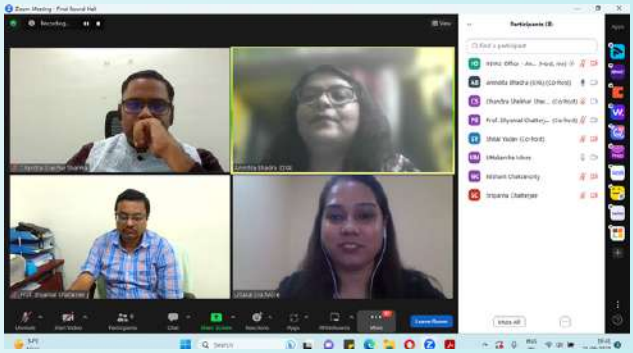
980 Degrees were conferred during the 12th Convocation with ISRO Chairman, Shri Somanath, as the Chief Guest
Read more:
https://pr.iith.ac.in/pressrelease/12CNV.pdf

Prof Julia Gorelik, Professor of Cellular, Biophysics, Imperial College London & Selection Committee member, DBT/ Wellcome Trust India Alliance, visited the "Cell Signaling and Ion Channel Laboratory" at Biotechnology Dept, IITH.

IITH has successfully conducted the Plantation Drive for July 2023 by planting approximately 150 Akalifa multi-colored plants that are nurtured in our very own nursery.

IITH also joined India in celebrating the success of Chandrayaan-3 with a Mega Live Broadcast at
OAT, SNCC, IITH

IITH thrilled to announce the arrival on Thread. The 7th social media/ engagement platform!



Model G20 Initiative Grand Finale hosted by IITH, in collaboration with INYAS under the Ministry of Education's guidance.

Welcomed Ms Renu Dahal, The mayor of Bharatpur, Nepal for Candid Campus Tour.

Hosted Ms Hilary McGeachy, Australian Consulate General and her team members, Mr Andrew Collister, Consul, and Ms Krithika Subramanian, Policy Research Associate.

IITH Successfully conducted the Plantation Drive for August 2023 by planting approx. 150 Akalifa multi-coloured plants that are nurtured in our very own nursery.

Collaborated with Akashvani RNU, Hyderabad, IITH hosted the G20 "India Presidency" Elocution Competition on the topic “Digital Transformation and Literacy”.

The NSS, IITH, in collaboration with Niloufer Blood Bank organized a Blood Donation Camp.

Team NSS, IITH organized a Books & Cloth Donation Camp.

मेरी माटी मेरा देश के संकल्प
और
हर घर तिरंगा
तत्वाधान में
आईआईटीएच में सभी ने मिलकर
हमारे देश को
महत्वपूर्ण और सशक्त बनाने के
नए संकल्प लिए

IITH immersed in tricolour to celebrate the 77th Independence Day with pride and pleasure as we take a pledge to honour our roots with the spirit of "Meri Mati, Mera Desh"!

IITH conducted the Plantation Drive for September 2023 by planting 200 No. of Duranta Golden Plants nurtured in our very own nursery.

National Sports Day 2023 at IITH was a grand success reminisces about the fantastic day of Sports and Camaraderie.

IITH and Suzuki Motor Corporation are developing Autonomous Driving and ADAS Systems for Indian traffic scenarios, A Project Demonstration at TiHAN-IITH.

Inauguration of two state-of-the-art Hybrid Classrooms, made possible by the generous contribution of Infovision.

IITH inaugurated its office at the IIT Alumni Centre in Bengaluru, Mr Nitin Agarwal, alumnus (2014), inaugurated the centre.

भारतीय प्रौद्योगिकी संस्थान हैदराबाद में हिंदी पखवाडा समारोह दि. 14-09-2023 से 29-09-2023 तक आयोजित किया गया।

Badminton enthusiasts @IITH including faculty and staff, came together to host the 1st edition of the Tournament "Game of Serves".

G20 University Connect Event Live Broadcast at IITH.

Milan, Inter-hostel Sports-Tech-Cultural Fest 4th edition flag-off to crown Champion of Champions.

Successful Movie screening organized by SPICMACAY IITH Chapter for IITH's Community.

IIT Hyderabad
took the
Pledge of Cleanliness
during
Swachhata Hi Seva Campaign
and started
Cleanliness Fortnight
with
Swachhta Run

6th Edition of Japan Day (Japan Career Fair) and 1st edition of Japan Week 2023 concluded at IIT Hyderabad
Read more:
https://pr.iith.ac.in/press release/JCFW23.pdf

Mr Vineet Gairola
PhD Scholar
Department of Liberal Arts
Awarded the APA Division 29 Student Diversity Paper Award

Dr Shruti Upadhyaya
Assistant Professor
Department of Civil Engineering
Selected for a Short Research Trip to France (SRTF) 2023

Dr Alok Kumar Pan
Associate Professor
Department of Physics
Selected for a Short Research Trip to France (SRTF) 2023

Prof V Kanchana
Department of Physics
Received Bronze Medal 2023 from the Society of Materials Chemistry

Dr Digvijay S Pawar
Associate Professor
Department of Civil Engineering
Bronze medal in the14th South Zone Shooting Championship Rifle/Pistol (NR) Events

Dr Aravind Kumar Rengan
Associate Professor
Department of Biomedical Engineering
Received Prestigious G. D. Naidu Award 2023

Dr Gaurav Sharma
Assistant Professor
Department of Biotechnology
Inducted as an Associate of the Indian Academy of Science (IASc), Bangalore

Dr Bhojaraju Gunjal
Chief Library Officer
Awarded the Best Librarian Award by the Govt of Karnataka for the Year 2023

Dr Sumana Som
PhD (2022), Department of Design

Appointed as an Assistant Professor at IIT Jodhpur

Ms Indira Roy
PhD Scholar, Department of Entrepreneurship and Management

Awarded the Best Student Paper Award at the SocProS2023 Moving Towards Society 5.0 Organized by IIT Roorkee

Mr Samuel Kaki
PhD Scholar, Center for Interdisciplinary Programs

Awarded the Best Student Paper Award at DeSaltM-23, organised by ESE Dept, IIT Bombay

Ms Swapna Bhattu
PhD Scholar, Department of Chemistry

Awarded the Best Poster Presentation Award at TFCS-2023 Conference held at NIT Tiruchirappalli

Dr Mudrika Khandelwal
Associate Professor, Department of Materials Science & Metallurgical Engineering

Awarded INSA (Indian National Science Academy) Associate Fellow 2023

Mr Sandal Kotawala
MTech Student, Ophthalmic Engineering

Start-up "Alfaleus" won the 12th CavinKare-MMA ChinniKrishnan Award 2023 for the product Intelligent Vision Analyser (iVA)

Dr Shourya Dutta Gupta
Associate Professor
Department of Materials Science & Metallurgical Engineering

Awarded Indian National Academy of Engineering INAE Young Associate 2023

Mitalee Agrawal
Public Relations Officer

Awarded Chankaya Award 2023 for Relationship Management by Public Relations Council of India (PRCI)

Ms Lavadiya Sireesha
PhD Scholar, Department of Physics

Awarded Best Oral Presentation Award at ICCMDP - 2023 held at PDEU, Ahmedabad

Mr Shubham Makwana
Junior Research Fellow, Department of Physics

Awarded Best Poster Award at the SCOP-23 conference, hosted at the Physical Research Laboratory, Ahmedabad

Ms Rishita
BTech - III Year, Materials Science & Metallurgical Engineering Dept.

Awarded Best Paper Award at the ICAM5-2023 Conference organised at NIT Warangal

Prof Mahendrakumar Madhavan
Department of Civil Engineering

Became Fellow of the Institution of Civil Engineers (ICE)

Dr Sanjiv Kumar
PhD (2023)
Department of Liberal Arts

Joined as Assistant Professor at the Department of Economic Sciences, IIT Kanpur

NIT Warangal (Academic and Research)

Read more: https://pr.iith.ac.in/pressrelease/KUJDP.pdf

Carelon Global Solutions (Career Opportunities)

Read more: https://pr.iith.ac.in/pressrelease/DGQA.pdf

Kathmandu University (Joint Doctoral Program)

DGQA (Professional Courses)

Madnani ChemDist Novotec LLP (TRP)

Read more: https://pr.iith.ac.in/pressrelease/CGDT.pdf

Andhra Mahila Sabha & Neer Interactive Solutions (Women Empowerment)

i-TIC Incubator at IIT Hyderabad and H4XLabs
(Joint Accelerator under INDUSX)

Read more: https://pr.iith.ac.in/pressrelease/INUSAC.pdf

THE TIMES OF INDIA

Tue, 04 Jul-23; Times Of India - Hyderabad; Size : 222 sq.cm.;
Circulation:267065; Page : 3

IITH to livestream select courses

TIMES NEWS NETWORK

Hyderabad: Students from various colleges, faculty and working professionals will now be able to pursue courses from the Indian Institute of Technology, Hyderabad (IITH), as the institute has decided to livestream classrooms. Those opting for the course will also have direct interaction with course instructors in real time.

For the August 2023 cycle, 12 courses will be offered as part of 'Open to All Teaching (OAT)' initiative.

As part of OAT, the institute aims to extend its technical education beyond the confines of traditional classrooms and provide access to select courses remotely through online mode. IITH is said to be the first among IITs to open its classrooms to outsiders.

"We believe in making quality learning accessible to all for inclusive growth. The OAT approach will enable us to reach a wider audience and create a global knowledge centre that contributes to both individual growth and the overall development of our nation," said IITH director B S Murty.

This initiative will enable people to learn new-age technologies and also address the limited availability of physical infrastructure required for hybrid courses.

The institute has implemented a set of criteria to prioritise the course offerings, giving preference to unique courses, faculty expertise and expected registrations.

"It was sincerely felt that we at IITH need to take the larger role to include more and more learners inside the academic network. One of the ways is to open some of our courses to all through online mode. I humbly feel that this is a bold step our Senate has taken towards an inclusive policy for any inquisitive learner," said Saptarshi Majumdar, dean (academics), IITH. The courses will be offered for a fee of Rs 10,000 plus per credit. Candidates will have to apply by July 14.

THE TIMES OF INDIA

Thu, 27 Jul-23; Times Of India - Hyderabad; Size : 93 sq.cm.;
Circulation:267065; Page : 5

IIT-H startup to licence 5G patents

TIMES NEWS NETWORK

Hyderabad: WiSig Networks Private Limited, a wireless networks technology startup founded at the Indian Institute of Technology, Hyderabad (IITH), on Wednesday announced its intent to licence its 5G patents.

The startup, which was founded in 2016, intends to licence its patents on a Fair, Reasonable, and Non-Discriminatory (FRAND) basis to Original Equipment Manufacturers (OEMs) in India as well as worldwide.

The extensive portfolio of 5G patents held by WiSig Networks encompasses standard-essential patents, which are fundamental to the implementation of 5G technology. The startup has registered 160 patents on technology related to 5G so far, out of which 24 are standard and essential technologies that will be available for licensing.

Through licensing the patents, the company seeks to promote a level playing field, enabling OEMs to create cutting-edge products without undue burden while respecting intellectual property rights.

"Our mission is to accelerate advancement of 5G technology and support OEMs in their journey towards delivering innovative, high-quality networks, devices, and solutions to consumers worldwide," WiSig Networks founder Kiran Kuchi said.

THE HANS INDIA

Initiatives of IIT Hyderabad toward implementation of NEP

Encouraging innovation

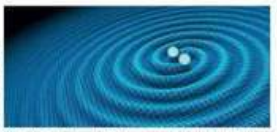
DECCAN Chronicle

Thu, 06 Jul-23; Deccan Chronicle - Hyderabad; Size : 177 sq.cm.;
Circulation:43099; Page : 2

SCIENCE | CORNER **Researchers help find proof of universe humming**

IIT-H hand in 'humming' find

RACHEL DAMMALA | DC
HYDERABAD, JULY 5



Researchers from the Indian Institute of Technology Hyderabad (IIT-H) were part of an international team that made global headlines last week with their findings in the 'humming of the universe' project.

The international team consisted of astronomers and field experts from India, Japan, and Europe, all of whom were members of the European Pulsar Timing Array (EPTA) and Indian Pulsar Timing Array (InPTA) consortia.

The project findings, published in two papers in the 'Astronomy and Astrophysics' journal, provide evidence of relentless vibrations in the fabric of the universe caused by ultra-low frequency gravitational waves.

The theorised murmur created by gravitational waves, known as the 'humming,' echoes throughout the universe.

The project's results were obtained by using six of the world's most sensitive radio telescopes and monitoring pulsars, often referred to as nature's best clocks. One of the sensitive radio telescopes used was India's largest telescope, the upgraded uGMRT (Giant Metrewave Radio Telescope).

The results include an analysis of pulsar data collected over a span of 15 years.

The IIT-H team that participated in this discovery included Dr Shantanu Desai, a faculty member in the Department of Physics and Department of Artificial Intelligence, Aman Srivastava, a physics PhD student, Divyansh Kharbanda, a 2023 BTech graduate in Engineering Physics, and M. Swetha Arumugam, a rising BTech senior.

Additionally, Pragna Mamidipaka, a B Tech student in Electrical Engineering, is also part of InPTA and was actively involved in ongoing InPTA projects. IIT-H has been part of InPTA since 2018.

IIT Hyd, Andhra Mahila Sabha to establish centre geospatial AI

PNS ■ HYDERABAD

IIT Hyderabad on Saturday announced the signing of a Memorandum of Understanding with the Andhra Mahila Sabha (AMS) and Neer Interactive Solutions to establish CGDT, a pioneering centre for geospatial AI and digital twin technologies. This centre will play a vital role in providing employment avenues and entrepreneurial opportunities to female students.

The centre will have four distinguished directors who will lead it and will also serve as the financial signing authority. The director and CEO of Neer Interactive Solutions, Jai Sankar will act as the project director and liaison for projects initiated by the centre.

There is an extensive scope of collaboration including areas such as developing indigenous digital twin technology, designing BIM-GIS solutions, integrating Wireless and IoT technologies, enhancing safety measures for shipyards and ports, implementing data analytics for security and monitoring, and creating Geo AI models for various applications.

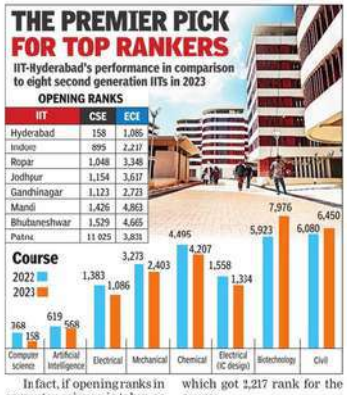
"The centre will offer a platform to invent and innovate in technology for humanity and tackle some of the most pressing challenges in today's world," director of IITH, Prof BS Murty said.

AMS Chairperson, D Chakrapani said, "The move is likely to play a vital role for female students."

The collaboration paves way for faculty and trainers exchange, co-creation of certificate programmes, and collaborative projects with governmental and international agencies for social impact.

Initiatives make IIT-H top choice for talent: Director

DonitaJose@timesgroup.com



Hyderabad: As Joint Seat Allocation Authority (JoSAA) counselling draws to a close for the 2023 academic year, IIT-Hyderabad has been able to attract students who scored top ranks in the recent Joint Entrance Exam (Advanced). IIT-H fared better in terms of attracting more top rankers compared with last year and in comparison with second generation IITs.

As per information from JoSAA and an analysis of the opening ranks, in courses like BTech in computer science, which is one of the most sought-after courses currently, the opening rank this year in open gender neutral category is 158, as compared to 368 rank in 2022 in the same category, implying top-ranking students opting for the institute.

In other sought-after courses like BTech in artificial intelligence, the opening rank improved slightly, 568, compared to last year, 619, in open gender neutral category. A similar trend was observed in electrical engineering course, where the rank this year was 1,086, while it was 1,383 in 2022.

For biotechnology engineering and civil engineering courses, however, the ranks were lower compared to last academic year.

In fact, if opening ranks in computer science is taken as an index to compare all the eight second generation IIT's, Hyderabad rules the roost in attracting the highest rank holder among the eight. IIT Indore comes second by attracting rank 895 for the same subject, while IIT Patna managed to attract 11,025 rank. Similarly, for electrical engineering as well, while Hyderabad's opening rank stood at 1,086, the second IIT to attract the next best rank was Indore, which got 2,217 rank for the course.

IIT-Hyderabad director BS Murty credited it to the out of the box initiatives at the institute. "IIT-H has ascended as one of the top preferences among leading IITs and underscores the commitment to research and technological excellence," Murty said, adding that encouraging students to take up inventions and innovations was attracting better talent to the institute.

the pioneer

Tue, 29 Aug-23; Pioneer - Hyderabad; Size : 185 sq.cm.; Circulation:55000; Page : 3

iTIC Incubator, H4XLabs initiate accelerator for defence excellence

PNS ■ HYDERABAD

INDUS-X (India-US Defense Acceleration Ecosystem) is an initiative to build a defence innovation bridge by innovations for Defence Excellence (iDEX), the Ministry of Defence and the US Department of Defence (DoD). A collaboration agenda under INDUS-X includes an accelerator programme for defence startups to be steered by iTIC Incubator at IIT Hyderabad and H4XLabs. Acting over it, a workshop was organised by iTIC and H4X to initiate the INDO-US CrossLinX accelerator programme.

The CrossLinX accelerator would prepare Indian defence startups to expand to the US markets. Once the startups are ready, they would embark on a trip to the US for 7-10 days to engage with government officials, investors, defence contractors and stakeholders. At the programme's culmination, startups would showcase their products as part of Demo Day in India.

The launch event included a series of sessions on the US defence landscape by experts from diverse domains. The event saw the participation of various defence startups and MSMEs from across India. Other dignitaries witnessing the event included D Alan Johnson (Lt Col-United States Air Force, Director-Defense Cooperation in Armaments, DCA, US Embassy, New Delhi, Jonathan Mangrum, Policy Advisor for South Asia, OSD - OUSD Policy- Indo Pacific Security Affairs, ecosystem partner Erik Azulay, Director and Founder-ACIR and Capt Roy Joseph, Programme Director, iDEX and team from iDEX.

Conveying his best wishes for the success of the Accelerator, Prof BS Murty, Director, IITH, said, "We are confident about the blooming strategic cooperation between India and the US through various initiatives like iCET and INDUS-X and assure the support of IITH to such initiatives."

Fri, 28 Jul-23; Swatantra Vaartha - Hyderabad; Size : 141 sq.cm.; Circulation:21099; Page : 14

आईआईटी और एनआईटी के डीन (शिक्षाविदों) का सम्मेलन आयोजित

THE HANS INDIA

NEW COURSES

IIT H, DGQA to offer M Tech, Executive M Tech & Certificate Programmes

HANS NEWS SERVICE
HYDERABAD

The Indian Institute of Technology Hyderabad (IITH) and the Directorate General of Quality Assurance (DGQA) of the Union Ministry of Defence have signed a Memorandum of Understanding to offer M.Tech, Executive M.Tech and certificate programmes in various disciplines.

IIT-H director Prof BS Murthy and Officiating Director of DGQA, BA Covardhan signed the MoU at the IIT-H Campus in Kandi here.

According to the pact, the two institutes will offer M.Tech and certificate courses in Software Engineering, Testing and Artificial intelligence, Quality Management, Data Sciences, Micro Electronics and VLSI, Communications and Signal Processing, Integrated Computational Material Engineering, EV Technologies, Smart Mobility.

Experts from both organisations will work to prepare the curriculum. The eligibility criteria will be announced soon after the curriculum is made.

Covardhan said a new era of learning would unfold for professionals as they would also learn practically by working in labs apart from classroom teaching. They would also benefit through the interaction with DGQA experts.

Prof Murthy said the synergy between academia and DGQA exemplified the power of collective expertise and shared vision.

THE HANS INDIA

6TH EDITION OF JAPAN DAY - JAPAN CAREER FAIR

1st edition of Japan Week 2023 concluded at IIT Hyderabad

- 20 Japanese entities participated in the event, the maximum number to date.
- Entities ranging from Established firms to Entrepreneurs have shown keen interest in IITH students.
- To enhance the strong bond between Japan and IITH, Japan Day has expanded to Japan Week, where academic and cultural aspects were also introduced.
- 7 Japanese universities and 3 Japanese government organizations participated in the Academic Day held on 18th September 2023.
- Three technical workshops for hands-on demonstration of sophisticated scientific equipment were held in collaboration with Japanese companies.
- Culture and Tourism Day was organized on the 23rd of September, in which 4 Japanese organizations and 1 hub participated to showcase Japanese culture.

Prof B S Murty, Director IIT H, delivering welcome address at Japan Day Celebrations on Sunday

Japanese Doll Exhibited during Cultural Fest

HANS NEWS SERVICE
HYDERABAD

TOSHIHIRO Mizutani, Director General, Japan External Trade Organization (JETRO), Bengaluru, said, "Interest in India's engineering and scientific talent is growing among Japanese companies; as a result, we are welcoming double the number of Japanese companies as compared to last year's Japan Day."

Speaking on the occasion of the 6th edition of the Japan Day at IITH, and said, "Since there is a critical lack of IT engineers in Japan, several businesses there are eager to employ motivated Indian expertise. The participating Japanese companies anticipate that IITH students will play key roles in emerging technological innovation and global strategies. Former "JAPAN DAY" has now expanded to "Japan Week" to showcase other aspects, including Japanese culture. We hope that the students explore a little about Japanese culture and also gain some essence of the Japanese corporate culture."

The JETRO and IIT Hyderabad (IITH) co-hosted "Japan Career Fair 2023", the sixth edition of "JAPAN DAY" here on Sunday, and 20 distinguished Japanese companies attended this career fair, which is the largest number of participants since the event started in 2018. The companies, comprising startups, SMEs, and large corporates, participated in promoting their businesses/cutting-edge technologies to attract students from IITH.

Extending his gratitude to all participating organizations, Prof. B S Murty, Director of IIT Hyderabad, said, "JAPAN DAY, which has been organized annually since 2018 at IITH, is a unique and important event that greatly helps our students to develop an understanding and confidence about the job, work culture, life, and career path in Japan. Many Japanese companies will also get exposure to the excellence and potential of IITH students through active interaction with them on JAPAN DAY. We are indebted to JETRO for its amazing support in connecting IITH with prominent Japanese firms. This year onwards we have decided to Celebrate Japan Week at IITH. We have cherished our bond with Japan this year by observing the 1st edition of Japan Week. I wish to see this participation increase multi-fold in years to come.".

Speaking on the event's success, Prof Tarun K Panda, Dean (International Relations), IITH, said, "Participation of 20 distinguished Japanese companies at the career fair, underlining its growing importance in fostering collaboration between India and Japan. The significance of the year-long collaboration for the Career Fair and week-long collaboration involving Japanese universities, organizations, and Indian-Japanese initiatives is a testament to the strength of global partnerships and technology exchange. We affirm our commitment to nurturing these connections for mutual innovation and growth.".

In addition, IITH, with the support of the Japan International Cooperation Agency (JICA), Japanese universities, and Japanese organizations co-hosted the first edition of the "IITH-Japan week 2023" from 18-24 September 2023. 7 Japanese universities, 8 Japanese organizations, 1 Indo-Japan hub, and three companies participated in the various events to promote various aspects of IIT Hyderabad Japan collaboration.

JETRO, in association with IITH, has been conducting "JAPAN DAY" at IITH since 2018; 10 Japanese companies, primarily large corporations, joined the event in 2018. The number of participating companies has grown and it was Re-branded as "Japan Career Fair 2023", the following 20 companies participated this year.

Students Performing Japanese Art Form at IIT Hyderabad

Academic Staff

Prof Surendra Kumar Martha
Professor
Department of Chemistry

Prior to joining as a Professor, Martha was an Assistant Professor at IITH from May 2013 to Jun 2018 and an Associate Professor from Jul 2018 to Sept 2023. He graduated in the year 2006 from the Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore, India, under the supervision of Professor Ashok K Shukla. Previously, Dr Martha worked as a Postdoctoral Research Associate at the Oak Ridge National Laboratory, Tennessee, USA, and Bar-Ilan University, Israel. His recent research interests are in materials electrochemistry with particular emphasis on advanced Metal-ion, Dual carbon, lead-acid, Ni-Zn batteries, supercapacitors, and recycling Li-ion batteries.

My Life at IITH:
It has been over 10 Y of wonderful experiences, and I am delighted to be part of the Chemistry fraternity @ IIT Hyderabad. Although my initial years at IITH have been very difficult in research, with time, things have streamlined. Research facilities and infrastructures have been significantly improved at the Institute, which helps the faculties to grow further. The freedom given to the faculty helps to build excellent careers in teaching and research, including research collaborations at the Institute, within the country, and abroad. IITH provides a very student-friendly environment that attracts many good students to the Institute. Faculty and staff colleagues are very supportive and friendly. I am proud to be a faculty member of IITH.

Prof Saswata Bhattacharya
Professor
Department of MSME

Prof Saswata worked as an Assistant Professor from Jul 2013 to Jan 2019 and Associate Professor from Feb 2019 to Aug 2023 in the Department of Materials Science and Metallurgical Engineering (MSME), IITH. Before joining IITH in 2013, he worked as a Materials Scientist at John F Welch Technology Center, General Electric, Bangalore, India. He was a postdoctoral fellow at The Pennsylvania State University, USA. He obtained his BSc(Tech) degree in Ceramic Technology from the Government College of Engineering and Ceramic Technology, Kolkata, West Bengal, and received his MSc(Engg) and PhD degrees from IISc, Bengaluru. His research interests are in computational materials science, phase transformations in materials, phase-field modeling of microstructural evolution in alloys and oxides, and applications of high-performance computing in multiscale modeling of materials. He is the co-creator of the open-source phase-field software MicroSim for high-performance simulations of microstructural evolution.

My Life at IITH:
It has been an enriching and exciting experience for me so far. I am thankful to IIT Hyderabad that I could focus on two of my favourite activities, academic research and teaching, from the day I joined here. Thanks to the vibrant environment of research and learning here, I could solve some interesting problems and forge research collaborations within and outside IIT Hyderabad. Also, with the dynamic teaching environment and the new teaching concepts, such as fractal academics, open-to-all teaching, and interdisciplinary academic programs, I could experiment with my teaching and develop engaging, effective methods.

Prof Jyotsnendu Giri
Professor
Department of Biomedical Engineering

Prior to joining IITH in 2013, Prof Jyotsnendu was a Project Leader at the American Dental Association and Foundation (ADF), USA, from 2011. Before joining as project leader in ADF, he received a National Research Council (NRC), USA fellowship for the joint postdoctoral program at the National Institute of Health (NIH), USA and the National Institute of Standard and Technology (NIST), USA (2009 to 2011) as well as Postdoctoral Fellow at California Institute of Technology, USA (2006 to 2009). He did his BTech from the University of Calcutta and obtained his PhD degree from IIT Bombay. He received the Abdul Kalam Technology Innovation National Fellowship in 2021. His research interests are in the fields of Nanomedicine, Regenerative Medicine, Biomaterials, and Drug Delivery (www.enarmlab.com). Jyotsnendu is co-founder of two startups, EaffoCare Innovation Pvt Ltd and Kea Biotech Pvt Ltd.

My Life at IITH:
I joined IIT Hyderabad in September 2013 after spending almost 10 years in the USA on the Old ODF campus, where I neither have any lab space nor a grant to start work (only 4.99 lakhs of seed grant). There was hope that I would get the space when we moved to a permanent campus, and my dream came true when I got a small space in 2016 in Block A. I can still remember the time when every day was full of uncertainty about securing funds and establishing my research group. I must say that the nurturing IITH environment and strong support from all IITH members made me secure almost 12 crore extramural funding over the last 7 years from different Govt funding agencies and establish my research group eNARM Lab. At present, my lab and research group are equipped with modern facilities and extraordinarily young, energetic members to carry out cutting-edge research in biomaterials, drug delivery, nanomedicine and regenerative medicine. Overall the journey from Assistant Professor to Professor is completely enjoyable and an excellent one. I would like to thank the entire IITH fraternity and my family members for all their support in this wonderful journey.

Prof Basha's academic and professional journey reflects his dedication to civil engineering and geotechnical studies. He began his academic pursuits with a BTech from the Civil Engineering Department of Jawaharlal Nehru Technological University, Anantapur, Andhra Pradesh. He further honed his expertise by pursuing an MTech at the Indian Institute of Technology Kanpur (IITK) and later embarked on a doctorate at the esteemed Indian Institute of Science, Bangalore, where he was a doctoral research scholar. Before joining IITH, Prof Basha served as an Assistant Professor in the Geotechnical Engineering section of the Department of Civil Engineering at the IIT Delhi (IITD). Subsequently, he continued his academic journey at IITH, where he held positions as an Assistant Professor from July 2013 to July 2018 and later as an Associate Professor from July 2018 to August 2023 in the Geotechnical Engineering section. Prof Basha has been an active mentor, guiding numerous students in their pursuit of PhD degrees. He has successfully supervised the research of 5 PhDs, 20 MTech, and 5 BTech projects.

Dr B Munwar Basha
Professor
Department of
Civil Engineering

My Life at IITH:
During my tenure at IITH, I have had the privilege of serving as an Assistant Professor, Associate Professor, and eventually as a Professor. These roles have provided me with invaluable insights into the teaching and learning process. I would like to share some of my observations and beliefs that have guided me throughout my academic journey:

Information Development in Lectures:
Providing students with essential information, including definitions, ideas, rules, theorems, and concepts, is crucial during lectures. However, how this information is presented and developed is equally significant. I have found that actively involving students in the development of information is a key strategy. Instead of presenting information as a static entity, engage students in discussions that lead to its creation. Encourage them to participate in developing definitions and theorems, and let them contribute to writing them on the board. A well-prepared lecture should ideally enable you to lead this process without needing to consult your notes. It's essential to establish a dynamic learning environment in which students actively participate in knowledge construction. I have immense respect for educators like Prof. Gilbert Strang of MIT, who excel in this approach.

Problem-Solving and Critical Thinking:
While lectures are vital for delivering theoretical content, they should also incorporate opportunities for problem-solving. Instead of simply providing solutions to problems, I believe in challenging students with carefully selected problems that require them to think critically. Time constraints may limit the number of problems addressed during a lecture, but it's essential not to spoon-feed solutions. Encourage students to make mistakes, as these can be valuable learning experiences. Let them explore the limits of the information provided during the lecture to determine if it is sufficient to solve the problem. Fostering curiosity, doubt, and creativity in students is a core objective. As instructors, we should celebrate the thinking process, even if it leads to unconventional solutions. Professors like Tom Leighton of MIT serve as great examples of this approach.

By adhering to these principles, I aim to create an engaging and intellectually stimulating learning environment where students actively participate in the educational process. It is my belief that encouraging critical thinking, problem-solving, and information development during lectures not only enhances students' understanding of the subject matter but also equips them with the skills they need to navigate complex challenges in their academic and professional journeys., I aim to create an engaging and intellectually stimulating learning environment where students actively participate in the educational process. It is my belief that encouraging critical thinking, problem-solving, and information development during lectures not only enhances students' understanding of the subject matter but also equips them with the skills they need to navigate complex challenges in their academic and professional journeys.

Dr Rajesh Korla
Associate Professor
Department of MSME

Dr Rajesh has done BTech from NIT Warangal and completed his ME & PhD from IISc Bengaluru. He has worked as a Research Associate (2006-2007) at IISc, Bengaluru, Post-doctoral Research Fellow (2014 to 2016) at University of Oxford before joining IIT Hyderabad as an Assistant Professor (2016) at the Department of Materials Science and Metallurgical Engineering, IIT Hyderabad.

My Life at IITH:
One benefit of any academic system is providing faculty with an environment that allows them to do independent research. I can plan my future research direction as per my passion without anyone dictating what I am supposed to do. This is precisely the case at IITH. When I joined in 2016 at IITH as an Assistant Professor, it had just started shifting from an old temporary campus to a new permanent campus with few permanent buildings and temporary laboratory space. Although it was a newly established IIT when I joined, the research facilities available at that time were on par with many of the old-generation institutes, which allowed me to start my research immediately without depending on outside sources. Over the past few years, I have witnessed a phenomenal change both in terms of research as well as building infrastructure. Now it has become a fully established IIT. The less commuting time every day from home due to the availability of the campus residence and availability of basic amenities within the campus reduced stress on the individual who resides inside the campus like me.

Dr Ashutosh Kumar Mishra
Associate Professor
Department of Chemistry

Dr Ashutosh Kumar Mishra has been with IITH since 2017 when he joined the institute as an Assistant Professor in the Department of Chemistry. Dr Ashutosh received his Master in Science degree from DDU Gorakhpur University and PhD from IIT-Kanpur. Later, he moved to Northwestern University, USA, for his postdoctoral studies. Currently, he is working as an Associate professor, and his major research interest focuses on the design and development of biomimetic/bioinspired models for various applications.

My Life at IITH:
Since the last more than half a decade of my journey with IIT Hyderabad, I have found IITH to be growing in leaps and bounds in building the institute of innovation and inventions. It gives me a great sense of pride and joyfulness to be a part of such an institute. Colleagues across the departments have created an excellent, conducive environment to share, discuss, and explore ideas that can become a reality at IITH. Students, being an integral part of the institute, have shown excellent growth over the years and brought many laurels to the department/institute. A highly supportive administrative staff works round the clock for the smooth running of the institute and is the silent pillar of the institute. I feel IITH, a vibrant and enthusiastic institute still in its early days, is ready to blossom, and I am looking forward to being a part of this journey.

Dr Venkat Rao Kotagiri
Associate Professor
Department of Chemistry

Prior to joining IITH, Dr Venkata Rao was a postdoctoral fellow at The University of Tokyo and RIKEN, Japan. He did his MSc from the University of Hyderabad and obtained a PhD from JNCASR, Bangalore. His research interests are in the fields of supramolecular polymers, organic semiconducting materials and porous polymers.

My Life at IITH:
So far, I spent more than five years at IITH. IITH has been equipped with various sophisticated research facilities since the beginning. The freedom given to the faculty to explore and experiment with various teaching methods is excellent. IITH has an excellent research culture and also facilitates to establish collaborations within India and abroad. During the last five years, I also saw a tremendous improvement in the basic infrastructure and amenities at the campus. This encourages most of the employees to prefer campus accommodation. It is a great honour for me to be associated with IITH.

Dr Shourya Dutta Gupta
Associate Professor
Department of MSME

Prior to this, Dr Shourya was an Assistant Professor at IITH from 2017. Before working at IITH, he was a postdoctoral fellow at Cornell University (USA) and the University of Texas at Austin (USA). Dr Shourya did his BTech from IIT Kanpur and obtained his PhD degree from the Swiss Federal Institute of Technology Lausanne (Switzerland). His research interests are in the fields of plasmonics, nanophotonics, metasurfaces and employing nano-scale optical phenomena for sensing and optical modulation application.

My Life at IITH:
Since joining IITH in August 2017, I have been fortunate to be involved in various teaching and research activities. In particular, I have been able to offer both core courses and elective courses for students right from the bachelor's level to the PhD level. It was a very nice experience to improve my teaching through these activities. Furthermore, I have been able to set up a plasmonics (optics of metallic nanostructures) lab at IITH using support from IITH and from funding agencies (DST, SERB and JICA). In addition to using various high-end equipment, we have also developed multiple homemade customized equipment, which also increase the capabilities for measuring properties required for various plasmonic devices. The facilities in the lab now enable me to develop novel plasmonic nanoplatforms for the realization of advanced biosensors and optical modulators.

Prior to this, Dr Chandrasekhar had been working as an Assistant Professor at IITH since 2018. Prior to joining IITH, he has worked as Research Engineer at Spintec, CEA Grenoble, France. He has also worked as a Senior Thin Film Process Engineer at GlobalFoundries Singapore. He obtained his Ph.D. from NTU Singapore. His research interests are in Spintronic based memory, logic, and microwave devices.

My Life at IITH:
I have spent almost five years at IITH. It was my dream to be part of the IITH fraternity. IITH has provided an excellent platform for me to realize my academic dreams. I am thoroughly enjoying my teaching and research responsibilities at IITH. I am thankful to all my colleagues from various departments whose support helps conduct cutting-edge collaborative research. The administration is always ready to support the career growth of young faculty. I am also thankful to the staff for their immense support for the smooth functioning of academics and research at IITH. Overall, I am delighted to be part of the IITH family.

Dr Chandrasekhar Murapaka
Associate Professor
Department of MSME

Dr Surajit Maity
Associate Professor
Department of Chemistry

Dr Surajit joined IITH in July 2016 as an Assistant Professor at the Department of Chemistry. Before Joining IITH, he was working as a postdoctoral fellow in Switzerland for two years. He was associated with laser spectroscopy laboratories at the University of Bern and the University of Basel and worked on the development of spectroscopic methods to detect and characterize short-lived molecular species and complexes. As a post-doctoral fellow at the University of Manoa in Hawaii, USA, he gained experience in the astrochemistry and astrobiology projects linked with the NASA exobiology program for three years. Dr Surajit obtained his BSc (2005) from Ramakrishna Mission Vidyamandira at Belur Math. He did his MSc (2007) and PhD (2011) in chemistry from IIT Bombay. His PhD research topic was the spectroscopic characterization of competing hydrogen-bonded complexes isolated in the gas phase. His primary research objective at IITH has been the development of spectroscopic techniques to accurately determine the energetics of various chemical reactions. He has developed a laser spectroscopy laboratory, well equipped with molecular beam machines, TOF-mass and fluorescence-based detection schemes and various commercial and home-build laser systems.

My Life at IITH:
I have spent over 7 years at IIT Hyderabad. I have seen the campus running vibrantly when there was only a single functional academic building without any road to reach it. The efforts made by the faculty members, administrators and staff members to make to institute achieve new heights over the years are commendable. It gives immense joy to see the currently developed architecturally marvellous buildings inside the campus. The research culture, passion and dedication of the students are no less than the so-called top institutes. The facilities are world-class. The vibrancy on the campus makes life more cherishable in every aspect. I have always believed that with appropriate institutional support, we can reach new heights.

Dr Subhradeep Chatterjee
Associate Professor
Department of MSME

Dr Subhradeep is PhD from the Materials Engineering Department of IISc Bengaluru on welding metallurgy of dissimilar metals. He did a postdoctoral stint at the University of Groningen, The Netherlands, followed by a period in the industry (L&T Power R&D) working on applications of high-temperature materials for supercritical power plants. He joined the MSME department at IITH in 2014. His research focus is in the field of process-structure-property correlations in metallic materials.

My Life at IITH:
It has been an exciting journey! Starting from the ODF days to moving and settling into a new campus - it's not always been an easy task, but the process has mostly been a great learning experience. I really enjoy being part of a growing institute and its vibrant community.

Dr Karthick S K
Assistant Professor
Department of MAE

Before joining IITH in August 2023 as an Assistant Professor in the Department of Mechanical and Aerospace Engineering (MAE), Dr Karthick was the Ramanujan Faculty Fellow at IIT Madras (Mechanical Engineering) from February to July 2023. Before working at IIT Madras, he was a postdoctoral fellow at the Faculty of Aerospace Engineering, Technion – Israel Institute of Technology, Haifa, Israel. He did BE (Aeronautical Engineering) from Rajalakshmi Engineering College, Chennai, and ME (Space Engineering and Rocketry) from Birla Institute of Technology, Mesra, Jharkhand. He obtained PhD (Aerospace Engineering) from IISc Bengaluru. His research interests are in the fields of experimental gas dynamics, jet aeroacoustics, hypersonic aerothermodynamics, optical flow diagnostics, and fluidic/energy-conversion devices.

My Experience at IITH:
I love the platform where I landed. The scope of research and teaching is abundant, and I feel wanted here more than anywhere else. The present opportunity grants me the independence to explore my research areas profoundly. Framing and preparing my coursework is the greatest experience of all. I am glad to share my experience and skills with the talented minds here. I enjoy the companionship of my colleagues, especially. Many of them often extend their hands and help at every turn. I am glad to have found a nurturing place to exercise my mind.

Dr Rekha Raja
Assistant Professor
Department of
Artificial Intelligence

Prior to joining IITH, Dr Rekha was a postdoctoral researcher at Wageningen University, Netherlands, from November 2019. She was a postdoctoral researcher at the University of California Davis, Davis, USA, in March 2018. Dr Rekha did BTech from Jalpaiguri Govt. Engg. College, West Bengal and obtained an MTech from IIEST, Shibpur, West Bengal and PhD degree from IIT Kanpur, Uttar Pradesh. Her research interests are in the fields of robotics, agricultural robotics, robot learning, motion planning, computer vision, and AI algorithms.

My Life at IITH:
Joining IIT Hyderabad as an Assistant Professor was an exciting journey. On my first day, I arrived at the Hyderabad airport and took a cab to the IITH campus. The campus immediately impressed me with its beautiful decorations and well-maintained surroundings. The presence of a free bus service within the campus was a convenient feature for getting around. I was accommodated in the guest house, which was not only clean but also well-maintained, providing a comfortable stay. However, one aspect I found lacking was the absence of a kitchen, which could have been essential for new faculty members arriving with their families. In addition to that, it's worth noting that the region faces challenges related to pollution, particularly from the nearby pharmaceutical industry. This issue demands immediate attention from both the government and relevant authorities to ensure a healthier and more sustainable environment for the campus and its surroundings.

What truly stood out during my initial days was the approachability and enthusiasm of my colleagues. They were a vibrant, welcoming group of young academics who made me feel right at home. While the campus boasted good infrastructure, there was still room for growth and development, which required the collective efforts of everyone involved. In summary, my initial days at IITH were marked by a positive first impression of the campus, the warm reception from colleagues, and the recognition that there was ongoing work to be done to enhance the institution's facilities and resources.

*Non - Academic Staff

*Under Non-Teaching Staff the members notified include both new joinee and career progression cases during the quarter.

Mr V Venkat Rao
Registrar
IIT Hyderabad

Mr Venkat has a BSc (Zoology, Botany and Chemistry) from Andhra University (1987), a Master of Arts in Public Administration from Annamalai University (2006), a Post Graduate Diploma in Materials Management from Annamalai University (2007), passed Graduate Diploma in Materials Management (2 years regular course) from Indian Institute of Materials Management (2010) in FIRST CLASS WITH DISTINCTION and GOLD MEDAL WINNER, Master of Business Administration with specialization in HRM from Sikkim Manipal University (2016) in FIRST CLASS WITH DISTINCTION. Mr Venkat worked in the Ministry of Urban Development, New Delhi, from July 1991 – Oct 1994, In CSIR-CECRI, Karaikudi, from Nov 1994 – Apr. 2001 (Works, Recruitment & Vigilance/APAR etc.), As Section Officer / Section Officer (NFS) CSIR-NGRI, Hyderabad, from Apr 2001 to Aug. 2010 (Purchase), As Stores & Purchase Officer in CSIR-AMPRI, Bhopal, from Aug 2010 to Dec 2010 (Head, Stores & Purchase), as Deputy Registrar in IITH from Dec 2010 to Dec 2015, as Joint Registrar (Level-13) in IITH from Dec 2015 to Dec 2020, and as Joint Registrar(Level-13A) in IITH from Dec 2020 to Jun 2021. At IITH, he worked in all the Administrative Sections i.e. Academics, Stores & Purchase, Administration, Recruitment, R&D, Coordination Sections and as DDO & CPIO and looked after the duties of Registrar during his absence. He worked as Registrar at IIT Goa from Jun 2021 to Jun 2023 and joined as Registrar at IITH in Jul 2023 and continuing till date. Prior to joining as Registrar at IITH, Mr Venkat contributed to various institutional purposes in Academics and other important areas for 10+ years.

My Experience at IITH:
As Joint Registrar (Acad), I contributed to the successful conduct of 8 Convocations, Manually screened more than 10,000 applications in the non-teaching recruitment area, put in place the IITH Purchase Manual and various other Policies / Guidelines etc., in Academics (including Academic Handbook) and other Sections. I have also played a key role in shifting equipment and other facilities from the old campus to the new campus. IITH being the Mentor Institute, I have successfully supervised the administrative operations for IIT Bhilai for 2 years and for IIIT Raichur for 2 years. As Member of the Evaluation Committee for 3-A and 3-B Packages for the construction of 27 Buildings with the financial assistance of JICA.

Mrs Vayuvegula Surya Phani Kumari
Senior Assistant Registrar
Human Resources (Faculty)

Mrs Surya Phani did her Masters Degree in Arts and Diploma in Commercial and Computer Practice. In addition to this, she has also completed Post Graduation Diploma in Business Management.

My Life at IITH:
I've been working at IITH from the inception of the Institution. From the start of IITH in 2008 until 2019, I worked at the Director's Office and then worked at the Management Services Section. At present, I have been associated with the HR (Faculty) office for the last one and a half years. In all these years that I've worked at IITH, I've learned multiple soft and hard skills, which helped me grow professionally and personally.

Mr V S Sastry
Senior Assistant Registrar
Academics

Mr V S Sastry, prior to joining IITH in the year 2012, served in the Indian Air Force from Oct 1989 to Oct 2009 and was with the Intelligence Bureau (Ministry of Home Affairs, Govt of India) from Dec 2009 to Feb 2012. He has done his Master's in Public and Personal Management from Osmania University.

My Life at IITH:
At the outset, I wish to state that I am proud to be part of the IITH family. It's been an amazing and enriching journey at IITH, having completed 11 years of service successfully. I had the opportunity of working in different sections during this period which helped me develop personally and professionally. My sincere thanks to all my superiors and colleagues for their unwavering guidance and support. IITH is a wonderful place with a friendly working environment and a positive team culture.

Mr Malla Seetarami Naidu
Senior Technical Officer
(on Deputation)
Central Workshop

Mr Malla Seetarami Naidu, Graduated in Mechanical Engineering from Jawaharlal Nehru Technological University College of Engineering, Hyderabad. He also completed his MTech from Gayatri Vidya Parishad College of Engineering, affiliated with JNTU, Kakinada. He has 26 years of experience in the field of mechanical engineering (Pump Sump physical model studies and field testing of hydropower plants for flow measurement and performance evaluation of hydro turbines). In addition to these research studies, he handled the Central Workshop of CWPRS for 23 years.

My Experience at IITH:
I feel very fortunate to be part of IITH; it is equipped with modern facilities like advanced laboratories, well-equipped state-of-the-art workshops and learning resources to achieve academic excellence according to its vision and strategic objectives. All the departments are very supportive and encouraging, and transportation facilities within the IITH campus are excellent. I feel very happy and look forward to working together for the growth of the institute in this vibrant environment.

Mr Satheesh has completed his MCA from the University of Madras. At present, He has been working as a Senior Assistant in the Hostel Coordinating Unit (HCU). Overall, he has 14 years of experience in various departments, from the Department of Computer Science and Engineering and the HR Section (HR Faculty) at IITH.

My Life at IITH:
Life at IIT Hyderabad can be quite dynamic and exciting. The Campus is known for its modern infrastructure and vibrant student, Faculty and staff community. The campus often hosts events, workshops, cultural festivals, and Inter IIT sports activities, providing a well-rounded experience and no doubt about our career growth. Therefore I feel very happy to be part of IITH. IITH is the best place for me to learn new things. I am very pleased to contribute to the institute's growth and career.

Mr K Satheesh
Senior Assistant
Hostel Office

Mrs G Shyamala Kumari
Senior Assistant
Hostel Office

Mrs G Shyamala Kumari joined IITH as a Senior Assistant in the Hostel Office. She did a Graduation (BA) from IGNOU, and Post Graduation (MA in Hindi) from Osmania University. She joined as a Project Assistant at the IIIT-H, and I worked for One year.

My Life at IITH:
I feel happy to be part of IITH, and it is the best place for me to learn new things. Proudly say I got a chance to work with various sections in IITH i.e., M S Section, HR Section and at present I am working in a Hostel office. I am pleased to contribute to the institute's growth and career.

Mr K Velmurugan did a Diploma (Computer Science & Engineering) at Aries Polytechnic College, Vadalur, Tamil Nadu. He joined as a Trainee at the National Institute of Technology, Chennai, and he worked for two more years as a Project Technician. Then he did BCA & MCA at Annamalai University.

My Life at IITH:
I feel happy to be part of IIT Hyderabad, and it is the best place for me to learn new things. Proudly say I got a chance to work with various sections in IITH. I am pleased to contribute to the institute's growth and career.

Mr K Velmurugan
Senior Assistant
Department of BME & BT

Mr Sreenivasa has worked as a Project Assistant, Sr. Project Assistant & and Junior Assistant during the period 2011 to 2023. He worked in CMD from 2010 to 2020, handled records of maintenance and was also involved in administrative and construction-related works. Currently, he has been part of the Academic Section (PG wing) for the past two and half years. His current job roles are maintaining academic records of MA, MSc and MDes. Handling monthly fellowships of MTech & MDes students (MoE & Project) and upkeeping infrastructure of classrooms, also supporting the purchase-related works. Mr K Sreenivassa holds a degree in Master of Business Administration (HRM) from Osmania University.

Mr K Sreenivasa Reddy
Senior Assistant
Academics

My Life at IITH:
IITH is a diverse Organization and an excellent place to work. It is an honour to work at one of the premier higher education institutes in India. It's been a wonderful and outstanding experience working at IITH. The colleagues are helpful and highly motivated. It's a blessing to work in a congenial atmosphere like IITH.

Ms Razia Begum
Executive Assistant
Hostel Office

Ms Razia Begum working in the Hostel office as an Executive Assistant. She began her Journey at IITH in 2011 as a Junior Accountant, where she gained valuable experience in the Accounts Section, SRCC section and Hostel Office. She did M Com from Osmania University.

My Life at IITH:
I feel happy to be part of IITH, and it is the best place for me to learn new things. Proudly say I got a chance to work with various sections in IITH. I am pleased to contribute to the institute's growth and career.

Mr Ponnoli Nagarjuna completed BTech (Chemical Engineering) from Dr SGIET College, affiliated to JNTU Kakinada (AP). Prior to joining IITH, he worked as a Lab assistant in RGUKT, IIIT RK Valley in the Chemical Engineering Department. He joined IITH as a Junior Technician in the Department of Chemical Engineering, promoted to Senior Technician in the Department.

Mr P Nagarjuna
Senior Technician
Dept. of Chemical Engg.

My Life at IITH:
My Life at IITH has been truly enriching. The institute provides an excellent platform for both research and professional growth. I have had the privilege of working with some of the brightest minds in the field of chemical engineering. The collaborative environment and support from my colleagues and faculty have made my journey at IITH exceptionally rewarding.

Mr Vadla Brahma Chary
Senior Technician
Central Workshop

Mr Brahma Chary completed SSC at ZPHS Kuknoor Village in Yeludurthy Mandal, Medak District, Andhra Pradesh, ITI (Welder Trade) from Govt ITI in Patancheru, Medak District, Andhra Pradesh. He served as an apprentice at BHEL Ramachandrapuram Hyderabad. He has more than 20 years of experience as a welder and had positions in a number of companies and educational institutions, including Verny Containers Ltd. in Jeedimetla, Hyderabad, Supreme Engg Industries in Erragadda, Hyderabad, and S S Engineering Works in Balkampet, Hyderabad, from 1998 to 2004. He worked as a skilled assistant in welding at Hi-tech Engineering College, Himayath Nagar Village, Gandipet, Hyderabad, from 2004 to 2008. Later, in 2008, he began working as a Senior Project Technician (Welder) at IITH. He joined as a Junior Technician at IITH in 2015, promotions to Technician in 2021, and is presently promoted to Senior Technician.

My Life at IITH:
It is a fantastic opportunity for me to work with IITH at Central Workshop; it is a good opportunity for me to advance in the field of technology by being involved in various projects. I am delighted to contribute to the overall development of IITH.

Mr Mohd. Abdulla
Senior Technician
Dept. of MAE

Mr MD Abdulla has a BSc from Osmania University, a BTech in Mechanical Engineering from Kakatiya University, and his First regular MTech (Thermal Engineering) from NIT Hamirpur, Second regular MTech (CAD/CAM)from Osmania University before joining the IITH in Nov 2014. Also, Published two papers in an International journal, one paper in a national journal and one paper in communication. Before joining IITH, he worked at Medak Engineering College as a Teaching Assistant at Avanthi Engineering College as an Assistant Professor at Shiva Engineering (HP) College as a Lecturer in Mechanical, NSKCET as an Associate. Professor in the Department of Civil Engineering. His areas of interest are 3D printing, Composite materials, mechanical testing, thermal conductivity, surface roughness, DSC, TGA, DTA, Tribology etc.

My Life at IITH:
I had a very interesting experience at IITH, working with the guidance of eminent professors from time to time. Also, I am learning, updating and helping the UG, PG, PhD students with additive manufacturing with FDM technology, which involves, Cad modelling, slicing and printing also 3D printing without Cad modelling. It is a great opportunity to work with the very highly motivated professors, staff and students at the Institute. I thank one and all.

Mr Manche Venkata Srinivas
Senior Technician
Dept. of MSME

Mr Srinivas has a Diploma in Mechanical Engineering from SMVM Polytechnic, Andhra Pradesh and a Degree in Computer Application from IGNOU – New Delhi; joined in Defense Metallurgical Research Laboratory, DRDO – Ministry of Defense, India, as a Technical services Assistant in Materials Science Division and worked more than 15 years in Fatigue & Fracture Mechanics lab, Stress corrosion lab and Mechanical Behaviour Lab.

My Life at IITH:
I feel proud to be a part of IITH, which is one of the fast-growing public technical research universities. Since February 2015, it has been more than 8 years since I have been associated with the MSME Department at IITH. The work culture here is exceptional, and I appreciate the positive and collaborative atmosphere that encourages creativity and Technical skills. I was given the opportunity to work in the Metallography Teaching and Research facility Lab which enhanced my skills and helped me to excel in the material characterization area and got the staff excellence Award – 2021.

Mr S Velmurugan
Senior Technician
Dept of Electrical Engg.

Mr S Velmurugan has a diploma in Electronics and Communication Engineering from Meenakshi Krishna Polytechnic College, Chennai, Tamil Nadu. Before joining IITH, he Worked as a project technician in the Aerospace department at IIT Madras for 3 years. He is currently pursuing a BSC, (MPE) at SV University, Tirupati in Distance Mode.

My Life at IITH:
My experience at IITH was both enriching and rewarding, I had the opportunity to be involved in a wide range of Technical subjects and gain practical skills that were instrumental in my personal and professional growth. The institution also encourages participation in Extracurricular activities, technical activities and competitions. This allowed me to further explore my interest and build a network of like-minded individuals who shared a passion for technology.

Mr E Rangaiah
Senior Technician
Dept. of MSME

Mr Rangaiah has a Diploma in Electrical & Electronics Engineering, Govt. Polytechnic College, Hyd (1995), BTech in Electrical & Electronics Engineering., JNTU Hyderabad (2014). Previously he worked as a Lab Assistant(Electrical Technology) at IIIT Basara during the year 2011-2015. Electrician & Electronics Trade Instructor at ITI Colleges in the years 1997 -2005

My Life at IITH:
It's a great opportunity for me to work with an Institute of national importance. Starting with a cordial welcome to the department, I had good interaction and exposure in the department within a few days. With this good start, I hope to keep up the good work to the extent possible in the ensuing days.

Mr Santu Kayal has completed a BE in Applied Electronics and Instrumentation Engineering from State Government University. During his BE, he has undergone Industrial training from SAIL, Durgapur, NTPC, Farakka, SE Railway, and Kharagpur Division. After his BE, he worked as a R n D Engineer in SNE Engineering, Kolkata, for 2 years(2011-2013). Then he worked in HAL, Barrackpore division(2013-2014) for 1 year. In 2014, he joined IITH as a Junior Technician.

My Life at IITH:
Presently I am working in CLEANROOM as a Senior Technician in the Department of Electrical Engineering. As a first staff member of CLEANROOM, I am glad to be part of growing and improving the facilities of the CLEANROOM with my professional skill and knowledge and also feel proud member of part of growing IITH. Along with this, I'm the departmental staff member of chemical waste management. Having world-class sports facilities in IITH sports utilising the facilities I can able to put my best effort into cricket in the Inter IIT sports meet.

Mr Santu Kayal
Senior Technician
Dept. of Electrical Engg.

Mr S Jagadeesan
Senior Technician
Dept. of MAE

Mr Jagadeesan completed a Diploma in mechanical engineering at KSR College of Engineering in 2004. After that, I did my PDS (Plant design software) course and AUTOCAD course. He started his career as a Technician in a private industry in Chennai. After 2 years, he did PDS (Plant Design System) software and worked in a private corporation for 3 years. Then he joined IITH in 2009 as a Project Technician in a central workshop. In 2014, he joined as a Junior Technician in the IC engines and combustion diagnostics lab up to 2019. Now he is working as a Senior Technician in the Vibration and acoustics lab and material characterization lab.

My Life at IITH:
It is a great and wonderful experience in IITH. Not only in my professional but also in my personal life, which improved me more. I helped to establish a few labs. It was really very hard work I did in IITH. Now I am doing help to the PHD scholars and MTech students with their research. I am also involved in practical classes for UG and PG students.

Mrs B Jayalakshmi has a BPharm from Dr MGR Medical University, Tamil Nadu, an MSc in Biotechnology from Periyar University, and is pursuing a PhD at IITH. Initially, She joined as a Junior Technician, then promoted to Technician and Senior Technician.

My Life at IITH:
IITH is an institution dedicated to fostering academic excellence and innovation. I was privileged to experience at IITH. My journey at IITH has been transformative and has shaped my skills and career. The campus provided a vibrant and diverse environment where I met people from all corners of India, leading to rich cultural exchanges. Working here as an employee has been a good experience. Collaborating with esteemed professors and administrators has allowed me to contribute to the growth and development of this institution. Whether assisting in research endeavours, supporting student endeavours, or ensuring the smooth running of the campus, IIT Hyderabad offers a dynamic and fulfilling work environment. The unwavering commitment to excellence and the relentless pursuit of progress at IITH continue to serve as a profound source of motivation and inspiration for me as a dedicated staff member.

Mrs B Jayalakshmi
Senior Technician
Dept. of BME

Mr Kodavandlapalle N Rasool
Senior Technician
Dept. of EE

Mr Rasool, working as a Senior Technician at the Nano Fabrication Lab (Clean Room), IITH, has done his BTech in Electrical and Electronics Engineering from Shadan College of Engineering and Technology (JNTU University - Hyderabad, Andhra Pradesh). After completing his education, he worked for two years as an Assistant Training officer at the Government Industrial Training Institute, Kadapa, Andhra Pradesh.

My Life at IITH:
I am incredibly grateful for the opportunity to work at India's premier institute, IITH. Moreover, I feel very proud to work with exceptionally talented individuals whose expertise and passion were truly inspiring. The collaborative environment at IITH is truly exceptional. It nurtures us in all aspects of Life.

Mrs N Ashwini
Senior Technician
Dept. of Biotechnology

Mrs N Ashwini completed her BSc in Biotechnology from Osmania University. While pursuing an MSc in Microbiology, she was selected in the IIITH, in the Biotechnology Department as a Junior Technician, and she completed her MSc through distance mode from Acharya Nagarjuna University. She joined IIITH in 2014 as a Junior Technician in the Biotechnology Department prior to her current role.

My Life at IITH:
Having joined this institute in 2014 as a technical staff in the Department of Biotechnology, I am proud to be a part of this institute. My association with a zealous institute like IITH motivated me to learn more and gave me a scope to function without being limited by the role of my designation. The teaching faculty, the administration and my colleagues supported my growth, and I am thankful to them for providing me with a working environment that boosts my confidence and thinking. I look forward to working with the same motivation.

Mrs Guntur Vimala
Junior Assistant
Management Services

Mrs Guntur Vimala began her journey at IITH in 2013 as MSA, where she gained valuable experience in the Hostel office from 2013 to 2021. She has completed a BSc in Geology

My Life at IITH:
I feel happy to be part of IITH. It is the place for me to learn and where I am working, is an excellent opportunity to enhance my skills and knowledge. I am pleased to contribute to the institute's growth and career. I'm incredibly honoured to have been associated with the institution for the last 15 years. I have nothing but gratitude in my heart.

Mr Palpanuri Madhu
Junior Assistant
Dept. of AI, CC and ES

Mr Palpanuri Madhu joined IITH in the year 2013. He has a BCom and was recently promoted to Junior Assistant.

My Life at IITH:
I am very happy to be associated with IITH and gained knowledge and experience in many areas. I heartfully thank everyone for all the support and especially our respected Director, sir, who always inspired me to learn new things...!!

Mrs A Pushpalatha
Junior Assistant
Management Services

Mrs Pushpalatha did her BCom from Sri Venkateswara University. She joined the IITH in its foundation year, 2008, and now She is working as a Junior Assistant in the Management Services Section.

My Life at IITH:
I feel proud to be part of IITH. During my tenure at this Institute, I have worked in the MS Section(erstwhile Admin Section) and Hostel office and gained a lot of knowledge. I feel this is one of the best places to work.

Mr P Srinivas
Junior Assistant, CMD

Mr. P Srinivas joined IITH as a Project Staff in 2008 -2015, in Stores & Purchase. He joined as a Junior Attendant in 2015 and was promoted to a Multi Skill Assistant-2 in 2018, and presently he is working as a Junior Assistant in CMD (Construction and Maintenance Division). He did a Graduation BA (Bachelor of Arts) in 2015 from Dr BR Ambedkar Open University, Hyderabad. He worked as a Clerk for 10 years in Ordnance Factory Consumer Co-op Society Ltd ODF Yeddumailaram Medak Dist

My Life at IITH:
I feel happy to be part of IITH, and it is the best place for me to learn new things. Proudly say I got a chance to work with various sections in IITH. I am pleased to contribute to the institute's growth and career.

Mr Suresh completed graduation in Commerce and a Master of Management Science from Pune University. He joined IITH as Assistant Registrar in 2018 from IISER Pune after an experience of over eight years in the Stores and Purchase Section. He has overall experience of 24 years in the educational institutes.

My Life at IITH:
It was a great opportunity for me to join a prestigious and one of the top-ranking institutes in India. The experience in IITH helped me to improve my knowledge and widen my horizons. It is a pride to be associated with the Institute, which is growing in leaps and bounds. The experience provided by IITH will be more valuable in all aspects of the profession.

Mr Suresh Narayanan Nair
Senior Assistant Registrar
Stores & Purchase

Mr Arun Kumar Chidruppa
Junior Assistant
Stores & Purchase

Mr Arun has a BSc (Computer Science), and an MBA (Marketing and Human Resources). He worked in the Transportation Section before starting to work for Stores and Purchase.

My Life at IITH:
I started my professional career at IITH in 2013, I have been working for the last 10 years till now. I feel privileged to be a part of the IITH family. A respectable work environment helps me to perform at my best. I appreciate the way IITH always listen to our concerns and tries to find the best solutions. I like the structure IITH put in place for meeting notes and progress updates. It helps ensure we all know our next steps. Thank you for keeping us updated on what's going on within the organization. I appreciate the transparency. Thanks for being transparent in your decision-making and communication. It's helped build trust in the team. Thanks for creating a culture of peer recognition and gratitude. It helps our personal and team work well together. I'm grateful for flexibility and compassion as I try to find a healthy work-life balance. It feels good to work for a place that views us as humans.

Mr Srinivas has done BTech in Chemical Engineering from Rajiv Gandhi University of Knowledge Technologies - Andhra Pradesh, RK Valley and an MTech in Chemical Engineering. Prior to Joining IITH, he worked in Aurobindo Pharma Ltd as a Chemist in the Manufacturing Department.

My Life at IITH:
It's a great opportunity for me to work at the prestigious Institute, IITH. I am happy to see its world-class research facilities. Working here will enhance my skill set and research abilities.

Mr Kavvampalli Srinivas
Junior Technician
Dept. of Chemical Engg.

Ms G Komala Priya
Multi Skill Assistant
Human Resources (Faculty)

Ms Komala has a BCom degree and possesses extensive experience in various aspects of finance and accounting. In her professional journey, she has gained valuable expertise in accounts management, banking operations, payroll administration, and generating detailed MIS (Management Information System) reports.

My Life at IITH:
My experience as a Multi-skill Assistant (HR Department) in IITH was incredibly enriching. I honed my organizational skills through record-keeping, deepening my understanding of HR functions. Working on engagement initiatives showed me the importance of a motivated workforce. Overall, this role is broadening my HR knowledge and enhancing my communication and administrative abilities.

భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Created & Published By:
Public Relations Office
IITH

Room 215, Academic A Block
Indian Institute of Technology Hyderabad
Kandi, Sangareddy - 502284, Telangana, India
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Saurav Basumotari
MDes (2022)
FRONT PAGE

Anjana Madhav Sailan
MDes (2022)
BACK PAGE

Divya Anil Agrawal
MDes (2023)
Statue of Unity

Theme Design Courtesy

Content Page Pic & Design Platform: Canva