2023

Term
Report

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Technical Council's Report

# Digitization

Spider R&D Club, in collaboration with Technical Council and Student Council, has launched the official NITT app called Lynx, which was ideated in 2014 with the aim of simplifying communication and providing timely updates on notices and deadlines to students. The app serves as a one-stop solution for accessing official, academic, and community information. The app has been well-received by the campus community as a valuable resource for staying informed and connected.

In association with the Student Council and Technical Council, Delta has launched a centralized portal, **halls.nitt.edu,** aimed at simplifying the process of booking halls like barn hall, Orion classrooms, A halls, and EEE auditorium.
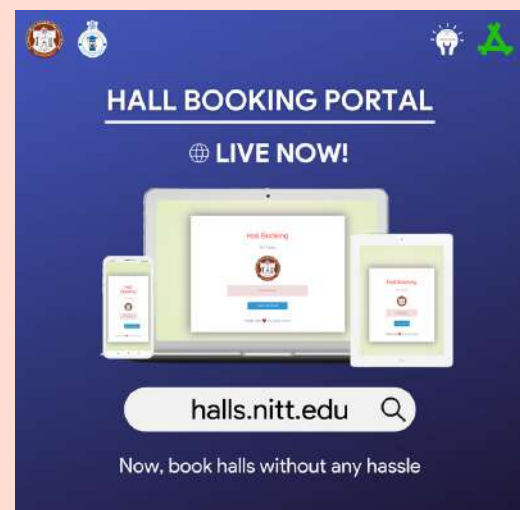
Technical Council and TECOS community created the "Painitte" Website. Painitte is an open-source website with a compilation of the past year's question papers for easy access.

Open Source Development
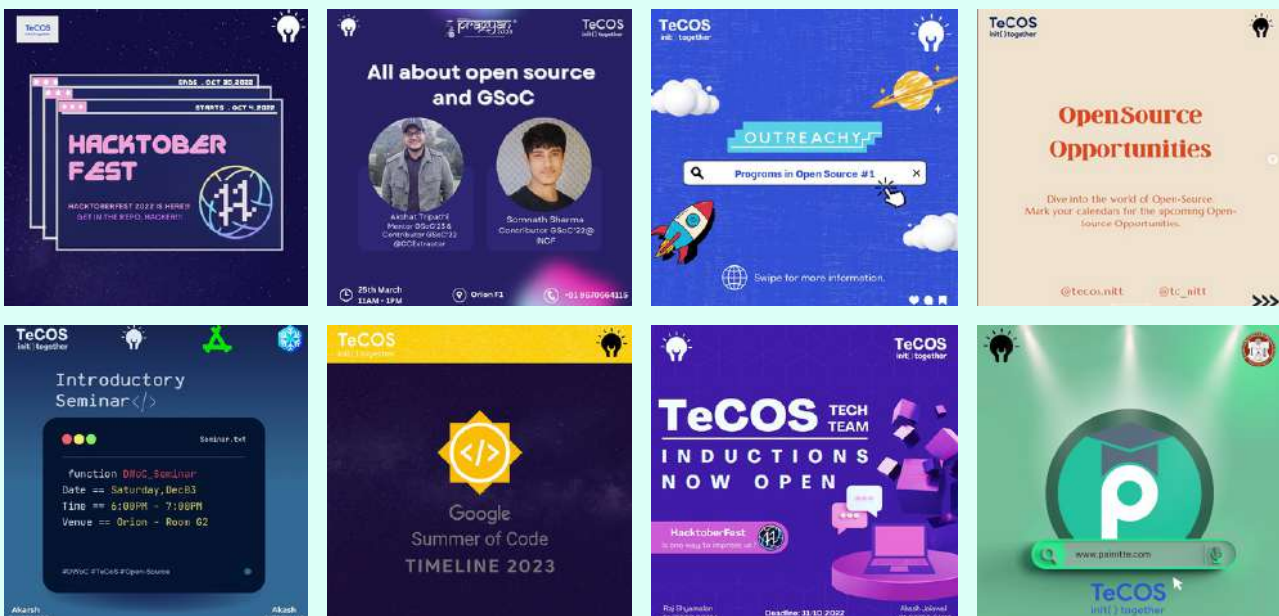
Technical Council aims at promoting the Open Source Culture in NITT. Speaker sessions and guidance for GSOC and other Open Source events were some of the initiatives taken by Technical Council

Events

TransfiNITTe

The 4th edition of TransfiNITTe, the flagship hackathon conducted by the Technical Council in association with SCIEnT, took place from October 14th to 16th. The hackathon provided a 42-hour platform for over 300 students to demonstrate their technical skills.

With participation from more than 50 teams, the event presented 13 problem statements from software and hardware domains to challenge and test the participants. The event boasted a prize pool of 12 lakhs and aimed to offer practical experience in real-time hackathons on campus.

InHOTTs

The Inter Hostel Technical Tournament is an event that is specifically designed for first-year students to exhibit their technical abilities in different areas. This year's tournament spanned over 10 days and included a range of activities, workshops, and competitions. More than 500 first-year students participated in the events, which provided an excellent opportunity for all of them to showcase their skills.

The competitions were intense, with a generous prize pool of 40k, motivating the participants to give their best performances. The events were organized by various Tech Clubs and the Technical Council, making it a highly collaborative and engaging experience for all the attendees.

Youth Summit

The Youth Summit 2023, an outreach event hosted by the Technical Council in collaboration with Pragyan, provided a platform for active dialogue and discussion on February 26th, 2023, with over 80 participants from various colleges in Bangalore. The summit was held at the Comfort Inn Hotel, Bangalore, and brought together a distinguished panel of 8 speakers who shared their experience in various domains, such as content writing, psychology, software development, entrepreneurship, product management, and data analytics.

Gamescape

The gaming lounge at Orion was a popular attraction for attendees during all three days of the fest. The lounge featured a variety of gaming options, including PS4s, VR headsets, a Car simulator, Arcade games, and Motion sensors. Attendees could step into another world with the VR headsets, which offered immersive and realistic gaming experiences. In addition to the gaming lounge, a laser tag arena was set up in association with Pragyan Infotainment. Overall, the gaming lounge and laser tag arena at Orion were a huge success, providing attendees with hours of entertainment.

Communities'
Report

CryptoNITT

Annual report
2023

ABOUT THE COMMUNITY

CryptoNITT is the official blockchain community of NIT Trichy. It promotes education and awareness about blockchain technology among students. Through its multifarious events, such as talks and workshops, CryptoNITT aims to immerse students in the technology of Blockchain and cryptocurrency and foster their knowledge and skills. CryptoNITT is a hub for industry experts and facilitates networking opportunities between students and industry professionals in the blockchain field, enhancing their career prospects.

TPH'S NITT CHAPTER

CryptoNITT successfully collaborated with the web3 community TPH. The Product House is a community of web enthusiasts indulged in enriching developers of all cadres in web3 through their finely curated resources, workshops, and live streams.

BLOCKCHAIN BAZAAR

Blockchain Bazaar is a blog series that takes any web3 enthusiast or amateur from scratch to some of the most crucial concepts of Block Chain and Crypto Currency concepts, namely Consensus Mechanisms, Mining, Nodes, Web 1.0 - Web 3.0 transition and different type of Block Chains.

MINTING MELODIES

"Minting Melodies" was a hands-on workshop that took the attendees from scratch to making a Genre Based Music NFTs, conducted during Pragyan'23 in collaboration with Web 3.0 Chennai on 26 March 2023

SOLANA DEVELOPERS INDIA TOUR

Solana is a decentralized Blockchain technology and has a myriad of applications (Dapps) already built on it. The Tiruchirappalli's Edition of Solana's Developer tour has happened here at NIT Trichy. It was a 6-hour long hands-on workshop session that has focussed on making projects using Javascript and Rust, in the Web3 domain.

WIN-NITT

Annual report

2023

ABOUT THE COMMUNITY

WIN-NITT is a community initiative formed by women students and alumni of NIT Trichy. We have joined hands to improve the representation of women in STEM fields, thereby inspiring and supporting women in their quest to achieve their technical career aspirations. In the past year, we have grown exponentially, conducting more initiatives and sessions that provide invaluable insights to students aiming to gain clarity on their technical journeys. This year's initiatives have helped to further our aim of creating opportunities for women students to explore their interest in technology. We look forward to branching out to cover a broader range of domains in the coming year.

MENTORSHIP CONNECT

Mentorship Connect is an initiative for the current female students to be able to seek guidance from women alumni from all walks of life. This program spanned over 3 months. Custom matches of Mentors and Mentees were created and 1 : 1 Connect sessions between the pairs were organised. The mentors were from across the globe, spanning across various tech fields and domains. This edition of Mentorship Connect was completed successfully with over 100 mentors and mentees.

ASK ME ANYTHING SESSION

Adobe's Women in Tech Scholarship is a wonderful program for bringing more gender diversity to the tech industry. It provides talented female undergraduate & master's students studying computer science and provides them an opportunity to learn, build, and grow.

WIN-NITT invited women technocrats to attend an Ask Me Anything (AMA) session with NIT Trichy Alumna Swetha Sivakumar, who was one among the two scholars of Adobe WIT 2019. The open dialogue provided clarity and enlightened talented individuals to benefit the most from this excellent opportunity.
This event happened on 20th Nov 2022 at 11 am IST.

DECODING VITERBI: INTERACTIVE Q&A

An interactive Q&A session with the IUSSTF - Viterbi scholar'22 - Ms. Soundarya was conducted. The article of the session was published in the medium handle of WIN-NITT.

GLOBAL NITT WHATSAPP INITIATIVE

This year we were finally able to create a WhatsApp community exclusively for female alumni, students, and staff of our college. This group aims to foster a sense of community among women who are passionate about technology and pursuing technical careers. The group is open to all women who are part of our college community, regardless of their area of study or professional experience. Through this platform, members can introduce themselves, discuss various topics related to technology, share knowledge, and network with each other.

We believe that this group will be a great resource for women who are looking for support and guidance as they pursue their career aspirations. We believe that by sharing our experiences and knowledge, we can inspire and support each other in our respective journeys.We also want to emphasize that this group is a safe space for women to share their thoughts and opinions freely.

IWD

-Alumni spotlight

On March 5, 2023, WIN-NITT, Pragyan'23, and Technical Council organized a celebration to observe International Women's Day, which aimed to inspire and empower women, highlight their achievements and experiences, and promote equality and inclusivity. The event included a spotlight talk by Soundarya Balasubramani, a gold medalist from NIT Trichy and author of the book "Admitted," which focused on building essential qualities for success beyond college.

The event commenced at 5 PM with a warm welcome to all attendees, and the organizers introduced Soundarya Balasubramani. After the talk, attendees had the opportunity to purchase Soundarya's book "Admitted," which provides guidance and tips for excelling in academics and beyond.
The event also featured exciting activities that promoted teamwork, creativity, and problem-solving skills, which the attendees enthusiastically participated in. The organizers distributed goodies to the participants as a token of appreciation.

The International Women's Day Celebration was a grand success with a significant turnout of students from NIT Trichy, achieving its objectives of inspiring and empowering women, promoting equality and inclusivity, and providing a fun-filled platform for students to engage in

-Coding workshop

On March 6th and 7th, 2023, WIN-NITT and Spider jointly organized two events, the Introduction to Competitive Programming Workshop and the Code-A-Thon Programming Contest, as a part of the International Women's Day Celebrations. Both events were held online, and they were open to everyone interested in improving their programming skills and competing with other programming enthusiasts.

The Introduction to Competitive Programming Workshop took place on March 6th from 6 pm to 9 pm. The workshop was conducted and was attended by a diverse group of participants, including students from various years of our college. The expert instructors delivered the workshop, which focused on the basics of competitive programming, such as data structures, algorithms, and problem-solving techniques. The participants had the chance to ask questions and clarify their doubts, which the instructors answered patiently and effectively. After the workshop, the participants were given a break to refresh themselves and prepare for the programming contest

-Coding contest

The Code-A-Thon Programming Contest took place on March 7th from 6.30 pm to 8.30 pm. The contest was open to all. The contest tested advanced data structures, algorithms, and software engineering principles. The participants had to solve challenging problems within the given time frame and submit their solutions. The contest was attended by a large number of participants, and the competition was intense.

The winners were selected based on the number of problems solved correctly and the time taken to solve them. All participants received certificates of recognition for their participation, and the top performers and top female performers from the first and second years were awarded merit certificates.

In conclusion, the Introduction to Competitive Programming Workshop and the Code-A-Thon Programming Contest were a great success. The events provided an excellent opportunity for the participants to learn, interact, and compete with other programming enthusiasts. The organizers and the expert instructors deserve special recognition for their hard work and dedication in making the events a grand success. We hope to organize more such events in the future and continue to promote the spirit of programming and innovation among the participants

COLLABORATIONS

-Spider

On March 6th and 7th, 2023, WIN-NITT and Spider jointly organised two events, the Introduction to Competitive Programming Workshop and Code-A-Thon, and the Code-A-Thon Programming Contest, as a part of the International Women's Day Celebrations. Both events were held online, and they were open to everyone interested in improving their programming skills and competing with other programming enthusiasts.

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-Technical Council & Pragyan

Introduction:

On March 5, 2023, WIN-NITT, Pragyan'23, and Technical Council organized a celebration to commemorate International Women's Day. The event was aimed at empowering and inspiring women, highlighting their achievements and experiences, and promoting equality and inclusivity. The highlight of the event was a spotlight talk by Soundarya Balasubramani, a gold medalist from NIT Trichy and an author of the book "Admitted." The event was open to all students.

was the highlight of the event, and her insights and experiences were well-received by the attendees. Overall, the event was a great initiative by WIN-NITT, Pragyan'23, and Technical Council, and it is hoped that similar events will be organized in the future.

FUTURE INITIATIVES:

-Mentorship connect

Every year WIN-NITT organises Mentorship Connect. This summer, we plan to organise Mentorship Connect 3.0. We have formed WIN-NITT Global Network connecting alumni from various regions and domains together increasing the reach of our alumni contacts. So, we hope Mentorship Connect 3.0 reaches many more mentors and mentees.

We also conduct group huddles as part of Mentorship Connect which brings all the mentors and mentees from the same domain together.

-AMA Sessions

As and when tech opportunities for women are open, we conduct Ask-Me-Anything (AMA) sessions with women alumni who have cracked them before.

-International Women's Day

We celebrate International Women's Day, International Day for Women and Girls in Science, etc. by conducting various activities.

Event overview:
The event began at 5 PM and started with a warm welcome to all the attendees. The organizers shared their objectives for the event and introduced Soundarya Balasubramani, the guest speaker. Soundarya's talk focused on building curiosity, compassion, and confidence, essential qualities for success beyond college. She shared her experiences and insights on how to cultivate these qualities and how they can benefit women in their personal and professional lives.

After the talk, the attendees were given an opportunity to purchase the book "Admitted." The book is a memoir of Soundarya's journey from being an average student to a gold medalist at NIT Trichy. It also provides guidance and tips for students to excel in academics and beyond.
The event continued with exciting activities that engaged the students in fun-filled challenges and games. The activities were designed to promote teamwork, creativity, and problem-solving skills. The students were enthusiastic and participated wholeheartedly in the activities. The organisers also distributed goodies to the participants as a token of appreciation.

Conclusion:
The International Women's Day Celebration was a grand success, with a large turnout of students from NIT Trichy. The event achieved its objectives of inspiring and empowering women, promoting equality and inclusivity, and providing a platform for students to engage in fun activities and takeaways. The spotlight talk by Soundarya Balasubramani

Google Developer Student Clubs

Annual Report
2023

Google Developer Student Clubs

About

The Google Developer Student Club (GDSC) is a university-based community group that is focused on providing students with opportunities to learn and develop their skills in Google developer technologies. The club welcomes students from all undergraduate and graduate programs who are interested in enhancing their knowledge and expertise in this field. Through participation in a GDSC, students benefit from a peer-to-peer learning environment, which allows for the sharing of knowledge and best practices. The GDSC NITT chapter has a membership of 1200+ individuals, including a Community Lead, and a Core team. It has an active Whatsapp community of 700 and a social media reach of 3000+. Notably, all initiatives undertaken by the GDSC NITT chapter have been conducted offline, with great participation and enthusiasm from participants. This highlights the effectiveness of this approach and underscores the importance of the GDSC as a means of fostering learning and growth in the field of Google developer technologies.

GCCP Campaign

The Google Cloud Career Practitioner (GCCP) campaign is an initiative aimed at providing individuals with the knowledge and skills necessary to launch a career in cloud computing. The program offers a comprehensive curriculum that covers a range of topics, including cloud infrastructure, data management, and machine learning.

Participants are provided with access to a variety of learning resources, including online courses, labs, and certification programs. In addition, three sessions were conducted in N to cover the concepts. The people who finished the track got a special mention on our handles and official goodies from Google.

Workshops

The Web dev 101 workshop was designed to provide a starting point for beginners interested in web development, particularly first-year students. The session covered the basics of web design, including HTML and CSS, using PowerPoint presentations to provide an overview. Participants also engaged in a hands-on coding session, during which they built a static portfolio website. This workshop served as an excellent introduction to web development, providing participants with the knowledge and skills necessary to continue learning and growing in this field.

The Flutter Forward workshop focused on teaching the basics of Flutter, a popular mobile application development framework. Participants learned about the key features and benefits of Flutter, as well as how to create and deploy a Flutter app. The workshop also included a hack session, during which participants were able to apply what they had learned to build and deploy a functioning Flutter app. This workshop was an excellent opportunity for anyone interested in mobile app development, particularly those looking to learn more about Flutter.

The Web 3.0 Blockchain Workshop aimed to introduce participants to the basics of blockchain technology, an emerging field with a growing number of applications. The workshop covered the key features and benefits of blockchain, including the decentralized nature of the technology and its potential use cases. Participants also learned about emerging blockchain technologies like Filecoin and Metamask. This workshop provided valuable insights into the future of blockchain technology.

TeCOS
init( ) together

Annual report
2023

ABOUT THE COMMUNITY

TeCOS is an open-source community run by students, helping them learn and gain experience in contributing to open-source projects. With over 270 members, TeCOS provides resources and support for students to participate in events such as GSoC and gain technical and soft skills.
The community offers mentorship programs, workshops, and speaker sessions to hone their abilities. TeCOS is inclusive and encourages collaboration, welcoming students from all backgrounds and skill levels. It provides a vibrant platform for students to learn and grow in the open source community.

HACKTOBERFEST 2022

Hacktoberfest is an annual month-long celebration of open-source software. It encourages people to contribute to open-source projects and rewards them with limited-edition t-shirts and stickers.

As a community, we supported the initiative by organizing workshops and mentorship sessions to guide students on how to participate in Hacktoberfest. We also provided resources to help them make meaningful contributions to open-source projects.

GSOC 2023

The community organized workshops to assist students in preparing proposals for Google Summer of Code (GSoC) and identifying open-source organizations. The students were informed about the important deadlines for submitting their proposals and were encouraged to submit their proposals in a timely manner. Thanks to the community's efforts, a significant number of students were able to submit their proposals before the deadline and were selected for GSoC.

OPEN SOURCE OPPORTUNITIES AND OUTREACHY 22

The community with a comprehensive timeline of open-source competitions held throughout the year. Additionally, offered guidance and support to community members participating in Outreachy, an open-source program that provides internships to underrepresented groups in the tech industry. TeCOS as a community, provided tips for writing successful applications and resources for project ideas and mentorship. We hope to encourage more individuals to engage with and contribute to the open-source community through these efforts.

INTRO TO GITHUB

The session on the introduction to GitHub offline was an informative and interactive session that provided participants with an understanding of the basic features and functionalities of GitHub.

The session covered topics such as setting up a GitHub account, creating and managing repositories, and collaborating with others on GitHub. Participants were given hands-on experience on how to use GitHub through a series of practical exercises.

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GSOC Mentorship session

Conducted a mentorship session aimed at helping aspiring students prepare for GSoC 2023. The session featured insights from former GSoCers, who shared their experiences and tips for success in the program.

They emphasized the importance of selecting a suitable project, building a strong relationship with mentors, and effectively managing time and resources. Participants were also encouraged to engage with the open-source community and hone their coding skills through practice and collaboration.

Painitte

Painitte is a website created by the TeCOS community, aimed at providing resources. The website offers a plethora of papers, books, and other resources that are segregated according to different departments, making it easier for users to find what they are looking for. With its user-friendly interface and comprehensive resources, Painitte is a valuable initiative that can help individuals.

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Technical Clubs'
Report

180Degrees

CONSULTING

—— NIT TRICHY ——

Foreword From The President:

The past year has been one of adaptation and change for 180DC NITT, as we have successfully worked to achieve our annual goals.

Despite the several challenges, our club remained steadfast in its commitment to delivering consulting services of the highest quality to our clients. Through our collaborations with various businesses and organizations, we were able to create a significant impact and contribute to positive change. Our team's dedication to our motto of "Creative Ideas. Practical Action. Lasting Change." has been evident in every project we undertook.

Over the course of the year, we completed a number of challenging and impactful projects, each of which has contributed to our growth and success as an organization. We have also continued to develop and refine our skills, taking on new challenges and expanding our capabilities. We have been fortunate to work with esteemed industry leaders and have formed partnerships with various organizations, such as BrainWorks, which have greatly enriched our experiences and opportunities.

As we look back on the year, we are grateful for the support and encouragement from our partners and clients. We remain committed to providing excellent consulting services and making a meaningful difference in the world. We look forward to strengthening these connections in the forthcoming years.

INITIATIVES / PROJECTS TAKEN UP THIS YEAR

The past year has been one of adaptation and change for 180DC NITT, as we have successfully worked to achieve our annual goals.

Banka Bioloo:

Problem Statement : It was founded by 1st generation of women entrepreneurs in 2012-13, is Hyderabad based research-driven, publicly listed enterprise engaged in developing environment-friendly Water, Sanitation, and Hygiene (WaSH) infrastructure and services. We impact the entire Sanitation Value Chain from capture, emptying, transport, treatment, and reuse of wastewater.

The deliverables are:
1) Overall market size of dysfunctional/refurbishment of decentralized STP's in the cities of Hyderabad, Bangalore, Chennai, Mumbai, and Delhi (NCR) for residential, commercial/IT parks and retail/mall clients. The target size of the plants will be 250+ KLD (kilo liter per day) and above.

2) Develop go-to-market (GTM) strategies to undertake refurbishment of these decentralized STP's under the service model in the listed cities by partnerships, joint ventures, management acquisitions, OEM partnerships etc.
3) Develop detailed business/financial model for 'UrbanSaaS' for 5 years, which may include overall plan covering revenue, manpower build-up, resource/capital required, potential investors pitch for funding

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Solution Approach:

1. The first step of the project, we researched about the various Sewage Treatment Plant (STP) and the processes involved in it
2. Then we looked into the demand and supply side of the project and analyzed the size of the market for the given domain
3. We collected the data of all residential welfare association and compiled all the data into excel sheet
4. Through the research about the number of 250+ KLD in each area and the number of people in each unit, we got the number of STPs installed in each part of the city
5. We also researched government regulations on each area of the target market, that would affect the number of STPs. We also worked on researching the competitors and analyzed the market size.

We also worked on researching the competitors, and analyzed the market size.

Perfios - US:

Problem Statement:
This project is a classic market entry project wherein our client wants to enter the US market. Currently, they have no base in the US and are starting fresh. 180 DC NITT has been tasked with understanding the market, the existing players, the dynamics, the scopes and finally the ways to enter the US market. US market. (This is 180 DC NITT's first abroad GTM project)

1. Started off by researching various products offered by similar fintech companies in the US and researching on how banks use them.
2. Studied the competitor analysis, their market share, their clients, differential features and strategies for growth and expansion.
3. Researched on Market Sizing including TAM, SOM and SAM and focusing on the big players in the industry.
4. Researched on the regulatory compliance features in the US and did a deep dive into the market sizing and market share into each of the competitors.
5. Researched on the various banks in the US and collected details on the lending and deposit status.
6. Conducted interviews with various banking professionals all around the world to get a better understanding about the banking and fintech ecosystem
7. Systematically ranked banks to enter on the basis of various metrics to ensure client's ease of approach to the market entry via designated interactable dashboard

Perfios MENA:

Problem Statement: A digital lending solutions company, currently present in 18 countries, wants to expand its market to the Middle Eastern and North African countries (this includes expansion in the existing markets and entry into new markets)

We split the solution approach into two: Growth and Go-To-Market countries.

Go-to-market Strategy:

1. Started with shortlisting the countries in the MENA region using the PESTLE framework and shortlisted 7 top countries that are suitable for entry
2. Studied the competitor space (both direct and indirect) in the market and did comprehensive competitor analysis (looked into their products and services to come up with differences in strategies and collected details regarding their revenue, funding, locations, clients, etc.) in the MENA region and also in the seven countries
3. Finalized the Parameters and the Scoring system to rank the countries for making an effective entry

Growth Countries:

1. Did a thorough competitor and partner analysis among five countries highlighting vital organizational strategies and features that have enabled their success in the same market as our client
2. Analyzed the market to rank and understand the level of digital capabilities in each country required for the services of the client
3. Segmentation of products and customers according to factors that were arrived
4. Analyzed the product matrix of similar products in familiar geographies

EVENTS CONDUCTED AND RELATED INFO

Bored of Directors (180DC X OT)

About: An exclusive two-day event conducted in collaboration with orientation for the batch of 2025, which helped the 1st years get an idea about the club. The rounds were based on the basic concepts of management and various other soft skills.

Event Report: We received over 150+ registration for the event through a Google form. The first round of the event was conducted via the online mode on 20th November 2022, and it was a quiz-based activity that took place on a platform called Mentimeter. Based on the performance in this round, 60 people were selected to participate in the next round.

The second round was conducted at Orion on 22nd November 2022. The 60 participants were randomly grouped into 12 teams of 5 members each. A business domain along with the company name was given to the participants, and a general problem statement was also provided. The teams have to pitch the startup, ideate an USP, and decide on their brand ambassador and marketing strategy. There was a panel of judges to question them at the end based on their presentation. After the 2nd round, 15 members (3 teams) were selected as the winners of the Bored of Directors.

Case Out of Point (InHoTTs))

About:

Case Out of Point was a live case-solving competition. The problem statement was provided on the day of the event, and the participants were supposed to submit a solution in the form of ppt. The entire event had two rounds, 1st round was a submission round, and the selected teams had to present their ideas offline. It was a group event, and students participated in groups of 3 to 4 people.

Event Flow:

Round 1: Participants were given a case statement by 07:30 pm on the event day. They got 30 minutes to go through the given problem and started working by 08:00 pm. By 11:00 pm, everyone submitted their solution in a Google form link that was sent to them in the mail. Their submission should be a 6 to 8-slide ppt

Round 2: Selected teams were asked to present their ideas in front of the panel. Each team was given a duration of 15 minutes to present, which was followed by a Question and Answer session.

ConsultXpo (Flagship event)

Events:

Go to Mars:

This event was all about the battle of wits as the teams presented their spicy solutions for the given problem statement. The given problem statement was:

"If Elon Musk becomes the president of the USA, how can he use the state's resources to:

1. Expand Tesla and SpaceX.
2. Convert America into a dictatorship.

Many teams put forth their ideas in the form of PPTs and explained them under a span of 7 minutes per team, and they were ranked on the basis of creativity, relevance, accuracy, and other criteria.

GlobalCon

The teams were given a prompt revolving around setting up a business in countries. Each team had to state reasons why their country is more favorable for the prompt given. A preparation time of 3 minutes was given to each team. Teams took turns to justify the country they represented, with 1-1.5 minutes allotted for each delegate. The event took place in rounds, with increasing difficulty levels, each being an elimination round.

What's your number?

A Fresher exclusive event, this required the 60+ participants to go to specific locations on campus, solve guesstimates and then move on to the next place until they reached the final destination.

The guesstimates ranged from easy to hard as they moved from the first location to the last, and the clues were all relevant to the places they were assigned.

Case - a - Blanca

Case - a - Blanca was the flagship case competition of ConsultXpo. The flow of the rounds was: ROUND 1: A case sponsored by Brainworks was presented to the teams. Each team had to prepare a PPT of 10 slides (including a cover slide and a Reference slide) and submit it on the designated link.

ROUND 2: Top 7 teams were selected and required to present their PPT to the judges' panel composed of the founders of Brainworks, Mr. Pinaaki Aggarwal and Ms. Aanchal Goel, over an online meeting. It was followed by a short Q&A session with the judges.

The judging criteria were based on their Presentation, Solutions Provided, Clarity, and Content in the presentation.

Guest Lectures:

Rajaram Suresh

Rajaram Suresh, a renowned principal at BCG and an accomplished alumnus of prestigious institutions such as IIT Madras and IIM Ahmedabad, delivered a game-changing virtual guest lecture on March 18th as the esteemed inaugural speaker of ConsultXpo '23, the flagship event of 180 Degrees Consulting, NIT-Trichy. Mr. Suresh's exceptional expertise in the field of consulting was on full display as he delved into the "What, Why and How of Consulting" with unparalleled clarity, making complex concepts accessible even to a layman. Moreover, Mr. Suresh's forward-thinking approach extended beyond traditional consulting.

He shed light on the emerging trends of AI models such as ChatGPT and their transformative impact on the industry. He elucidated how these cutting-edge digital advancements are revolutionizing how consultants work, streamlining processes and enhancing efficiency. The audience was captivated and inspired by Mr. Suresh's comprehensive insights, practical examples, and visionary outlook on the future of consulting in the era of AI-driven digital transformation. Attendees gained invaluable knowledge and a deep understanding of the consulting landscape, equipping them with valuable tools to excel in their future endeavors.

Rohan Jain

With an illustrious career spanning across top-tier institutions and a robust personal brand, Rohan Jain, an esteemed principal at BCG and an alumnus of the prestigious IIT Kanpur and IIMA, recently graced the ConsultXpo '23 at NIT-Trichy as the distinguished guest speaker for their inaugural offline lecture. Rohan Jain's exceptional achievements, being a successful author of the critically acclaimed book "The Promises We Made" and amassing a following of over 130k on Quora and LinkedIn, speak volumes about his expertise and influence in the field of management consulting.

During the highly anticipated guest lecture on April 1st, Rohan Jain enthralled the audience with his captivating insights on "What a Consultant's Life Looks Like?" Drawing from his rich experiences and career accomplishments, he shared invaluable wisdom on the intricacies of management consulting, sparking interactive discussions and answering thought-

provoking questions that inspired and enlightened the attendees. In addition, Rohan Jain shed light on the importance of personal brand building, leveraging his journey as a widely followed figure on social media to provide invaluable tips and strategies for students.

Rohan Jain's guest lecture was a remarkable opportunity for students to gain unparalleled insights into the consulting industry from a seasoned professional. His engaging demeanor, wealth of knowledge, and expertise left a lasting impression on the attendees, making ConsultXpo '23's first offline guest lecture an enriching and invaluable learning experience for all.

Manpreet Singh:

Manpreet Singh, the Vice President of Cashfree Payments and a renowned figure in fintech, recently delivered an outstanding virtual guest lecture as part of the ConsultXpo '23, a prestigious three-day event hosted by 180 Degrees Consulting, NIT-Trichy. With an impressive educational background that includes graduating from Stanford Business School, Birla Institute of Technology, Mesra, and IIM Bangalore, Manpreet Singh has established himself as a thought leader and mentor in the start-up ecosystem.
As an angel investor and the Vice President of Let's Venture, a prominent venture capital firm, Manpreet Singh's guest lecture on "Start-ups and the Emerging Start-up Environments" was enlightening and insightful. He shared valuable insights on how to build a start-up from an idea,

emphasizing the importance of a consulting mindset in the process. With his extensive knowledge and experience in fundraising, he provided practical tips on securing funding for start-ups at different stages, from seed to growth. His talk also delved into the nuances of the start-up ecosystem, providing a comprehensive understanding of emerging trends and opportunities.

Manpreet Singh's guest lecture left a lasting impact on the audience, inspiring them to embrace a problem-solving mindset and cultivate a consulting culture. His profile as a "Top 40 Under 40" professional, ex-Tally executive, certified Six Sigma Black Belt, and PMP professional speaks volumes about his expertise and achievements. Attendees of his guest lecture undoubtedly gained invaluable insights into building successful start-ups and navigating the ever-evolving start-up landscape.

Consulting Bootcamp:

The Bootcamp included three sessions about consulting which were taken by experts in the respective fields. These sessions were highly interactive with the industry professionals, and participants got a clear understanding about the various topics in consulting. We concluded the bootcamp with Case - a - Blanca (case competition) so that the participants are able to put the skills learned in the bootcamp to practice. Certificates were provided to all participants.

Session 1 - Introduction to Consulting (Anirudh Ramesh - Bain and Co Associate)
Session 2 - How to approach cases? (Pinnaki Agarwal - Co-Founder of Brainworks)
Session 3 - Frameworks and Guesstimates (Rajesh Gopal - INSEAD Alumnus)

ACHIEVEMENTS:

1. National finalist (one of the Top 7 teams) in IIT-M's annual social case study competition
2. Finalist in IIM Calcutta's Pankh National level case competition
3. National semifinalist in MICA National Level case competition
4. National winners (#2) in IIM A's Sustain 2.0
5. National winners (#3) in IIM T's Consulting Czars
6. Finalist in Ashwamedha, IIM Indore's flagship legacy leadership event
7. Finalist in Tata crucible campus business quiz (may).

COLLABORATIONS:

Prep - Lounge:

PrepLounge brings together aspiring management consultants from around the world to practice for their case interviews. They offer interactive content and personalized training plans that will get you closer to your dream job at a top consultancy. We partnered with them, procuring a student discount for using their resources for the winners and participants for consultXpo

Brainworks:

Brainworks offers management consulting services to startups from across the globe. Partner with us now to grow your startup exponentially. We collaborated with them to arrange a session on consulting for the participants on Bootcamp. The winners of the case competition were awarded a chance to grab an internship opportunity at Brainworks.

Mentors - Collaboration with industry experts

Gourav Sachdev- Fidelity Investments

With almost 11 years of experience in the corporate world with MNCs like Goldman Sachs and Fidelity, Mr. Gourav has overseen multidisciplinary groups across various countries. He is a highly skillful Product Manager and has shared his knowledge of Project Management methodologies, Frameworks, design thinking, and Investment Banking. He also helps us with interview tricks and soft skill development.

Mr. Rohan Patnaik -Microsoft

Mr. Rohan Patnaik is an experienced Product Manager at Microsoft, and a graduate of IIM A. He is an invaluable resource for us while building resumes, preparing for exams such as the CAT, and providing guidance on pursuing a master's degree in India or abroad. His expertise in product management is impressive, and he is always ready to answer any queries in this area.
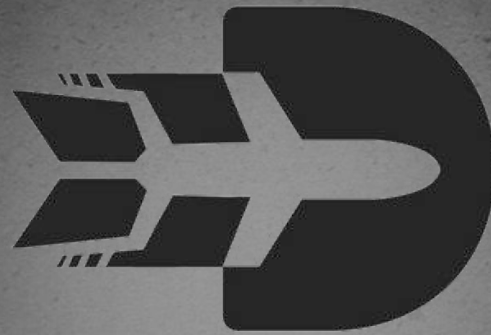
Madan Chander- Tech Mahindra

As a NITT alumnus and a Startup enthusiast, Mr. Madan has deep experience in software development, product management, and value proposition. With almost 14 years of industry experience, he has experimented with many domains. With his vast industry knowledge and expertise in the business world, he is our go-to person for queries.

THE 3RD DIMENSION

AEROMODELLING CLUB OF NITT

Foreword From The President:

The Third Dimension Aeromodelling Club, stuck to its name, as the academic year 2022-2023 comes to its end. The club and its members, both new and old, witnessed a close understanding both technically and through social developments with each other.

At the very beginning of our tenure, the 3D Core, proudly "my core", had some fundamental changes, which we felt should be made before any sort of technical work began. This involved restructuring the way we worked within ourselves and the way we worked on the projects.

With this in mind, we began working on the various competitions, projects, and ideas that we wish to complete with the best intention and motivation. As a core, we have learned the various aspects of dealing with the members and making sure to make the best use of resources to better understand our vision. As a club, we have succeeded in setting up a working methodology and making sure a structured approach to any work is carried out.

Beyond all this, the club's work hasn't always been just technical. We have definitely grown together and learnt to better understand others views while making best use of each other's abilities to make relations worth remembering.

THE 3RD DIMENSION

I wish the best to the upcoming core of 2023-24 to take the club to its zenith and bring out the best of everyone's potential.

Sangam Projects :

Modular Wave Energy Converter: Ocean wave energy presents immense energy extraction opportunities that can be utilized to solve the world's power needs clean and environmentally safe. This project aims to design and develop modular wave energy converters that would ensure maximum utilization of disturbances in the sea and ocean by implementing Modular designs, which have significant advantages over conventional wave energy converters. This project bagged 1st prize in Sangam 2023 in the Energy & Environment domain
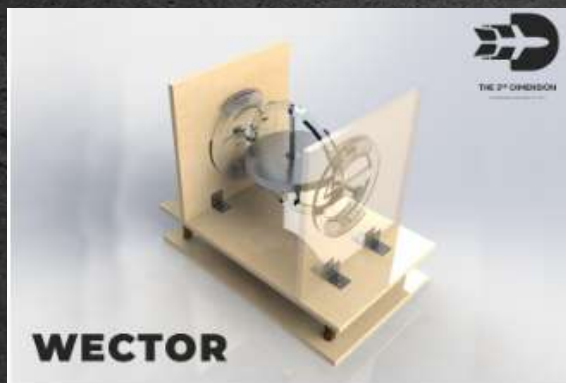
Cyclocopter: This project aims to design a Cyclocopter, a Vertical Take-Off, and Landing (VTOL) aircraft with rotors rotating cycloidal way, which has significant advantages such as improved agility and thrust vectoring. The Cyclocopter will be used for the purpose of collecting the trash that floats over water bodies using image processing and pickup mechanisms.

THE 3RD DIMENSION
AEROMODELLING CLUB OF NITT
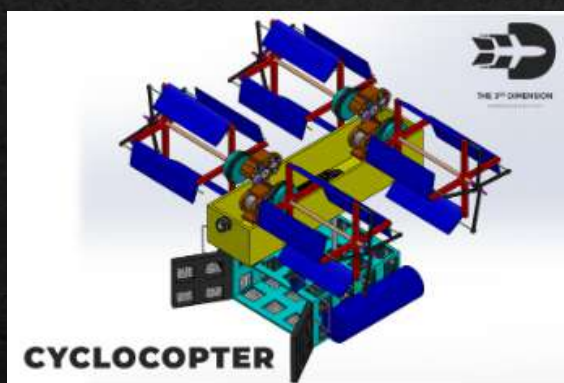
FOLDS: FOLDS, as it stands for Folding Origami for Light-weight Deployed Structure, aims at the application of the ancient Japanese art of Origami to construct satellite structures and machines in space that can fit in a compact space to serve the purpose of space optimization. FOLDS is the first initiative for the Stu-Sat domain of the club and aims to explore further in the field
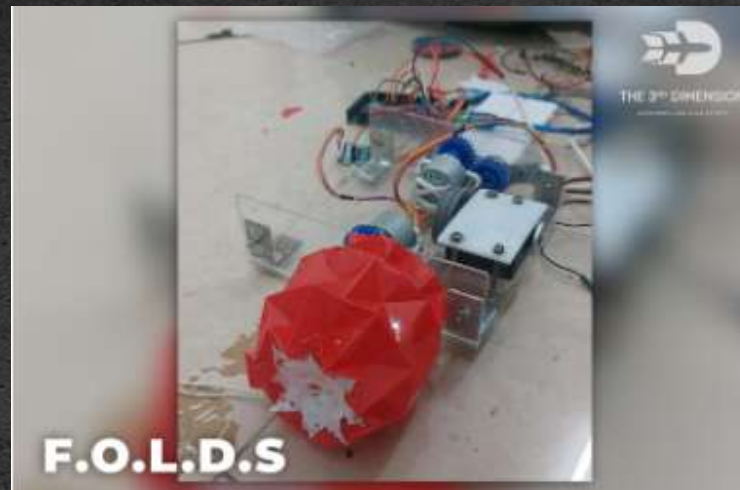
Airborne Wind Turbine: This project aims to design a spinning aerostat with a specially designed turbine that will operate at a height in the sky. The advantage of this design is that it could harness energy from all directions improving energy efficiency and also eliminating the large space requirement of the traditional wind farm on the ground.

Cubesat : This project aims at developing the design of A small satellite that can be launched on a rocket. The purpose of this satellite can be surveillance, collecting temperature related data from the upper atmosphere of the planet, observing the variation in the intensity of radiation emitted by the sun. The various departments of work include controls, sensing, materials, etc. The project was presented under Space-Tech domain in Sangam, Pragyan 2023.

Competitions

1, SAE Aerothon

The objective for this year's contest is to design, build and fly a multirotor UAV that can deliver cargo to a specified location. The teams shall design a UAV that can carry a specified payload and deliver it to a target area by manual as well as autonomous operations.

Our team worked on the design and development of the drone design from April to June, after which they had the Design Phase presentations. The team received the top 10 position and received a position in the finals.

June to October was the period of fabrication, where the drone was manufactured using cutting edge techniques using 3d printed frames and heavy duty motors. The drone achieved 11th position overall. The drone recieved a special mention for its endurance and flight.

THE 3RD DIMENSION

2, Boeing National Aeromodelling Competition (South Zone):

2 teams from the club had participated in the competition. The first round at IIT Madras involved the design and development of the plane and its structure. Points were given for ideas in design and payload mechanism. Both the teams qualified for the finals held in Kanchipuram by SAE South Division. The design of both planes was done using balsa, chloroplast and foam. The planes gained enough flight and successfully completed the competition.

3, E-Yantra :

1 team consisting of four participants participated in the nationwide competition where they started from learning about Robot Operating Systems in the Gazebo environment. They also learnt to build a robot named as "Hola Bot" which was fabricated by them on campus. That bot was also put on multiple test runs where it may be controlled manually as well as automatically according to the task to be completed. The team made it to the pre finals round.
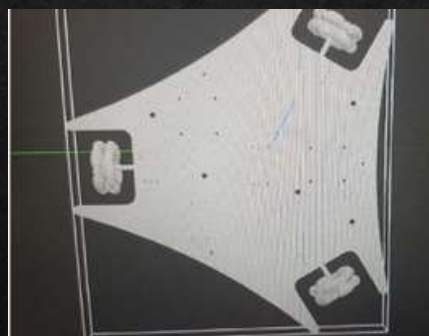
4. TransfiNITTe Hardware Hackathon:

Conducted by the Technical council, the transfiNITTe hackathon allowed the utilization of resources within the shortest decision to best make a product for the required problem statement. Our topic was on drone navigation, the project was to achieve drone autonomy of navigation through RF signals apart from the conventional by just detecting aruco markers.

5, Quadcombat 2023:

2 Teams were sent to participate in the design and development of drones used for carrying payloads as well as for flying through obstacles. The drones were successfully designed using SAE guidelines and made sure to finish the necessary payload drop test and obstacle test

Campus Events

1. Egg Drop Challenge, InHoTTs'23:

An event exclusively for first years, the event meant to bring out the creative juices in them to be able to prevent an egg from breaking by making mechanisms which ease the fall from a 2 m height. A total of 45 registrations were recieved with submissions of varying ideas. The top 3 were selected and rewarded by Pragyan,'23.

2. Workshop :

AEROTRIX, our annual workshop, will happen exclusively for second-year students in the 4th week of April. The workshop includes theory sessions on Aeromodelling basics and UAV design, as well as hands-on sessions on Arduino and sensors. The workshop also includes fabricating an RC plane to provide attendees with practical fabrication and aeromodelling knowledge.

3. Lateral Inductions :

As the club is evolving from just making RC planes to end-to-end designing and fabricating automated drones, the need for members with expertise in programming and electronics has increased. To meet the team requirements, lateral inductions were conducted, and people with sound technical knowledge were in the Tronix sub-team of the club.

LATERAL INDUCTEES

Bharath S	ICE
Anush Bhatia	EEE
Akshaiy Thinakaran	EEE
Kamalesh R S	ICE

Achievements

SAE Aerothon 2022 -

Automated Drone Development Competition, Ranked top 10 All over India in the design phase, Featured on SAE Aerothon official website, Got sponsorship from Solidworks (a reputed CAD modeling and simulation tool) for SAE Aerothon 2022.

Sangam 2023, Pragyan -

Bagged First prize in the Energy & Environment domain (Project Modular Wave Energy Converter)

Boeing National Aeromodelling Competitions : Finalists for both aircrafts and succeeded to gain flight in the final round.

Papers

Project Albatross - Forest fire detection RC Aircraft design, Paper accepted for Publication in "American Institute of Physics (AIP)" under title of "Albatross : Unmanned Self-Sustainable Glide for Forest Fire Detection"

THE 3RD DIMENSION
AEROMODELLING CLUB OF NIT?

Builders' Hive

FOREWORD FROM THE PRESIDENT

It brings me immense pleasure to introduce Builders Hive, the Social Innovation R&D Club of NIT Trichy, as an organization that has consistently strived to provide valuable opportunities and knowledge to the students of our esteemed institute.

The organization has been highly active in conducting various events and initiatives that have garnered a tremendous response from the student community. Some of the notable events organized by Builders Hive include the 'Treasure under Trench' event, a captivating and thrilling offline treasure hunt event exclusively conducted for the bright and enthusiastic minds of B.Tech 2nd-year students. The 'Autocad Workshop,' a two-day workshop aimed at equipping the students with valuable insights and technical knowledge regarding the AutoCAD software, was organized free of cost for the enthusiastic students of NIT Trichy. Moreover, the 'Blog Series' and the 'Gov.Infra-Post Series' have been highly successful and engaging journeys that have provided our readers with valuable insights and knowledge on various topics related to civil engineering.

Builder's Hive, being a club that values knowledge-sharing and education, believes in providing such opportunities to students and professionals alike. The organization believes that not only working on projects but also imparting knowledge and expertise is essential in the growth and development of the field.

I congratulate the team at Builders Hive for their remarkable efforts and commitment to creating a community that promotes innovation and social impact. I am confident that the club will continue to provide valuable opportunities and knowledge to the students, contributing significantly to their growth and development.

I wish the next core of Builders Hive all the very best for their future endeavors and hope to see them create a bigger difference in the upcoming academic year.

INITIATIVES/PROJECTS TAKEN UP IN THIS YEAR

1. TREASURE UNDER THE TRENCH

On the auspicious occasion of 31st August, a captivating and thrilling offline treasure hunt event named 'Treasure under Trench' was exclusively conducted for the bright and enthusiastic minds of B.Tech 2nd year students as a part of the Pre-Induction events. The event aimed to bring out the inner Sherlock Holmes in the students and challenge them to solve intriguing puzzles and riddles that would ultimately lead them to the ultimate treasure.

The students were required to use their problem-solving skills, teamwork abilities, and resourcefulness to solve the complex clues and decipher the cryptic messages hidden within the challenges. The event was designed to test the students' mental and physical agility as they explored every nook and cranny of the campus in search of the hidden treasure.

The participants displayed an exceptional level of enthusiasm and creativity, each group devising their unique strategies to uncover the mystery of the reasure hunt. The event also provided a great opportunity for the students to bond and collaborate, enabling them to develop their communication skills and build a strong team spirit.

The 'Treasure under Trench' event was a resounding success, with the participants thoroughly enjoying the experience and emerging as winners in their own right. The event proved to be an excellent platform for the students to showcase their skills and also a memorable experience that they will cherish for a lifetime.

2. AUTOCAD WORKSHOP

Builder's Hive, an esteemed organization, renowned for its exceptional architectural projects, organized a two-day AutoCAD workshop free of cost for the enthusiastic students of NIT Trichy on 10th and 11th September 2022. The workshop aimed to equip the students with valuable insights and technical knowledge regarding the AutoCAD software, a vital tool in the field of architecture and engineering.

The workshop witnessed a tremendous response from the students, who participated with great zeal and enthusiasm. The sessions were engaging, interactive, and informative, with the expert trainers from Builder's Hive imparting their extensive knowledge and expertise on the students.

The workshop covered a wide range of topics, from basic to advanced techniques, including 2D and 3D drafting, modeling, and rendering. The attendees were provided with hands-on training, which allowed them to implement the techniques and concepts learned during the workshop.

Builder's Hive, being an organization that values knowledge-sharing and education, believes in providing such opportunities to students and professionals alike. The organization believes that not only working on projects but also imparting knowledge and expertise is essential in the growth and development of the field.

The AutoCAD workshop conducted by Builder's Hive proved to be a highly beneficial event for the students, providing them with valuable insights and skills that they can use in their future careers. The participants appreciated the efforts of the organization and acknowledged the value of such initiatives, expressing their eagerness to attend more such events in the future.

3. BLOG SERIES

The month of October 2023 marked the beginning of our official blog series, and it has been a highly successful and engaging journey ever since. We have been consistently posting two interesting and informative blogs every week on all our social media handles, which have received tremendous appreciation and feedback from our followers.

The blogs have been exclusively based on the wonders of civil engineering, highlighting the fascinating ancient and modern building techniques, innovations, and advancements in the field. Each blog is carefully curated and crafted to provide the readers with valuable insights and knowledge on the subject matter. Some of the most popular blog titles from our series include 'Aseismic Structures of the Kashmir Valley', which explores the architectural marvels of the region and their ability to withstand earthquakes, and 'Museum of the Future', which takes a glimpse into the future of museum design and construction. We have also covered groundbreaking topics like 'Transparent Concrete', which showcases the transparency and durability of the material, and Transparent. 'Wood: The Glass of the Future', which highlights the potential of wood as a transparent building material.

In addition, we have delved into the technical aspects of civil engineering, covering topics like 'Advanced Earthquake Resistance Techniques' and 'Mivan Formwork', providing our readers with a deep understanding of the subject matter. We have also explored innovative solutions like 'Kinetic Roads', which generate energy through motion and 'Madras Terrace Roof', a traditional roofing style that is both functional and aesthetically pleasing. Moreover, we have discussed critical issues like 'Five Disasters that Altered the Way Civil Engineers Operate', emphasizing the significance of safety and risk management in the field.

The titles of blogs published are mentioned here:
Ø Aseismic Structures of the Kashmir valley
Ø Museum of the future
Ø Transparent Concrete
Ø Transparent Wood: The glass of the future
Ø Advanced Earthquake resistance techniques
Ø Kinetic roads
Ø Madras Terrace roof
Ø Diving deeper into field of underwater construction
Ø Mivan Formwork
Ø Five disasters that altered the way Civil engineers operate.

Overall, our blog series has been a remarkable journey, showcasing the exceptional talent and expertise of our team while providing valuable knowledge and insights to our readers. We are committed to continuing our efforts and bringing more fascinating and informative content to our followers in the future.

Builders' Hive

4. GOV. INFRA-POST SERIES

In January 2023, we embarked on a new post series, focusing on the ongoing mega projects initiated by The Indian Government. The series aimed to provide our readers with valuable insights and knowledge knowledge regarding the government's efforts towards infrastructure development, urbanization, and growth.

Each post in the series was carefully curated, highlighting the critical aspects of the project, its impact on the economy, and the potential benefits to the citizens. Our team of experts extensively researched and analyzed each project, providing our readers with comprehensive and accurate information. The series gained significant traction and was widely shared across all our social media handles, with our followers appreciating the efforts and value of the content. The series provided a platform for our readers to stay informed and updated about the government's initiatives and their impact on the society and economy.

The list of Posts uploaded are mentioned below:
Ø MOPA INTERNATIONAL AIRPORT
Ø PROJECT HIMANK
Ø MUMBAI TRANS HARBOUR
Ø CHENAB BRIDGE
Ø ZOJI-LA TUNNEL

5. InHoTTs

In collaboration with Pragyan, one of the most prestigious annual technical festivals of NIT Trichy, we hosted a couple of brain-wrecking and fascinating events exclusively for the first-year students. The events aimed to challenge the students' creativity, analytical and technical skills while providing them with a platform to showcase their talents and ideas. The response to the events was overwhelming, with a good number of enthusiastic and energetic participants turning up to take on the challenges. The events were a great success, with the participants showcasing their talent and potential while learning and gaining valuable insights from their experiences.

Brief description regarding the two events is given below:

Delve Deeper:
"Delve Deeper," required the participants to present a case study of not more than ten slides about the financial analysis of the world's famous buildings and tourist attractions. The event aimed to test the participants' analytical and financial skills while providing them with an opportunity to learn about the economics of the construction industry. The case studies presented by the participants were diverse, insightful and thought-provoking, showcasing their research skills and creativity.
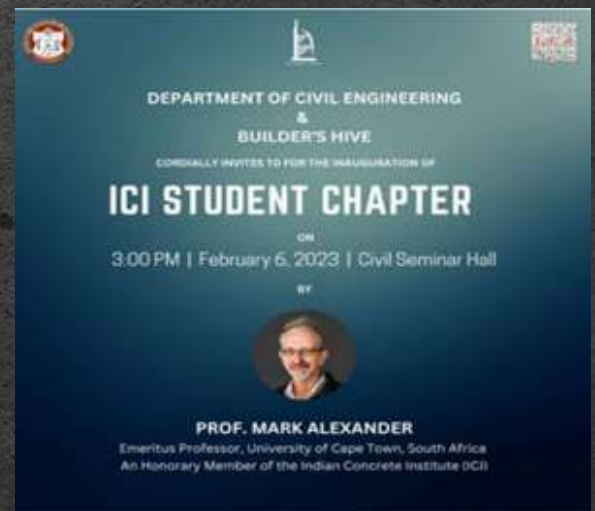
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Bridge It:

"Bridge It," required the participants to create a miniature truss bridge using ice cream sticks, glue and thread. The bridge had to have minimum self-weight and sustain maximum weight. The event aimed to test the participants' technical and creative skills while providing them with an opportunity to learn about the principles of structural engineering. The participants showcased their ingenuity and creativity in designing and constructing their bridges, while the event provided them with valuable insights into the field of structural engineering.

6. ICI STUDENT CHAPTER

We are delighted to announce that the ICI (Indian Concrete Institute) Student Chapter at NITT (National Institute of Technology, Trichy) was successfully inaugurated on 6th February 2023. The inauguration ceremony was graced by the presence of Emeritus Professor Mark Alexandar from the University of Cape Town and Professor Nishant Garg from the University of Illinois.

The event was a grand success and marked a significant milestone for us. The ICI Student Chapter at NITT provides us with an excellent platform to expand our knowledge, skills and potential in the field of concrete construction and associated research. Being a part of the ICI Student Chapter, we have access to several advantages and opportunities, which will help us to grow and develop in this domain of civil engineering.

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Advantages of ICI Student Chapter

- Concessional Delegate fee for participation in ICI events, to get updated on the latest technology & practices in Concrete Industry.
- Access to ICI Archives, which is a collection of valuable Technical Papers.
- Access to ICI reference library.
- Concessional Delegate fee for participation in ICI events, to get updated on the latest technology & practices in Concrete Industry.
- ICI Events provide a unique opportunity to listen to, and to interact with experts from within the country and abroad.

And more opportunities to develop our skills and knowledge in this domain of civil engineering.

7. INTERVIEW SERIES

Builder's Hive, recently launched an interview series as part of its ongoing efforts to share knowledge and experiences with its audience. The interview series features eminent industrial personalities and renowned academicians in the field of civil engineering, providing a unique opportunity for viewers to gain insights into the latest trends, practices, and technologies shaping the industry.

As part of the series, Builder's Hive has interviewed a range of experts, including Emeritus Professor Mark Alexandar from the University of Cape Town and Professor Nishanth Garg from the University of Illinois. These interviews have been well-received by the audience and have provided valuable insights into the experiences and knowledge of these distinguished experts.

The interview series is a splendid way for Builder's Hive to deliver valuable information and knowledge to its audience. By showcasing the experiences and insights

of leading experts in the field, the series aims to educate and inspire civil engineering professionals and enthusiasts alike. Builder's Hive is committed to continuing this series and providing a platform for experts to share their knowledge and expertise with the wider community.

8. OPEN HOUSE EXHIBITION

Builders Hive, the Civil Engineering Research and Development Club of NIT Trichy, recently participated in the Open House Exhibition during Pragyan, where they showcased some of their most innovative projects. The event provided an excellent opportunity for Builders Hive to demonstrate their skills and expertise in the field of civil engineering, and to showcase some of their latest innovations.

Among the projects showcased by Builders Hive were the kinetic speed breakers, which convert the kinetic energy from vehicles to electrical energy, as well as surge barriers, which are used to protect coastal areas from flooding. These projects attracted a lot of attention from visitors, who were impressed by the innovative ideas and the potential benefits that they could bring.

In recognition of their achievements, Builders Hive was awarded during the ACI convention, which was held during March 27-31, 2022. The team secured 8th rank globally and came in the top 20 positions worldwide, the only team representing India. This is a remarkable achievement and a testament to the hard work and dedication of the Builders Hive team. They are setting an example for other civil engineering clubs and organizations in India, and inspiring a new generation of engineers to push the boundaries of what is possible in this field.

9. AAKAAR - IIT BOMBAY COMPETITION

During the three-day Asia's largest Civil Engineering Festival Aakaar, organized by IIT Bombay, the Civil Engineering Research and development club of NIT Trichy "Builder's Hive" was given the opportunity to represent their institution. They participated in the highly competitive event Conquer-It, which required them to design a pervious concrete with high strength and permeability.

Their experience at IIT Bombay was nothing short of incredible. Upon arrival, they had an extra day to explore the campus and were immediately impressed with the sports facilities. They were amazed by the world-class equipment and separate buildings for different sports such as tennis, basketball, and badminton. They observed people of all ages practicing different sports, from small children to the elderly, and felt like they were part of an active and dynamic society.

In the evening, they attended a fantastic fashion show that featured not only students but also professors, showcasing the diverse talents of the IIT Bombay community. Overall, their experience at Aakaar was unforgettable and a great opportunity for the team to showcase their skills and represent their institution on a larger platform.

10. ACI OUTSTANDING AWARD

The ACI Award for University Student Activities is an award program by the American Concrete Institute (ACI) that recognizes universities with outstanding student chapters in the field of concrete construction and related research. The program assesses the student chapters based on their participation in various ACI activities and programs, and awards them excellent or outstanding status based on the points they receive.

11. CEA FEST'23 - IITM COMPETITION

CEA Fest is the annual technical symposium organized by the Civil Engineering department of IIT Madras. This year, from March 31st to April 2nd, 2023, our club members participated in various

workshops and contests, and we are thrilled to announce that many of them won prizes. It was an incredible learning experience for all the participants, and we take immense pride in their achievements. The event provided a platform for our members to showcase their skills and knowledge, learn from experts, and network with peers from across the country.

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12. YOUTUBE SERIES BLOGSHOW

In March of 2023, Builder's Hive, launched its newest venture - a YouTube series titled "BLOGSHOW." This series was created with the intention of sharing the latest trends and happenings in the world of civil engineering with its audience. The series aims to be a comprehensive platform where engineers, architects, builders, and all stakeholders in the construction industry can come together to exchange ideas and share their knowledge. The episodes will cover a wide range of topics, including but not limited to, new construction materials, innovative construction techniques, and sustainable building practices.

At Builder's Hive, we believe that keeping up with the latest trends and technologies is crucial for the growth and development of the industry. Through Blogshow, we hope to provide valuable insights into the emerging trends and practices in civil engineering, and inspire our audience to stay on top of the game. With the advent of technology and the increasing demand for sustainable and eco-friendly construction practices, civil engineering is a field that is constantly evolving. Our aim is to keep our viewers updated on the latest developments in the industry, and provide them with the knowledge and skills they need to succeed.

Stay tuned for our upcoming episodes, and join us as we explore the fascinating world of civil engineering!

UPCOMING INITIATIVES

1. Collaboration with Indian Green Building Council (IGBC): In our ongoing efforts to promote sustainable construction practices, we will be partnering with the Indian Green Building Council (IGBC). This collaboration will enable us to exchange ideas and knowledge with experts in the field of green building and work together to promote eco-friendly construction practices in India. Our joint efforts will focus on creating buildings that are energy-efficient, environmentally friendly, and provide healthy living spaces for occupants.

2. Creation of a club website: We understand the importance of having a strong online presence in today's digital age. Therefore, we will be creating a club website to showcase our projects, initiatives, and events. The website will serve as a platform to connect with our members, share knowledge, and provide information on upcoming events and opportunities. We believe that this website will be a valuable resource for our members and the broader community.

3. Inductions for 2023-24: Builder's Hive is proud to announce that we will be conducting inductions for the 2023-24 academic year. We are looking for enthusiastic and motivated students who are passionate about construction, engineering, and sustainable development. Our induction program will provide selected candidates with the opportunity to learn from experienced professionals in the industry, gain practical skills through hands-on projects, and network with like-minded individuals. We encourage all interested students to apply for this exciting opportunity.

Builders' Hive

Foreword from the President

Delta Force is a close-knit community of programming enthusiasts. Being the first fully offline year after COVID, Delta has once again taken up multiple campus initiatives and projects and revived the offline events this year. The team has also won several accolades, making Delta the premier programming club of the college. I would like to express my sincere gratitude to each team member for their hard work and commitment, as well as their exceptional skills and talent. The dedication and passion of our team have undoubtedly contributed to our success.

Projects and Initiatives

Dashboard

Hostel Allocation

- Create system to accept user requests for hostel registration
- Ease admin allocation burden

Mess allocation

Performed monthly mess allocation and site maintenance.

Festember Website / App

- Create a unified place for all Festember related info to be published - Festember main site
- Enables proper registration and tracking of the users
- Created a QR code system for distributing T Shirts - TShirt site
- Allotted rooms to outside participants - main site
- Picturesque - Festember Online Fashion Contest
- Rolling Reels International Film Festival website
- Created site for Festember inductions activities
- Inferno website
- Festember server revamp and hosting

Scholarship Portal

- Maintaining the core functionality of the site
- Assisting the admin with accessing and changing the included data
- Adding a first tour and instructions page to make the site more accessible to new users

Hunt the Invisible

- Created an AR treasure hunt experience exclusively for the first years, as a way to allow them to explore and experience the campus
- The project was done in collaboration with the Orientation Team.

Hall Booking Portal

- Made the hall booking portal functional and added several new features such as multi-day booking and multi-factor approval from the admin side.

Pragyan Websites

- Mainsite
- Sangam
- Ingenium
- Campus Ambassador
- Youth Summit

Pragyan Events

Attack on Robots

Attack on Robots is a multiplayer resource management game based on strategic city planning. Participants attempt to design safe and secure cities with the available resources and as well as attempt to find weaknesses in other cities The event had 163 registrations.

Code Character

Code Character is a strategy programming game where you control troops in a turn-based game with the code you write in one of the multiple programming languages (C++, Python, Java) available in the game. The event had 200 registrations.

Arcadia Rivals

Arcadia Rivala is a 2d game that allows people to collect minicons - animal-like characters to fight with, each with their own special abilities. The event had 120 registrations.

Outbreak Origins

Outbreak Origins is a single-player, real-time, multi-level game based on pandemic management. Players are expected to manage their resources by implementing control measures in different sections of a geographic location to curb the outbreak. The event had around 221 registrations.

Pragyan Capture The Flag

Capture the Flag (CTF) is a computer security competition. It distills major disciplines of professional computer security. Pragyan CTF is a capture the flag event developed completely by the students of NIT Trichy that is open to the entire world. The event had 1201 registrations

Bountyquest

Bountyquest is a complex quiz game that is held in 3 levels consisting of questions specific to a theme, labyrinth etc. The event had 133 registrations.

DPay

We developed an app and website to facilitate payment transactions for stalls at the Pragyan '23 and NITTFEST '23 fests. The app and website replaced the existing Foodcards and ensured safe execution of transactions during the events. The development of this platform aimed to simplify and streamline the payment process, making it more efficient and secure for stall owners and customers. The app and website were designed with advanced safety features to ensure secure and reliable transactions. Overall, the implementation of this platform was successful, and it played a crucial role in ensuring smooth payment transactions during the fests.

NITTFEST Websites
- Induction site
- Main site

Centre of Excellence for Emergency Response Systems Site

Made a static site for CoEERSS (https://coeerss.nitt.edu/)

Pragyan Social Responsibility Workshop for High School Students

Our team organized a workshop on Web Development for high school students located near our college. The workshop was carefully curated to cater to the specific learning needs of the students, and we also offered them a clear path for further development through various learning resources.
Number of Participants: 100+

Esolang Contest

Conducted a programming contest for first years as a part of Pragyan InHoTTs and challenged them to code in an esoteric programming language. It was conducted offline.
Number of Participants: 30+

Algos Contest

Conducted an online algorithmic programming challenge exclusively for first years on Hackerrank. Participation: 100

Achievements

- Smart India Hackathon Winners - Smart Attendance Platform for GAIL and Automated Document Portal with Blockchain Technology for ICCR
- Two teams qualified the initial round and went for ACM ICPC regionals
- Won in TransfiNITTe 2023
- Runner up in Hire Quotient Hackathon

DESIGNERS' CONSORTIUM

FOREWORD FROM THE PRESIDENT

We are the Designers' Consortium, a set of forty-one aspiring design enthusiasts with a perpetual thrust for innovation from various engineering backgrounds. We began our journey in 2015 as a fourteen-member team and have passionately advanced to become the Technical Product Design and Innovation Club of NIT Trichy.

Our main aim is to identify key problems that hamper the comfortable living of the diverse sections of our society and provide with an answer to their needs. To defy the various odds in the way, design a solution satisfying requirements and deliver a product championing the standards is our motto.

PROJECTS

Campus Development Initiative
1.STaRT: Ideation, design, and fabrication of a device that can be attached with various bicycles and can transport luggage across campus and be able to climb stairs with loads like water cans.

2. OATS : Ideation, design, and fabrication of a smart lock for laboratories and other facilities with advanced biometric authentication. Store and track in-out timings, unauthorized entries, and other relevant information corresponding to each user.

3.The Gordian Knot Bicycle Locking System: Design and fabricate a cycle stand capable of accommodating cycles of varying dimensions, with a locking mechanism to improve the security of cycles in campus.

Shaastra Projects

1.Pipescope: To design an inline inspection device for natural gas pipelines when the pipelines are in operation. This bio-inspired device takes inspiration from various creatures like the puffer fish, octopus, and larvae motion. It detects Surface Deformities, Variable diameter control to dynamically adjust to the pipeline, and speed control while manoeuvring along the pipe.

2.SARVE: To design a search & rescue robot capable of locating victims trapped in rubbles formed by collapsed buildings during an earthquake. The subsystems include Void Detection in rubble using Ground Penetrating Radar (GPR) coupled with Image Processing with the help of a Remote-Controlled Vine bot for location and tracking.

Sangam Projects

1.RecycFil: Ideation, design, and fabrication of a device that can convert plastic waste into usable filaments for 3d printers. The target materials chosen were ABS and Polystyrene, given their significant contribution to waste composition, and advantageous additive manufacturing properties.

2 .WheelEase: Ideation, design, and fabrication of a localized and automatic pressure-detection and pressure-relief mechanism for preventing the formation of pressure sores in wheelchair patients owing to prolonged hours of seating.

Manual wheelchairs were chosen as the target as powered wheelchairs have the functionality of reclining to facilitate proper blood circulation. The proposed solution is a pneumatic system that actuates regions of high pressure to bring about a change in the seating orientation of the patient to provide pressure relief.

3.Cosmic Crowd: Ideation, design, and fabrication of a bot capable of construction enclosures on Mars by using 3D-Printing of in-situ resources available on the planet. The bot prints the base layer of the structure and then climbs over the surface to deposit further layers.

Competitions

1.Robo Oceana, Shaastra, IIT Madras: To fabricate a robust remote-controlled hovercraft capable of climbing a ramp of 20 degrees incline. It also had a ball-picking mechanism retrofitted onto it to pick-up and drop objects. Team Game Hover and Trichy Drifters from DC participated with two self-made hovercrafts.

2.Jalyaan: Designed and Fabricated a remote-controlled boat for the event Jalyaan. The boat had a unique rudder design making it suitable for sharp turns in the water.

3.TransfiNITTe: Participated in Hardware section of TransfiNITTe with 4 separate teams. Team Bolts of Duty, Atoms, The Fource, and More Space Needed worked on several Problem Statements related to campus development.
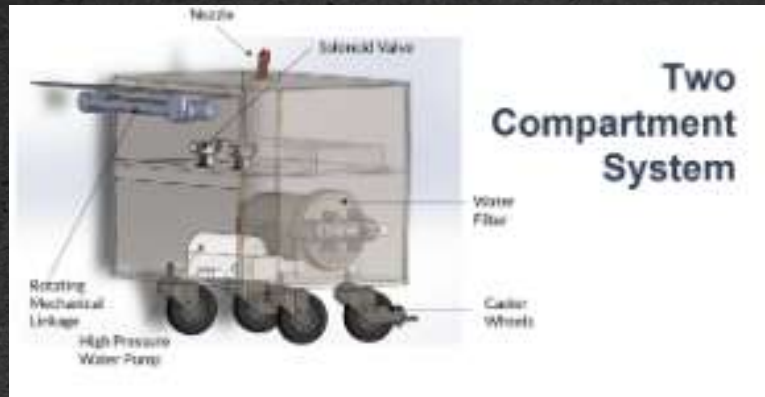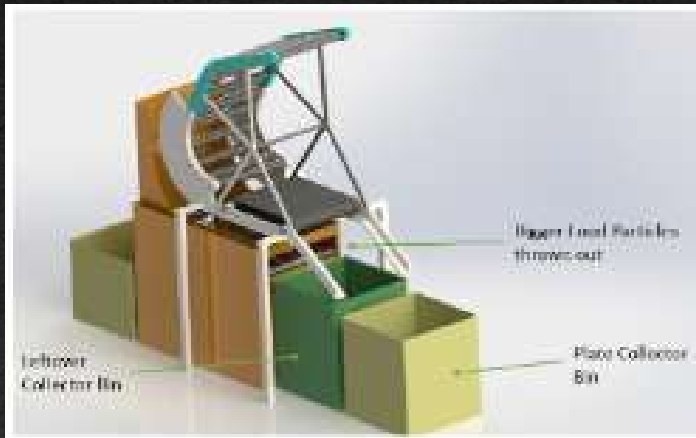
Workshops and Events

- Discover DC: Discover DC is an annual session organized by Designers' Consortium to brief first year students at NIT Trichy about DC and Tech Clubs in general. This year the event was conducted live on YouTube where members from DC emphasised regarding: General Club structure at NIT Trichy, the difference between Tech Clubs, Cultural Clubs, and Social Clubs, About DC (What do we do, project timelines, events we participate in, etc.), and Resolved doubts and queries.

- Orientation: Once the new batch is inducted into DC, they go through a detailed orientation program. The orientation is led by 3rd Years. This year the program included sessions like: Basics of Mechanics, Basics of Electronics, Software: SOLIDWORKS Ansys, Matlab, Hands on Tool and Fabrication Session, A look into ML/AI

- Brain Freeze: In collaboration with Orientation Team, DC conducted an interactive session for the 2026 batch. The event started with a brief look into the field of Product Design followed by a competition among the first years to come up with a creative and innovative solution to tackle day to day problems in a very short span of time.

- TECHIDS: Techids is a social responsibility event conducted by Pragyan. Hundreds of students from different schools of Tamil Nadu visited NIT Trichy to get a look into the field of technology. Major Tech Clubs including DC took the initiative to bring life to the event by demonstrating different spheres of engineering.

- CSWA- SIMTEK: CSWA (Certified SOLIDWORKS Associate) is a reputed certification provided by SOLIDWORKS in the field of Mechanical Design. The workshop will be held on 17th December by SOLIDWORKS in collaboration with SIMTEK. A voucher will be provided to all attendees, using which they can appear for the CSWA exam. Furthermore, all registered candidates will get license for student version of SOLIDWORKS for a duration of 1 year from activation.

- Synergy SOLIDWORKS Workshop: Conducted a 5-hour session in 3rd Eye covering basics of Sketch, Part Modelling and Assembly. The workshop also included a brief demo of structural analysis in SOLIDWORKS.
- Technovation: Workshop conducted exclusively for first years. The workshop included mechanics and electronics theory, hands on fabrication session for Janson mechanism, Lathe Operation, 3D CAD Modelling and Simulation. It also included basic of mechanics of machines and Machine Learning.

Achievements

1. Papers Published

International Conference on Robotics and Mechatronics is a well-recognized conference organized by the Robotics Society of Iran (RSI) with the support of the Academy of Sciences of IR Iran, and collaboration of related scientific societies. In the 10th fold of ICRoM we participated by submitting 6 papers which were based on past club projects. All 6 papers got published and can be accessed through IEEE.

- "Design of a Retrofittable non-Frictional Locking Mechanism for Manual Wheelchairs" Authors: Yatin Shankar Narayanan, Abhinava Ramanan G, Puthiyavan L.N, Raashid Sheikh Muhammad
- "A Non-Lethal System for Preventing Maritime Vessels from Invading or Evading Naval Perimeters" Authors: Arull Murugan S, Dharsini S, Ganapathi Subramaniyan S, Mitesh Kumar, Omkar Lokhande, Yatin Shankar Narayanan
- "An Abstract Model for Onshore Wind turbine Blade Maintenance" Authors: Abhinava Raman G, Hemanth V J, Nishok P R, Pranjal Khakse, Vyankatesh Patil, Aditya Kameswara Rao, and K M Dhivakar

- "Design of Autonomous Marine Fauna Deterring Device Employed during an Oil Spill" Authors: Arya Patel, Siddhart H Choudhary, Pranjal Khakse, Joydeep Das, Nanda Kizor V, Naveena Senthil Kumar, Praneeth G S.
- "Design of an Assistive Technology Wearable Vest for persons with Hearing Disability" Authors: Tariq Anwaar, Arun Srinivasan V K, Nandha Kizor V, Navneeth Rajiv
- "Design of Wearable Vest for Detection and Mitigation of Seizure" Authors: Karan Sundaram, Advait Shah, Maithreyan G, Nanthesh S J, Tariq Anwaar, Vyankatesh Patil

2.Best Paper Award

Best Paper Award- "An Abstract Model for Onshore Wind turbine Blade Maintenance"

3.Patent Granted

The Anti-Manipulation Combination Lock Device was one of the projects done up by members of Designers' Consortium in the year 2019. The device is targeted toward making the existing rotary combination locks more safe and secure. The design suggests an alternative mechanism to eliminate the chances of theft or burglary. Hard work of Girithar T A, Kunal Yadav, Niranjan Kumar, Rohit Surya K, Yash Prakash, and Yuvaprasanth K finally led to the successful grant of a patent by THE PATENT OFFICE, GOVERNMENT OF INDIA.

4.TransfiNITTe
- First Prize- More Space Needed
- Fourth Prize- The Fource

5.Biognosis, Shaastra, IIT Madras
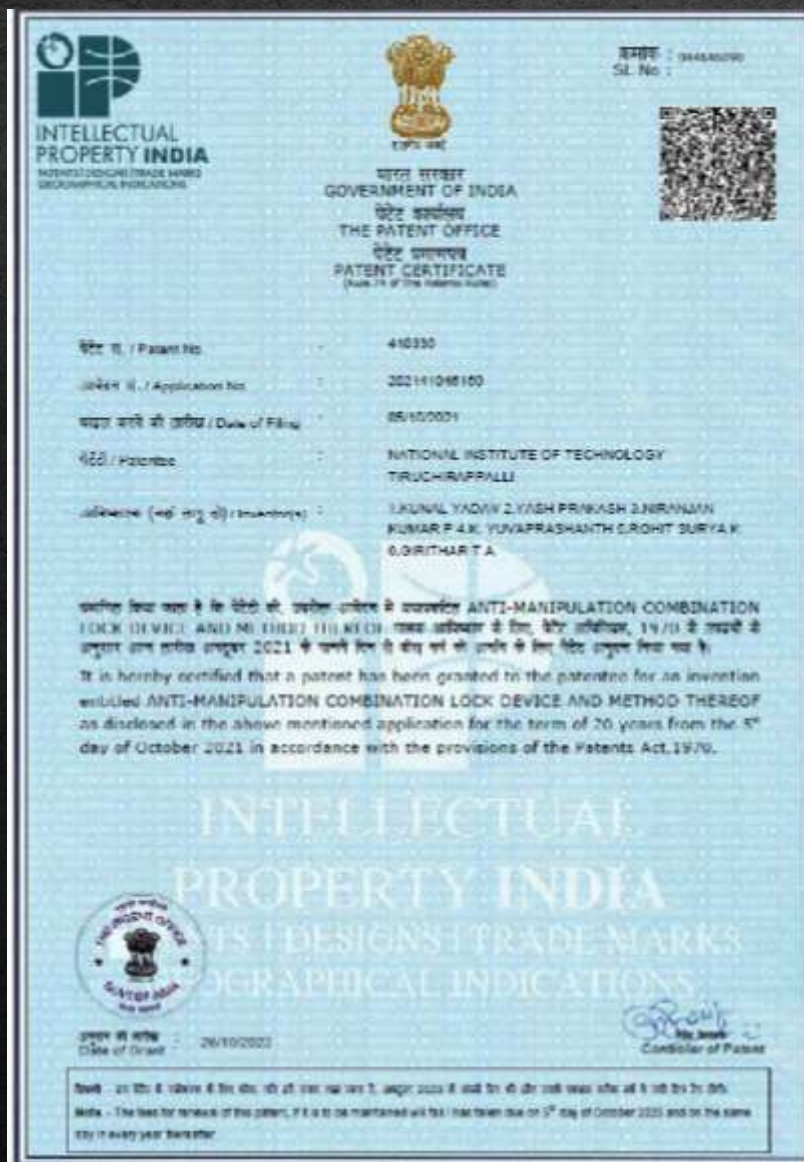- Second Prize- Pipescope

6. Sangam, NIT Trichy
- Second Prize- WheelEase (Healthcare)
- Second Prize- RecycFil (Energy and Environment)

7. Jalyaan, Pragyan
- First Prize- Hell Cat

8. Open House'23, SCIEnt
- First Prize- WheelEase

E-Cell

NIT Trichy

Foreword from the Ex-Comms

We are witnessing a paradigm shift in the startup ecosystem and India is moving from a nation of job seekers to that of job creators. In this vespertine hour, It is important to proceed with acuity and caution. The global economy in the financial year 2022-23 has been with a great deal of variance from the best of times to that of the worst of times. It is times like this that mold entrepreneurs and innovators.

As such, E-Cell went through a massive reorganization and restructuring to redefine the entrepreneurial ecosystem on our campus. We went from a predominantly event-centric team to a team that not just conducts events but also nurtures, grows, and supports startups at a first-principle level.
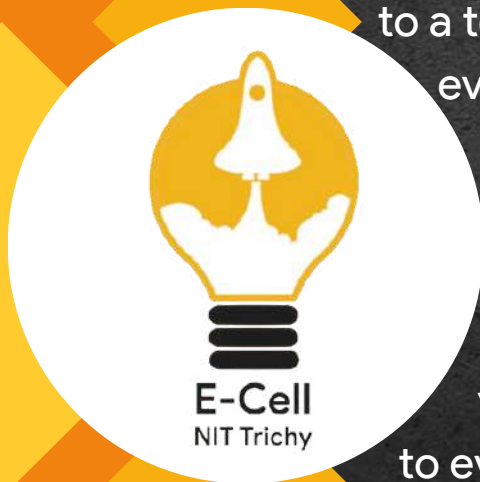
Our aim and mission for this year were to be an unconditional ally to everyone who embarking on an entrepreneurial journey an to provide them with unequivocal assistance in taking their startup to fruition and reality.

We would like to commend every one of the E-Cell members for their tireless dedication to our aim and mission and for their indomitable spirit, without whom the team couldn't have done what we set out to do.

Projects and Initiatives

Social Media Education Project

There is a lack of awareness on our campus on basic startup-related topics. By making the basic management concepts easy and understandable by everyone, we hope to make starting up accessible to everyone.

As such we are using different social media and experimenting with different forms of content to reach as many students as possible and to enable them to understand complex business topics.

We have received positive feedback from various stakeholders including college students, professional managers from the industry and the luminaries we highlight in our posts.

The following are some of the examples of how we leveraged social media and meme culture to teach the basics of business management and entrepreneurship.

E-Cell Founders Program

There are a lot of founders within E-Cell, This is a guided preincubation program where the members help each other to ensure their accountability. Apart from that members who are a part of this program will get access to exclusive resources like mentorship, VC investments, etc. Our Main objective with this program is to help grow several startups within E-Cell.

One of our startups in this program already received an investment offer from an angel investor and another startup started making revenue.

3 of the Startups in this program are ready to raise funds and will soon be meeting investors to pitch.

We are planning to have a demo day for these startups and several top VC firms have shown interest in attending the demo day and considering the startups for investment. This includes CampusFunds, StrongHer Ventures and Beej Network.

Alumni Connect Initiative

We had an opportunity to connect with several of the distinguished alumnus who took time in their busy schedule to mentor and guide the would-be startup founders.

We had a session with Mr. Sudharshan Chandra Babu (2016 Batch) who runs his own AI + Blockchain startup. He discussed the intricacies of running a startup and how to acquire customers. We also had an opportunity to learn about the present and the future of AI and Machine Learning where he highlighted the bleeding-edge projects being developed in this field.

We had a session with Mr. Vishnubharath Boopathy who shared his experience on product and sales strategy working in one of the largest tech startups in India. He spoke about the importance of personal branding and solopreneurship.

Both aforementioned sessions were closed doors open only to active startup founders. We also had an open to all session with Mr Prasanna Shankar (Former CTO of Rippling Labs). He shared his life journey as a story to all those present. He then went on to discuss how he started all his startups along with Rippling. Furthermore, the current trends in the tech industry were also discussed. The session finally concluded with an open to all Q&A session.

Headstart

Headstart is a pre-incubation program for the students of NIT Trichy to provide them with mentorship and support for a period of 6-8 weeks and enable them to develop a solid business model and a minimally viable prototype. This program is envisioned as a program to provide a startup experience to the students and to enable them to build from 0 to 1.

We provided them with resources, mentorship, and opportunity for them to take their startup to the next level.

We partnered with Wadhwani Foundation to provide them with weekly sessions on various facets of entrepreneurship including business model development, building an MVP, approaching customers and clients etc.

We also provided them with one-on-one mentorship to personally help them build their startup.

In Partnership with Scalix by LetsVenture, we organized a session on Startup Fundraising exclusive for Headstart participants on March 28th 2023, where a distinguished venture capitalist explained the process of raising funds. The participants also got access to the Scalix community app through which they will be able to raise funds for their startups if required.
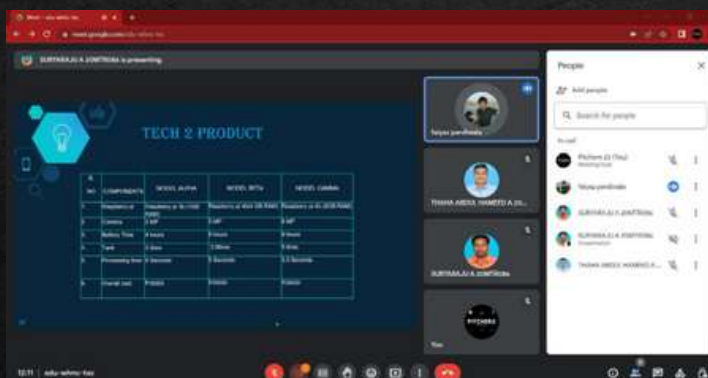
Events

Pitchers

Pitchers is a 36-hour online hackathon that speedruns the process of building a startup by working along with seasoned mentors. This was conducted in partnership with SCIEnT. Pitchers was open to the students of all the colleges and around 30 teams from various colleges across India participated in the competition. Over time these teams developed a solid business model and go-to-market strategy.

Over the course of 36 hours, the team submitted various tasks and challenges and were continuously made to iterate upon their product and business model.

We partnered with organizations such as ICREATE, CampusFund, Omidyar Network India and 10KSI to provide the participants with resources and support.

We had around 35 teams participating in pitchers across multiple colleges from India including Bharathidasan Institute of Management, Trichy, Birla Vishvakarma Mahavidyalaya, Gujarat, Entrepreneurship Development Institute of India, Gujarat, Kongu Engineering College, Erode etc

E-Summit

E-Summit is the annual flagship event of our organization, which brings together aspiring entrepreneurs, industry experts, and business enthusiasts from all over the country.

This year, we curated an exciting lineup of events and activities to inspire, educate, and challenge young minds to think creatively and innovatively. This year's edition of E-Summit was conducted in collaboration with SCIEnt.

i) Guest Lectures:-

The three-day event featured a series of guest lectures and keynotes by prominent entrepreneurs and industry leaders (Mr. Shikhar Goel (CTO of GeeksforGeeks), Mr. Satya Chakarvarthy (Founder of Agnikul Cosmos), Mr. Sandeep Das (Leading Consultant, and Best-Selling Business Author) and Mr. Pratik Shah (CEO of Specsmaker), who shared their experiences, insights, and knowledge about the world of entrepreneurship and business.

The event also featured a range of workshops, covering topics such as Blockchain and Web3 (conducted by Tezos and YBlockChain), Business Consulting (conducted by a senior leader from KPMG), Startup Fundraising (conducted by Beej Network, One of the largest Angel networks in India).

We also had a huge array of fun competitions to engage the participants and to give a hands-on experience for them to try out different hats concerning entrepreneurship and business. This includes Breakthrough (A startup pitchfest where the startups pitched in front of a panel of experts and got their

opinion), Brand Bash (A Marketing Game where the participants worked on building a brand from scratch), Case Blitz (A case study competition where the participants solved the business problem of a fledgling fashion company).

ii) Workshops:-

The event also featured a range of workshops, covering topics such as Blockchain and Web3 (conducted by Tezos & YBlockChain), Business Consulting (conducted by a senior leader from KPMG), Startup Fundraising (conducted by Beej Network, One of the largest Angel networks in India).

iii) Events and Competitions:-

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Footfall for E-Summit: 1000+ Across multiple colleges including NIT Trichy

Campus Development Initiatives

Startup Support Program

Most of the successful startup ideas come from student clubs, teams, etc. As such, we created a program where we partner with external organizations to develop their technical product for the market. We develop business models, go to market strategy, and work across various growth and investment domains such as digital marketing, Fundraising, etc and work with external organizations to implement business solutions. So far, we have completed one project successfully.

This project was in an alumni startup named KRIB that is involved in building a real estate platform and the team from E-Cell, NIT Trichy successfully helped the startup to achieve its business objectives. Alumni commended the efforts of E-Cell for helping him solve the business objectives and provided us with a letter of commendation.

Pitchmania - InHoTTs

We conducted a pitching competition for the first year, where they had to pick a shop in NIT Trichy and make a pitch deck for it. They have to put forward arguments on why their desired shops should be funded for 15 minutes. They were graded on their creativity and their presentation of ideas.

Young Techie Program - Pragyan Social Responsibility

This is a Pragyan Social Responsibility program where Tech clubs of NIT Trichy mentor and help a student team from the schools of neighboring districts to ideate and build a project. As such E-Cell had the privilege and the opportunity to mentor a school student team from the Theni district on their project titled "Entrepreneurship Awareness and Survey Drive".

A member was assigned to personally mentor the student team for 5 weeks, after which they presented their project during the Pragyan Exhibition.

Startup 101

This is a workshop conducted for the students of the first year to get them interested in entrepreneurship. This workshop was conducted on January 21, 2023, and consisted of 3 different components.

The first component was a keynote lecture by Mr. Aashik Rahman, who runs one of the top robotics companies in India and was covered by major news outlets for his robotic products. The second component was fun entrepreneurship-based games to engage the first years and get them interested in entrepreneurship. The final component is a keynote presentation by E-Cell Members to explain the ecosystem in NIT Trichy.

Our Impact over the year

Our Strategic Partnerships

Partner Organisations	Partnership
10KSI	Mentorship
Scalix	Community and Investment
Wadhwani Foundation	Mentorship
Campus Fund	Investment
ICreate	Incubation

Our social Media Presence

Social Media	No of Followers
Twitter	1665
Instagram	2725
Linkedin	4364
Facebook	10,000+

Our Startups

Stage	No of Startups
Ideation	5
Prototype and Prelaunch	2
Launch and Revenue	1

EVER

Electric Vehicles & Energy Resorces

About EVER

EVER is a newly established tech club in NITT. We are a team of engineers passionate about promoting electric mobility and encouraging research in the growing fields of electric vehicles and energy. EVER operates by undertaking projects and competitions whose theme is centered around the design and operation of an electric vehicle and its subsystems. Our aim is to produce highly efficient and environment-friendly electric vehicles.

Right now, we are a team of 51 automotive enthusiasts from diverse departments. We have 5 different sub-teams.

- Vehicle Dynamics and Design
- Electricals Electronics and Control System
- Battery and Energy Resources
- Autonomous Systems
- Brand Development

We try to take up projects related to each sub-team, so we can upskill ourselves in each domain, which would be helpful for us in future, to work and innovate in EVs.

Club Activities and Achievements

IIT-Gandhinagar Case Study

We actively participated in the engineering challenges in EV safety competition at IIT Gandhinagar and landed in the top 15 and got qualified for finals. A thorough documentation and literature review on the assigned topic were required as the first stage of the competition. We now have enough information and

inspiration from the competition to continue to work on EVs. We gained considerable knowledge about fire incidents factors, charging stations suppliers, BMS, risk identification, and other difficulties in the EV market.

Monocular Depth Estimation for self-driving EVs

A fundamental task in computer vision that we are currently researching on is the introduction of a self-supervised method for monocular depth prediction. For many applications, including automation, augmented reality, and autonomous driving, depth prediction is crucial. The limitations with depth prediction, like the dearth of reliable ground truth data, are discussed, along with the reasons for researching self-supervised depth prediction. Monocular depth estimation systems could enhance the performance and safety of electric cars in a number of ways, such as Autonomous driving, Energy efficiency, Improved driving experience, Enhanced safety.

Based on our Literature review, the use of KITTI and NYU Depth v2 to test the suggested approach has been done. We compare their methodology with other cutting-edge supervised and self-supervised depth prediction techniques. The outcomes demonstrate that the suggested method performs better than existing self-supervised methods and is on par with supervised methods.

SAE EFWDC

About EFWDC

Electric Four Wheeler Design Competition is launched with the objective of giving a first-hand Opportunity to our student members to Conceive, Design, Fabricate and Build an Electric four-wheeler from scratch. It has been designed to provide exposure to the kind of situations that engineers face in their real-life environment in their

Working Ecosystem.

For matching current trends and skillset, EFWDC provides the platform for the Students to learn EV Technology and Battery , Motor related topics, simulation, Modeling of power-train etc. By participating in the Event, Students also get to know the Industry Trends and will connect with Industry Experts during the Workshop.

In a holistic view, this Event will be a platform for students to embrace the E-Mobility change happening around the World and in India.

EFWDC Progress and Timeline in 2022-2023

Competition Registration	June 2022
Online Webinars	Sept 2022
Rulebook Release	Oct 2022
Offline Workshop	Nov 2022
DR1 (Design Review 1) Submission and Feedback	Mar 2023
Fabrication Starts	Apr 2023
SAE Campus visit	Apr 2023
Fabrication ends	May 2023

For EFWDC, participants are required to build a Minimalistic EV model with a weight under 350 kg and a Production cost under 2 Lakhs rupees. We have been learning the skills required to build an EV since the Registration of the competition. Online Webinars conducted by SAE helped us in knowing what skills are required to finish the project. Once the rulebook had been released in October, we started the design of various subsystems of an EV, such as chassis, suspension, steering, transmission, Brakes etc. In Offline Workshop conducted by SAE, organisers fabricated a prototype EV according to design specifications in Rulebook. It helped us in making our own design better and efficient. We continuously updated the design of subsystems by re-iteration based on constraints from the rulebook. We also performed CAE analysis to ensure that it was safe.
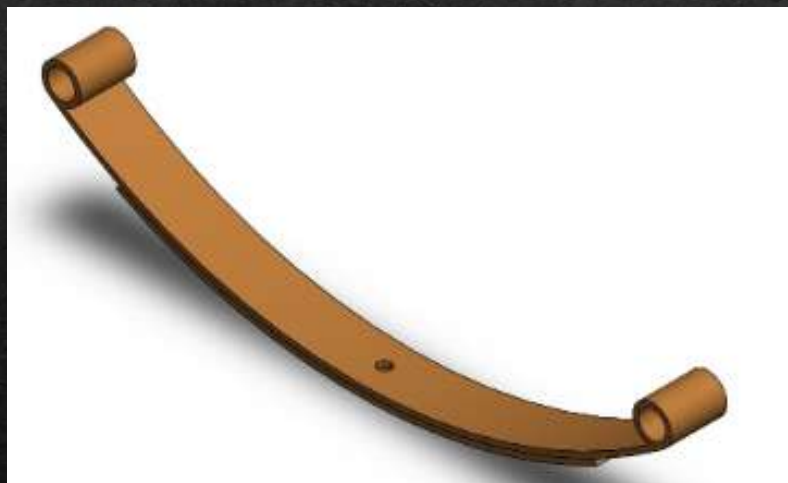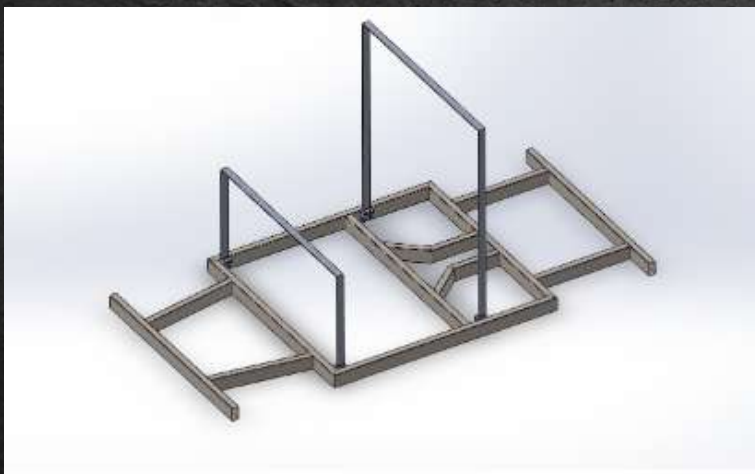
Once we made DR1 Submission in March and received feedback, we corrected and modified the design further. We have included a lot of details that have been left out for DR1 submission. After finalising the design, we started the Procurement of various materials and parts required to fabricate our design. SAE visit by organisers to our campus gave us a lot of in-person feedback and suggestions that helped us in tuning the design and starting fabrication. We expect the entire fabrication process to end by May, and then we will participate in the final round of competition.

Future Initiatives of EVER

Participating in more EV related competitions representing NITT to improve our skills.
Making a prototype of a Miniature Self-Driving car using AI/ML algorithms.
BMS Optimisation by using ML, to increase range of EV.
Conducting workshops for students related to EV and the technology involved with it.

Foreword from the President

Over the past year, Graphique has undergone a remarkable transformation, achieving exponential growth and success through its various activities and participation in events. Our club members have dedicated themselves to the art of graphic design, honing their skills and developing their creativity to new heights.

Our passion for graphic design has been the driving force behind our efforts, and we have strived to share this passion with others. Through our dedication, we have not only advanced our own knowledge and abilities but also helped non-club members to learn the fundamentals of graphic design. By sharing our expertise and experience, we have encouraged others to explore this exciting field and to unlock their own creative potential.

As a result of our efforts, Graphique has become one of the most active and engaged clubs on campus. Our members have Participated in a range of activities including workshops , competitions and collaborative projects each designed to further our understanding of graphic design and to push the boundaries of our artistic expression.

Our activities have not gone unnoticed, and we have been recognized for our contributions to the campus community. We have been featured in several publications and have been invited to

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participate in various events, including conferences and exhibitions.

As a community, we have been inspired by each other's talent and dedication, and we have formed lasting friendships and partnerships that continue to drive our club forward. We are proud of what we have accomplished over the past year, and we look forward to even greater achievements in the future.

Our success has been the result of the hard work and dedication of our members. We have collaborated on various projects and have supported each other in our individual endeavours. Through our shared experiences, we have grown as individuals and as a community, and we are excited to continue our growth and development as we explore new opportunities and challenges.

In short, Graphique has been a vital and dynamic force on campus, and we are committed to continuing our growth and development. We will continue to share our passion for graphic design with others and to push the boundaries of our artistic expression. We are excited to see where the future will take us and look forward to the many opportunities that lie ahead.

Initiatives / Projects Taken up This Year

1. Project Tathva

Freshers' introductory project. Once the new team is formed the freshers are encouraged showcase their expertise in their domain of choice through a team based intra-club designathon. This is a very important project since it shows the freshers how things work inside our club and encourages them to socialize with their clubmates.

2. Festember - We at Graphique, as the official design team of Festember, are responsible for all the design that goes out and acts as the face of the fest. Over 450+ designs made so far.

3. Pragyan - We at Graphique, as the official design team of Pragyan, are responsible for all the design that goes out and acts as the face of the fest. Over 450+ designs made so far.

4. Chaperone - Chaperone a talent showcase series where our club members showcase the projects done in various domains (3D, Motion Graphics, Digital Art, Graphic design and UI/UX) and walkthrough the entire process of creating stunning artworks.

5. Wallpaper week - The students of NITT were bestowed with high quality wallpapers every day for a week on Graphique's official Instagram handle and website.

6. Beyond the Atelier - A monthly blog in which Graphique publishes articles on various topics pertaining to 3D Motion Graphics, Digital Art, Graphic design and design and UI/UX through Medium The articles play a major role in promoting our club and enhance our reach.

7. Inktober Challenge - Participated in a 31 day challenge to improve inking skills and develop positive drawing habits.

8. 36 Days of Type - Participated and successfully completed the yearly 36 days typographic design project promoting space for creation across the globe.

9. NIT Trichy Calendar - Commissioned by NITT Admin to design the yearly calendar for NIT Trichyfor the year 2023.

10. UIUX Case Study - We have prepared an extensive case study on the Lynx app and the Misreg website to see the pitfalls and issues these applications have and provide solutions to improve the same for the ease and comfortability of the students.

Workshops Conducted

1. Graphique Bootcamp 2022 - Bootcamp was a free comprehensive workshop on the basics of Graphic Designing and Motion Graphics exclusively for the First Year B.tech/B.Arch students of NIT Trichy. It was conducted during the month of June 2021. Students were engaged with exciting tasks and Interactive sessions.

2. Graphic by Graphique 2023 - Graphic by Graphique was a free comprehensive workshop on the basics of Graphic Designing and Motion Graphics exclusively for the first year B. Tech / B. Arch students of NIT Trichy.

3. Chroma 2023 - Chroma by Graphique was a graphic design contest conducted for the 1st students conducted in the month of January. The contest was held in two formats (digital and traditional art). Three industry experts were invited as Judges: Shana Yasmin, Saara and Rebekka.

4. 48 Hours of Design Thinking - It was a 48-hour online hackathon as part of InHoTTs'23 for designers and developers, providing a platform to compete against the best design and developing minds across the country in a fast-paced environment and test your design thinking practices. Hone your design and developing skills by responding to evolving needs and solving challenges in our community and beyond to create resilience. none, and inspiration.

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Competitions and Conferences

1. **State Design Contest entries-** Participated and got endorsed by Strate School or Design. Bangalore in an online poster design contest among 200 entries

2. **FMC Weekend -** Participated in 5 Design and Art Events conducted by IIT BHU as a part of their cultural festival.

3. **Kuruksastra Design Events -** Participated in 5 Design and Art Events conducted on sastra as a part of their cultural festival, Kuruksastra.

4. **SAARANG -** Participated in IIT Madras's Saraang Designathon, a four-hour designathon based on 2D & 3D design problem statements.

5. **D'Con -** Our club members attended a Design conference, called D'Con 2023 which was an eye-opener and provided us with a depth to the concept of Design in a Broader perspective.

Competitions and Conferences

FIRST PLACE, Designathon Event, IITM - SAARANG
FIRST PLACE, Poster Design, IFP
6500+ Followers in Instagram
50K+ Views on Instagram
Open Source Contributor
1500+ Artworks made in 2022-23

Maximus

MATH SOCIETY OF NITT

FOREWORD FROM THE PRESIDENT

We at Maximus work and thrive on creating a lively environment for math enthusiasts to improve their knowledge and conduct events to share the same with others. This term was offline and few events among the club members were conducted. Also, the Program Pedagogy, a Programming teaching initiative for the freshers was taken. We hope to conduct more events and all the fun activities and teaching programs from next year.

Initiatives and Events

Induction cum Hackathon conducted for 2nd years as well as for 3rd years for lateral Inductions. New members got inducted.

Conducted and created questions for M-Decoder, an event in collaboration with Pragyan 23 as part of the Phronesis cluster, which received participation from more than 100+ participants from within and other colleges.

Conducted few fun events among the members of the Maximus club like KenKen, sudoku etc.
After collaborating with NITT professors, a C programming teaching session was conducted by the maximus members.

Achievements

- Several members of the club participated in IGMO 2022 (International Gamma Mathematics Olympiad), and successfully cleared the first round.
- A member of the club bagged 14th rank in IGMO 2022 and was awarded with silver honour certificate.
- Few members participated in ICPC regionals 2023 and rank 29 was obtained by three of our members.
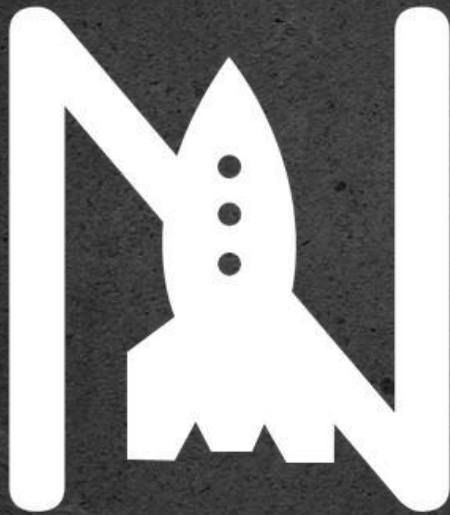
NAKSHATRA

THE ASTRONOMY AND SCIENCE CLUB

FOREWORD FROM THE PRESIDENT

This year, Nakshatra had a stellar online presence to cater engrossing astronomy content to space enthusiasts. With a total of 72 posts, 7 of them as reels, 2 of them in the "Space Tit-Bits series" on YouTube and a number of weekly facts, This resulted in increase of online presence of the social media by about 18% with a total of 1370+ followers on Instagram, one of the highest amongst the technical clubs.

Nakshatra consistently engaged in quenching the thirst of the astrophiles. Nakshatra conducted intra-college competitions such as debate, magazine design and JAM in an event called "Insight".

During the World Space Week from October 4th to 10th which was themed on " Space and Sustainability", Nakshatra, in collaboration with Pragyan, conducted a variety of events including Cosmic Canvas, Space-O-Analytics and Cosmic Crusade and two guest lectures by Dr. Tony Padilla and Dr. Ashwin Vasavada and released an intriguing blog on the same theme. Nakshatra successfully conducted the event Celestial Hunt in InHoTTs'23 on 27th and 28th of January which saw enthusiastic participation from more than a 100 freshers.

To take astronomy directly to the student community, Nakshatra also actively collaborated with other organizations such as Pragyan where a stargazing event was conducted specifically for the female students of NITT on the occassion of

Women's Day, and NSS NIT Trichy, where demonstrations on optical instruments were shown to more than 120 school students on National Science Day. Nakshatra also conducted a Guest Lecture Series "Spectra" by renowned astrophysicists Dr Hamsa Padmanabhan and Dr Mousomi Das.

Two awareness programs for school and college students in and around Trichy were held in collaboration with the Physics department NIT Trichy. At the close of the semester, a stargazing session to be held for the NIT Trichy community.

Media Coverage:

Two articles were published in the Hindustan Times and The Hindu featuring and applauding the club's activities during Venus-Jupiter Conjecture:

1. Green Comet
2. Conjecture

Projects initiated by Nakshatra in Jan 2023 semester

Hardware:

1. CubeSat development:
As part of our long term goal to launch a satellite from our college, we have started developing a CubeSat to do the analysis on the vegetation index of the crops grown in the Tamil Nadu state in which we are using the concepts of vegetation index, machine learning, image processing, satellite mechanics, propulsion, etc.

2. Beam stabilizer:

The basic idea is to actively stabilize the beam using a PID controller for better accuracy of the results by which we obtain from using laser scanning, etc.

Theory:

1. Active Stabilisation- Stabilisation achieved using external input, which is in contrast to Passive Stabilisation, where no external input is needed.
2. PID controller- it's a type of numerical controller that is used nowadays because of its fast response.

Aim:

We want to balance a ball on a beam. The setup is basically identical to that of an inverted pendulum. We want to achieve Active Stabilisation using PID control.

Plan of action:

1. Obtain parts.
2. Construct the ball and beam mechanism (simple lever, with a fulcrum in the centre and ball balanced on top).
3. Attach servo motor to one end of the beam for moving the beam up or down.
4. Connect the proximity sensor to the other end of the beam.
5. Connect the arduino to motor. This will be our controller.
6. The controller is coded to include the PID constants, which in takes input from proximity sensor and controls the motor.

3. Development of a solar telescope:

This is a project which we had initiated doing together with the Physics department of our college in order to develop a user-friendly and economical solar telescope to study about the sun.

Software/Algorithm development projects:

On the other hand, we were also working on the algorithm development for a few of the real-time problems which can be counteracted with the space technology of CubeSats (like developing the algorithm to the solutions that we can solve using the CubeSats)

1. LuLc detection & analysis:
This algorithm is to predict the land use land cover (LuLc) of the world/country/state/city in order to find out the development of it and how the environment is being maintained, etc.

2. SrGAN development:
This is to get higher resolution of the images which we take from the telescopes by implying deep learning techniques which uses perpetual loss functions to obtain the better resolution images

3. NDVI Index:
Normalized Difference Vegetation Index (NDVI) is used to quantify vegetation greenness and is useful in understanding vegetation density and assessing changes in plant health. We want to use this technology and develop an algorithm in order to find out the vegetation in the country to understand better about agricultural production.

Events participation:

IIT Indore Ingenium Technical Fest - Technical event: Analyze the data using ML, CV and website creation to predict the surface temperature of star.

Enigma, IIT Mandi - 100 hr Computational Astrophysics Hackathon

Foreword from the President:

We, the core of ProfNITT, The Finance and Investments club of NITT, fell honoured to have taken up the club's helm under the online circumstances and later offline. Learning how to lead a club and adapting to different situations has been an enriching experience. We have successfully inducted fresh blood into the club and provided learning resources and tasks to hone their skills. The new members are now better equipped to handle projects and enter the world of finance in earnest, we are looking forward to a fruitful year where students will gain valuable knowledge and experience.

Initiatives and Projects

1) Generalizing FII and DII in :
analyze the relationship between FII and DII data and results for the time period 2009-2019 and then compare it with the same for recessions 2006-2008 and 2020-2022. A selection of 4 FII and 4 DII will be considered to base the general instructions in day to day processes. Design a study and model to evaluate the top players in FII and DII. In short, you will be analysing FII and DII companies to create a model which inputs certain company results and gives us how good the company is (what is the probability that the trade that this particular FII or DII took, is profitable) as an output.

2) Consequence and ergonomics of Splits, M&A, Bonuses and Dividends in Equity Scrips:

Study the surroundings of corporate actions and try to reason its occurrence for the nifty 50 companies in the last 20 years. Equate the whole event right before, during and after the event, in terms of percent and segregate the causes into market influence, company action and the event itself. Tablet the findings and relate it with other factors to get the market's perception on these occurrences. In summary, you will be collecting data (closing price) of the companies which have performed the above corporate actions (Stock split, M&A, Bonuses, Dividends, Rights issue). We calculate how much the stock has changed during the "corporate action" over a specific time period. We figure out why the company took that "action" and look the general market trend during that time period, then we segregate the companies based on range of percentage change(10-20% change or >50% change). This segregation will help you to predict if any future company's corporate action will be profitable or not.

3) Hedging in India from analyzing block and Bulk trade:

1. Study and figure out the tools and instruments typically found in hedges.
2. Discover the relationship between hedge trends and cash market, if there is any.
3. Tabulate the kind of trades of each company selected along with the other attributes such as time window, P&L, recovery, etc.

In Summary, study what hedge companies like JP Morgan, Goldman Sachs, Morgan Stanley do exactly and we try to figure out a relation between their trades and how we can benefit from that

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4) Portfolio Optimization:

1. Handpicking a set of stocks to create a portfolio and understanding the correlation
between stocks to minimize the risk.
2. Basic statistical disciplines to be used to calculate sharpe ratio and find out the optimum
weightage of stocks to ensure minimum risk for a given return.
3. Visualise the basic price indicators and simulate the portfolio using Monte Carlo method.

Events Conducted and Related Info:

1) Careers in Finance in Collaboration with FinSchool:

Confused about which career path to take? Want to know more about the opportunities in Finance? Then don't miss this exclusive Guest Lecture by ProfNITT in collaboration with FinSchool, where we will cover the 3 major roles you can see yourself getting into, along with how to crack them
1. Financial Management
2. Equity Research
3. Investment Banking

2) FinHunt!:

We are organizing an Exclusive Online Treasure Hunt Competition, FinHunt, for the 2nd year only! Get a chance to earn ₹1500 during your evening snack time by just having the bare minimum finance knowledge. Dust up your suits and put on your thinking caps to experience the adrenaline rush as you sign up for something enthralling. So, what are you waiting for? Sign up for this exciting yet arduous journey to reach the treasure chest filled with exciting prizes.
See you in the hunt!

3) ProfNITT x Toastmasters International:

"Money Money Money
Must be funny
In A Rich Man's World."
Money is something that we all worry about. How to save, how to spend, how to make and so on and so forth...
To help us on how we can manage our money and investments ProfNITT along with Toastmasters International, will be hosting a guest Lecture by DTM Ra. Ma. Palaniappan on November 5th.

4) Insights 22':

A Panel Discussion on BNPL vs SNPL
If you buy things you do not need, soon you will have to sell things you need." -Warren Buffet
Do you regularly Save money Now for the device of your dreams and Buy Later?
Or do you Buy Now and Pay Later to purchase what you want right away?
What do you think about it? Is saving now the right choice or paying it off later with credit, the right choice?
Learn more about the concepts by attending our panel discussion with 2 experts from the best Startups in this field.

5) ProfNITT x Wagmi:

Students interested in learning more about the Web 3.0 domain should
certainly attend this Webinar, hosted by ProfNITT and Wagmi
with guest speaker PANKAJ
GAUTAM on December 26th at 6PM.
PANKAJ GAUTAM, THE SPEAKER

He graduated from IIT Gandhinagar and is presently the Head of Product at Mudrex. He was formerly the Executive PM at Paytm, WebEngage, and OYO. He began his business career with Fluttr, a Twitter-style network for context-based communities.

6) BizQuiz in collaboration with MingOut:

This is an incredible opportunity to win ₹20,000 directly in your hand by participating Watanabe BizQuiz Fest, powered by ingout. Put on your suits and think hats to feel the thrill of adrenaline as you join up for something captivating. Business, personal finance, trading, and the stock market will all be covered in the quiz. The winning team from our campus will also be invited to the finals where they will fight for a chance to earn a total of INR 10L in the national semifinals and finals. (First prize: 3 lakh rupees).

7) IPL-mania:

Gear up for the ultimate cricket battle with IPL-mania! Are you up for the challenge? You can test your cricket knowledge and trategy and win exciting prizes along the way. An In-House Dream11.

8) Bag that IPO:

An offline Shark Tank event where the students will be the sharks and will invest in startups.

Campus Development Activities:

1) Trading Competitions and workshops
2) Knowledge Sharing sessions in SCIEnt
3) Educational Instagram Posts

ABOUT US

We are a group of engineering students passionate in automobiles. We design, analyse and fabricate an All-Terrain Vehicle (ATV) from the scratch and participate in off-road racing events. In this spirit we have been participating in the BAJA SAE-INDIA competition for the past 15 years.

BAJA SAEINDIA is one of the biggest competitions conducted by the Society of Automotive Engineers (SAE) and is held at NATRAX (National Automotive Test Tracks) Pithampur, Indore. Student teams from all over India compete in multiple dynamic events, such as an endurance race, maneuverability course, sledge pull, hill climb, and acceleration event. They are also judged for their work in design, sales, cost, and marketing events held during annual competition.

We fine tune the car parameters each year to make a quicker, rugged and lighter car that is competitive on the national stage. The hands-on experience gained here is something unique, and difficult to obtain just from courses.

FOREWARD

PROGRESS IN 2022 - 23

Design Phase :

For this BAJA season, we have sorted out the design issues in our previous 4WD ATV by testing and aquising data from the car during the month of May 2022. We invented new approaches in design and specifications of the ATV to improve our performance and to cope up with the rugged tracks and terrain at the event.

The design innovation and computational evaluation of our ATV and the components were started during June 2022. By the end of August, we completed the design and necessary evaluations were done by us. During September, we had our Virtual Design Presentation to BAJA Committee and the suggestions told by the committee were considered and design re-iteration was done in that month. During December 2022, we had our static events, in which we were evaluated for our Design Ideology, Design Validation Plans, Design Failure Mode and Effect Analysis, Computational Analysis, Ease of manufacturability, Design Improvement. It also includes sales event testing our extreprenuerial skills such as presentation abilities, creative thinking, managerial perspectives, business aptitude and cost report which was based on methodologies and cost incurred in this phase.

Fabrication Phase :

Our fabrication phase began in late September 2022 and we started making our Roll-Cage. Throughout the fabrication we faced several new challenges in the sub-assembly and assembly of our ATV.

The fabrication of Roll-Cage included procurement of pipes of various dimensions, bending them for our requirements which are done by 3rd party manufacturers, profiling the same for welding them together. This was done by late October 2022. Parallelly, suspension arms were made using fixtures and laser cutting of various mounts and gussets was done. Drawings were sent for outsourcing components such as Differential, Reduction gear box, Knuckle, Wheel Hub, engine mount and adapters. We started the procurement of the OEM components needed for our vehicle.

We faced a lot of issues due to manufacturing and assembly errors for reworking components. Meanwhile, we also successfully manufactured engine mounts in Vertical Milling Centre in continuation with fabricating brake pedals last year at Siemens Centre of Excellence, NIT Trichy. The engine mount requires greater precision and flatness as it is crucial for car performance. The main challenges faced were during tool failures, removing tramp oil from coolant tank and tear off at pneumatic tubes.

With the completion of manufacturing, assembling upon receiving and testing of individual subsystem components, we entered the assembly phase of our car by January 2023. This included packaging of components in the roll cage ensuring it satisfies required clearances and abide by the rulebook.

Testing :

In the virtual dynamic event, we parametrized the car using IPG Carmaker software and maneuvered it using driver commands on different tracks during December 2022. We had 10 days of testing in february 2023 which involved tuning the car and understanding its behavior for different shock pressure, CVT (Continuously Variable Transmission) settings etc. This allowed us to properly identify the car setting required for the various events that we participated in. For tuning the CVT, we made use of hall effect sensor and photo interupter that helped us to find the rpm of primary and secondary pulleys. In this period, the driver started getting adapted to the car and adjustments and settings suggested by the driver were considered and implemented. Meanwhile, we fabricated spare components in case of breakdowns in the car during event.

About

Research Scholars Forum (RSF) at NITT works for the welfare and continuous development of the research scholars since 2015. However, it became official and started extending its activities with the consent of the institute authorities in 2017. The forum, yet again in 2022, has revamped its mission and vision to meet the need of the times.

RSF mainly focuses on organizing workshops, seminars and guest lectures in collaboration with experts from various Institutes of Excellence across India and abroad. Moreover, the forum provides a platform for the discussion of higher education and employment opportunities after PhD for the research fraternity at NITT. The strong alumni network of NITT also acts as a catalyst in all such endeavours.

Events

Training session titled Work Life Balance and Influential Communication.
Report was conducted by RSF NIT Trichy and IEEE SB on 04/06/2022. Resource Persons were Mr Renjit Keshav, Mangaing director Insight Job Guru and Mr Mohammed Ikan, Director Society for Training and Development Lakshadweep. 30 scholars attended the event. The attendees highly benefitted from the training session.

Online Guest Lecture on Post-Doc Opportunities

A 2 hour online guests lecture about Post-Doc Opportunities was conducted by RSF NIT Trichy on 15th October 2022. Dr. Aswin Kumar Rajagopalan from University of Manchester was the Resource Person. He enlightened the research scholars about post doctoral opportunities for scholars. Total registration for the event was 63.

Online Guest Lecture on Translational Research in Self-Cleaning coating and 3D Printing

An online guests lecture about Translational Research in Self Cleaning coating and 3D Printing was conducted by RSF NIT Trichy on 18th October 2022. Dr. Ravi K R from IIT Jodhpur was the Resource Person. He explained about advancements in 3d printing to the research scholars.

Online Panel Discussion on Looking Beyond Ph.D

The research scholars forum, NIT Tiruchirappalli, organized a panel discussion on "Looking Beyond Ph.D: An Interactive Session on Post-Ph.D Opportunities" on 4th November 2022 virtually on the WebEx platform. The panelists for the session, who are also alumni of the institute, were Dr. Uday Chakkingal, professor (Department of Metallurgical and Material Engineering, IIT Madras), Dr. Varun Kumar S, associate professor (Department of Mechanical Engineering, IIT Madras), and Dr. Mahesh Ganesan, assistant professor (Department of Chemical Engineering, IIT Hyderabad). The welcome address was delivered by Dr. Ramakalyan Ayyagari (Dean-Academics, NIT-T). The event was attended by students, research scholars, and professors. This was the first-panel discussion organized by RSF NIT-T virtually with the help of Dr. A. K. Bakhthavatsalam, professor and head, Training and Placement cell. He was our torchbearer who invited all the speakers to the panel discussion. Total head count on the event was 91.

Technical Webinar on Exploring Web3 and Web of opportunities

An online guests lecture about Technical Webinar on Exploring Web3 and Web of opportunities was conducted by RSF NIT Trichy in association with IEEE SB NIT Trichy on 17th November 2022. Ms. T. C. Gnana Lakshmi Co-Founder of The Pheonix Guild & Freelance Blockchain Architect was the Resource Person. 42 students attended the meeting.

3 days International Conference on Computational Intelligence Paradigms (CLIP) by in association with Department of CSE

3 days International Conference on Computational Intelligence Paradigms (CLIP) is being organised by Department of CSE NIT Trichy and RSF NIT Trichy from 07/12/2022 to 09/12/2022. Eminent resource persons from CFIs, Foreign Universities and Research labs are offering the session. RSF has also offered the best paper award.

Skill development course on 3D Modelling & printing in association with the Department of Energy & Environment

A 2 days workshop on 3D modeling and printing was organized with the support of Department of Energy and Environment. The workshops had learning sessions and Hands-on Training sessions to impart maximum knowledge to the participants. R Ajit H M, Head of Additive Manufacturing Division in Infosys Ltd and Mr K Kannan, Research Scholar from DEE had lead the sessions.

Guest Lecture on Decision Intelligence for Preventive Telehealth Program

An online Guest lecture about decision intelligence and preventive telehealth program was conducted on December 21st 2022. Dr Arpita Biswas CRCS postdoctoral fellow , at Harvard University interacted with the students about her research works.

Poster Presentation of Research Works

A Poster presentation event was conducted along with CSE departments "Vortex" fest. Participants from other institutes and NITT had sent the abstract of their research prior to the event. Out of that 15 participants were selected to present their work. The offline event was held on 05 /03/2023. Dr. Madhukrishna Priyadarsini evaluated the posters and selected the best ones in each category.

Events Yet to be conducted

- Guest Lecture on Materials Characterization
- Interactive session with Dr Aravindan S, Professor , Dept of ME, IIT Delhi
- Soft skill development workshop
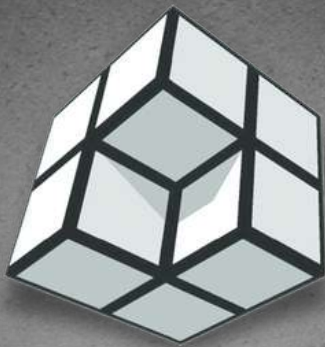
Foreword from the President:

We at RMI take pride in being able to innovate in various fields within robotics. As a testament to this spirit, we were able to work on multiple exciting projects this year that pushed the boundary of what was possible.

None of this would have been possible without the great minds in our club, who I am deeply proud to work with. I am also truly grateful to our faculty advisor Dr K. Pannirselvam whose inputs were invaluable to us.

I am confident that in the upcoming years, we will continue to work hard on our goal to advance the reach of robotics and make robotics more accessible to students at NIT Trichy.

Projects taken up this year :

1. Project OpenQuad:

QuaDro is a fully automated quadcopter with the capability of carrying out last-mile delivery using vision-based position control. Our solution proposes a fully automated quadcopter with the capability of carrying out last-mile delivery in hard-to-reach regions.

The drone shall be capable of carrying first aid kits and health and other medical supplies, with a maximum payload carrying capacity of about 700 grams. QuaDro uses location-guided flight by means of GPS that will enable outdoor point-to-point navigation, that is, moving from one point to another without any remote controls. The drone also contains LiDAR capabilities for obstacle detection and altitude lock to maintain a specific altitude from the ground.

3-D space location lock using image processing functionalities to assist vision-guided position control will be enabled in the drone. This feature is the most important feature in making the drone entirely autonomous. The visual guidance solely controls the precise landing of the drone on an aruco marker and helps the drone position and orient itself accurately.

2. Project Hexapod:

Hexapods have the ability to move dynamically in any direction, use different walking patterns for different terrains and climb rocky surfaces as well due to their six-legged design. The robot has 18 degrees of freedom and can move in multiple directions without the need to turn. The legs of a hexapod travel both on the ground and air. The servos in the system ensure that the robot is capable of moving precisely in any direction. The components required to build one are simple and efficient. Thus, hexapods are a potential platform for many applications such as defence, surveillance, terrain exploration and transportation.
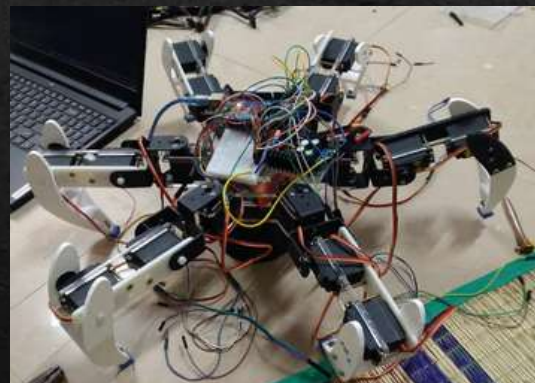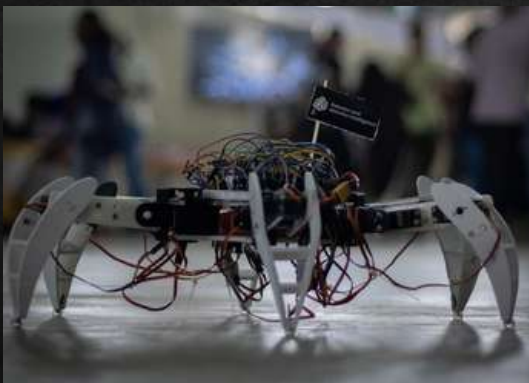
3. Project Virya:

Developed a Rover that provides a research platform for the study of autonomous ground vehicles that is capable of mapping the terrain of extra-terrestrial surfaces which is crucial for space exploration. The proposed rover is a fully autonomous system traversing an unknown environment with the help of its sensors. Since the terrain of the extra-terrestrial surface is unfamiliar, the rover must be able to maneuver such terrains, making sure the main housing containing all the electronics is safe. This is achieved by designing and implementing a Rocker-Bogie suspension system that ensures the contact of all 6 wheels at any point in time. The independence between the left and right wheels adds to the bot's dynamic capabilities.

The surface of outer space bodies can be mapped to a certain degree of accuracy with the help of Inertial Measurement Units (IMU), the measure linear and angular accelerations. The hardware filters DMP present in the IMU sensor are responsible for converting the acceleration values to displacement values. When placed on the wheels and the main chassis, these sensors can be compared to give the change in the depth of the terrain. The usage of LIDAR for terrain mapping is a future goal.
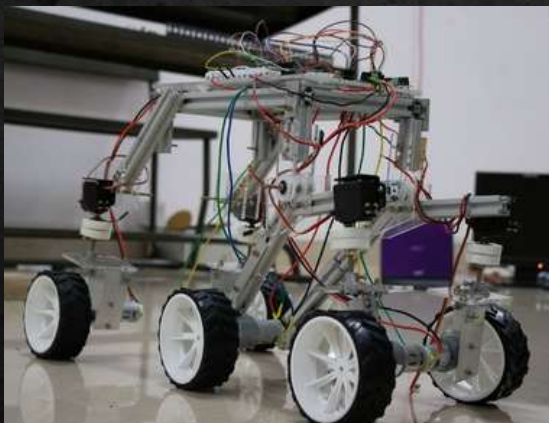
4. Project Remotely Operated Underwater Vehicle (ROV):

ROV is an underwater robotic vehicle platform with optional ground control, designed to execute tests and missions at different levels of autonomy, including testing of specialized payloads. This project aims to develop an underwater robotic vehicle platform with optional ground control to execute tests and missions at different levels of autonomy. This platform will be a testbed for hardware, algorithms, and specialized payloads to perform a variety of underwater operations. An open-frame configuration is adopted for the vehicle structure to have better control authority at low speeds and also allow modularity for a wide range of payloads. The vehicle structure was designed in SolidWorks, taking into account the resulting weight, buoyancy, and centre of mass of all components and the assembly to ensure the vehicle is stable and slightly positively buoyant to make recovery easier in case of any major system malfunction. The frame of the vehicle was constructed using 0.75-inch UPVC pipes and fittings, and the joints were secured using fasteners.

The vehicle has an array of sensors, including IMU, compass, and pressure sensor, using which position and heading information can be obtained. This is used for the PID control algorithm for holding the depth and heading during manual operation. This system also allows holding the position during the absence of any inputs from the operator to counteract any water currents. The battery, power electronics, motor drivers, and processing units are the other important electronic components inside the hull. The vehicle can perform a wide range of operations depending on the payloads it carries. For instance, it can be used in conducting intelligence, surveillance, and reconnaissance operations. In addition to that, the vehicle can be equipped with mine countermeasure systems to detect, classify, and neutralize underwater mines.

5. Project Self-Balancer

A two-wheel self-balancing bot designed in such a way it can carry a payload of 1kg. It works on the principle of the inverted pendulum and is controlled using a closed-loop feedback control system based on the tilt values obtained from the MPU 6050 sensor, which is passed through Kalman filters to reduce noise. We then integrate ultrasonic sensors into the bot for obstacle avoidance and basic perception. The bot can autonomously navigate and carry a payload of 1kg up to 200m.

Events / Initiatives:

1. Pragyan Social Responsibility Workshop:

RMI organised the workshop in connection with Pragyan's Social Responsibility Team to inspire young minds and let them fall in love with robotics. The workshop targeted the students of local schools in Tiruchirappalli.

Date: 27.11.2022
Place: Orion, NIT Tiruchirappalli
Footfall: 50

A couple of simple differential-drive robots were in for some action. The children were handed control over the robots. In parallel with illuminating them with the concepts,

they were also allowed to have a look at different electrical and electronic components hands-on.

The workshop involved upskilling the children on different engineering and scientific concepts implicated in making a mobile robot. It covered concepts from
- simple circuit components like batteries
- Prototyping using breadboards,
- mechanisms involved in a differential drive
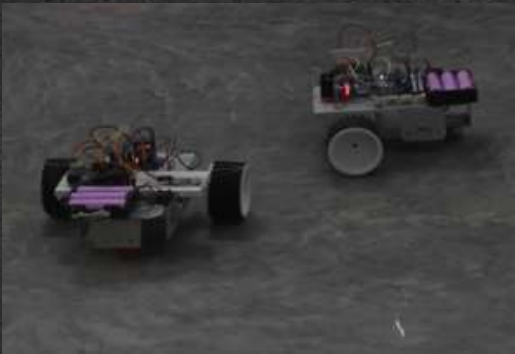
2. Young Techie:

Young Techie was an initiative undertaken in collaboration with Pragyan. We mentored a team of school students to work on a creative problem statement and assisted them in building a full-scale working prototype. The project was demonstrated in the Pragyan technical showcase.

Upcoming Initiatives:

1. Genesis'23 - RMI Workshop:

Genesis is the annual workshop of Robotics and Machine Intelligence (RMI). Over 120 participants have registered for the workshop, where we plan to build a maze runner, an autonomous maze-solving arm built using parallel manipulators. We aim to introduce the basics of robotics starting from scratch in this 6-day long workshop.

2. Robofest:

Robofest is a competition organised by the Gujarat Council on Science and Technology (GUJCOST), working under the aegis of the Dept. of Science and Technology, Govt. of Gujarat, which involves working on new and innovative ideas, preparing a solid proof of concept and finally to develop the proto-type robot in 7 different robot making categories. All the present-year projects from RMI are participating in the competition.

Achievements/Collaborations:

1. The following projects have won prizes in Sangam'23, Pragyan's annual hardware hackathon:
   - QuaDro (1st Place in Healthcare)
   - Hexapod (1st Place in Space Technology)
   - Rover (2nd Place in Space Technology)
2. Two teams qualified for semi-finals in E-Yantra 2021-22, All India Robotics competition held by IIT Bombay with over 35k competing teams.

Core Members

S.no	Name	Position	Department
1	Rigved Sanku	President	ICE
2	K. Girish	Vice president	ECE
3	Aravindh Deiva G	Treasurer	MECH
4	M Sivvani	Treasurer	PROD
5	Aswin Sreekumar	Design Head	ECE
6	Satish Kumar L	Workshops and events head	EEE

SIGMA
The Business Club

Foreword from the President

We, at SIGMA- The Business Club of NITT, strive to expand our horizons and understanding with continuous exploration and analysis of business concepts and phenomenons. We are motivated every single day by the possibility of learning something new and sharing it with the NITT community as our goal is to increase the awareness and knowledge about business, finance and analytics. Transitioned to a completely offline based interactions has helped us ideate and function better, thereby expanding the scope of our projects and other works. With the induction of 2nd years has tremendously benefited us because of their passion to learn and implement.

It has added a renewed sense of vigor to the team. With the new initiatives like SIGMA Podcast, introducing quantitative finance and exploring economics, I am confident that the club has an unbounded upward trajectory. The next core will build up on the current work and at the same time continue to expand the club's vision and stand out as one of the premier college business clubs in India.

Case studies

Discounts and Brand Analysis:
Conducted an analysis on diverse discount types, the psychology behind them, sales strategies, and their effect on sales. Collected data on discount offers from Nike and Adidas, and created a comprehensive report on the discount types offered and how they are executed. The sales data was analyzed by generating an interactive dashboard using Power BI, providing valuable insights into the impact of discounts on sales.

Russia-Ukraine war and it's impact on Indian Economy:
The current Russia Ukraine war has a lot of economic implications, and many countries face severe economic conditions right now. We focus on the economical impact of this war on India. Collect information regarding the war and analyze the findings sector wise. Present a case study on the analysis. We find that India is profiting from the war and the economy seems to only grow in the future

Pricing Strategies:
 The goal of this project is to introduce different pricing strategies that businesses can use to set their product or service prices. By understanding the different types of pricing strategies, businesses can make more informed decisions about how to price their offerings, taking into account factors such as market demand, customer behavior, and competitive pressures. Pricing strategies that were analysed:
1. Geographical 2. Competitive 3. Bundle 4. Psychological 5. Dynamic

Economics Explained:

A series of Instagram posts explaining the economics behind some of the business decisions made by companies can help followers better understand the factors that influence pricing, production, and competition in different industries. Some of these business phenomenons and concepts we explored were:

1. The Big Mac Index
2. China and Low Income Countries
3. The Black Friday Economics
4. Remittances
5. Oppurtunity Cost
6. Parle-G and Dairy Milk Silk: How Shrinkflation works
7. 2022 Nobel Prize
8. Negative Interest Rate
9. Hospital Surgeries and its Business Perspective

Indigo- Market Leader:

An in-depth analysis of how Indigo Airlines became the market leader of domestic airline industry in Indian subcontinent. The research involved going analysis of market trends and company's strategy in marketing, human resource management, etc.

Uber v/s Heetch:

A small case-study on how a French based ride-hiring company challenged the likes of industry giants Uber using innovative branding strategies.

Business Models:

An explainer on different types of business models namely Freemium, E-commerce, Subscription based, Data Re-selling.

Analytics

Telemarketing:

Analyzing bank marketing campaign datasets helps banks stay competitive and serve customers better. Benefits include understanding customer behavior, identifying new opportunities, and improving telemarketing strategies. The project was about analyzing a marketing campaign dataset of a Portuguese banking institution. The objective was to develop Machine Learning Model that can accurately predict the likelihood that a customer will subscribe to a term deposit. This included Exploratory Data analysis followed by various Data Preprocessing. Various ML classification models were used and the tree-based Gradient Boost model was the most efficient and accurate. It could segregate between 'no' and 'yes' classes with an outstanding accuracy of 93.45%, an F1 score of 93.31, a precision of 91.41%, and a recall of 95.31%.

Credit Card Customer Churn Analysis:

A bank is having a problem with its customers churning the credit card services after using the benefits it provides. Our task is to do Eda on the dataset to find out which set of customers is most likely to churn so that we can provide them with better services for their stay. We will also create an ML classification model to predict whether or not a new customer will churn. We created many visualisations to understand relationship between various features and also various statistical tests. We finally performed feature engineering and feature scaling before applying our ML models on the data. Insights on the data were found and our best ML model gave 95% accuracy.

Superstore Analysis:

Sample dataset includes data for the sales of multiple products sold by a superstore along with subsequent information related to geography,product categories and sub categories,saes and project,about the customers etc. Clean up the data to provide useful insights in order to improve the marketing and sales strategies. Graphs and plots to understand the trend in sales and profits. The result of discounts and offers over various categories and subcategories were observed.Highly sold products were closely observed for discount and profit trends.Overall market sales were also represented using a graph. By looking at all the graphs we can conclude that the super-store's average profit and sales did not vary much over the years . The sales are following are downward trend but can be improved by working on the marketing strategies by observing the product sales in different markets and focusing on most popular categories.

KNN and KMeans:

Vital ML algorithms and their business applications were explained in a lucid fashion for the betterment of the college community's knowledge on these crucial topics. Upcoming explainers are on Hierarchial Clustering and Support Vector Machines.

Crypto Analytics:

An array of cryptocurrencies were analysed and forecasted using time series techniques. The project was implemented in Python and released on our socials.

Loan Default:

Loan default is a major concern for both individuals and businesses. Lenders use various factors to determine the risk of a borrower not repaying a loan, including credit score, income, employment history, debts, and assets. And thus, we aimed to develop a machine learning model to accurately predict the likelihood of loan default based on borrower information. We conducted exploratory data analysis on a dataset of ~50,000 loans and their associated borrowers, using visualizations like histograms, scatterplots, and correlation matrices. Split the data into training and testing sets and applied various machine learning algorithms, including logistic regression, decision trees, and random forests. The best performing model was then selected and tuned using grid search. The final model achieved an accuracy of 96.41% on the testing data, with a precision of 0.94, recall of 0.93, and F1 score of 0.93.

M&A:

Historical data about mergers and acquisitions of major tech companies was analysed using various informative visualisations and exploratory data analysis tools.

Seminars:

Intra-club informative seminars were conducted in Orion over a weekend. The new inductees took seminars on concepts relevant to data science involving statistical and probabilistic mathematics.

Finance

Monte Carlo:
Monte Carlo simulation is a powerful tool for risk assessment, valuation, and optimization in quantitative finance they allow for the generation of multiple possible outcomes based on varying input assumptions. It helps to provide a more comprehensive understanding of the potential risks and rewards associated with a given investment strategy or financial decision. The aim of the project was to predict a stock's price after 30 days using Monte Carlo Simulation. It included using the stock's historical data to obtain initial parameters for the simulation. Additionally, Generative Adversarial Networks(GAN) technique and Bayesian Optimization were used to generate synthetic historical data and tune the initial parameters for the simulation. They are particularly advantageous when it is difficult to sample from a desired probability distribution through traditional methods. It was found that using these techniques significantly improved the accuracy of the predictions compared to when not used.

Articles

Hike in Oil Prices -
This article was published on our medium page and talks about and analyses the fluctuation of Oil prices worldwide and the factors responsible for it.

The Ascension of Gaming -
This article was published on our medium page and talks about the evolution of the gaming industry right from the first-ever digital game presented by Edward Uhler Codon in

1950 at the New York world's fair to the popularity of Esports in today's world.

How has INR fared against USD over the years -
This article was published on our medium page and talks about the history of the Indian Rupee, all the factors which have contributed to its fluctuation throughout the years and solutions to the problem of dependency of the rupee on foreign factors.

Enigma 2.0:
  Groundwork for the second edition of Sigma's Enigma magazine(the first-ever in-house source of information on contemporary business topics) has been laid out and it's on course to be released early in the next semester.

INITIATIVES:

SIGMA Podcast:
We at SIGMA - The Business Club of NIT Trichy, are thrilled to start with a new series of talks and interviews with industry leaders in the field of management exams, business, finance, analytics, and consulting called the "SIGMA Podcast". We strongly believe that these talks will help the students get an understanding of what the industry expects and will be able to learn through your experiences.

Introduction to Quantitative Finance:
Quantitative finance is a field that combines mathematical, statistical, and computational techniques with finance to develop and implement financial models and strategies. It is

a highly specialized area of finance that involves the use of complex mathematical models to analyze financial data and make informed investment decisions. For business and tech-oriented college students, understanding quantitative finance is essential. In today's highly competitive job market, having a solid understanding of quantitative finance can give students a significant advantage when pursuing careers in finance, technology, or related fields.

EVENTS

Orientation Event -
The Big Short: A Crisis Management Event About:

An online business quiz in the form of a puzzle, followed by offline event of time based quiz, followed by the main event where each team was given a real-life crisis situation and were judged on how they react and solve the crisis in the long run
Venue: A12
Footfall: 60 (140 registrations for the event)

InHoTTs Event –

Capital Conundrum Event flow:

Round 1- Financial Quiz with a twist of bidding during answering
Round 2- Solving a case study which involved understanding financial metrics, working with data on Excel and deriving insights.

Evaluation: The teams were evaluated based on their creativity, practicality of solutions proposed, understanding and leveraging of data given.
Venue: Orion G2
Footfall: 60 (120 registrations for the event)

Spider

R&D Club

FOREWORD

Spider, the Research and Development Club of NIT Trichy, is a group of people enthusiastic about technology and innovation. We pursue industry-relevant projects in Artificial Intelligence/Machine Learning, Robotics, Embedded Systems, Computer Technology, App and Web Development. Spread across multiple domains, we Ideate and Innovate to take Research and Development projects to greater heights.

INITIATIVES/PROJECTS TAKEN UP THIS YEAR:

SOFTWARE PROJECTS:

Sportsfete'23 :

It is a web project of Sportsfete, an Intra-college sports fest where 14 departments come together and participate in a quest to win the overall title. In this website, the users can learn about the Sportsfete team's details. The users can also register for the marathon as a Sportsfete event.

The users can see the leaderboard and details of each event, and they can predict the winner of each match in an event. The Frontend of the project was developed using React JS while the Backend was developed using Node.JS, using Mongo DB as it's database.

WATCH TOWER

Watch Tower was a part of Bytehoc cluster in Pragyan '23. It is an interactive & immersive open-world game set in NITT, designed to promote and teach cyber-hygiene. Attackers have seized control of the major technical hubs of the campus and intend to manipulate and exploit the masses to reinforce their authority. Over the course of 3 days, participants must explore the campus and complete tasks that introduce you to real-life cyber-attacks and allow you to hone your skills as a security expert. The game's front end was built with Unity, which was then converted to WebGL for web compatibility, and the back end was a Go- GraphQL server with MySQL database.

ProfNITT Website

ProfNITT is the Finance and Investments Club of NITT. ProfNITT Website was developed on react framework using Material UI Component Library. Backend was developed on Node.Js and the Admin panel was created using AdminBro library.

Gym and Swimming Pool Registration Site

This aims to digitalize the registrations of the techno gym and the swimming pool. Students will be allocated gym or swimming based on the 3 preferences they choose in real-time.
Authentication was done using LCA. It allowed registration for gym and swimming pool and
view their allocated gym or swimming pool. The project also involved the development of an
Admin panel where:

- Sports Council can create, edit and delete slots
- Start and stop registration
- View the slots
- Get list of students based on slots.

SCIEnT Portal

The SCIEnT website is a platform that showcases the Student Center for Innovation in Engineering and Technology, promoting creativity among students in engineering and technology. The website has pages for the centre's mission, facilities, team, contribution, and projects developed under the SCIEnT program.

LYNX 2.0

Lynx is a cross-platform mobile application that acts as a centralized platform for all Councils, Clubs, Student Bodies, and Fests to communicate directly to NITTians. The app helps to mitigate spread of rumours, fake news and misinformation acting as a bridge between students and the administration. Notification system, a calendar and reminders for events, information about clubs and events, circulars and a smooth UI are some important features of the app. Lynx 2.0 aims to allow students to interact with themselves and share important information and also aid the clubs/ institutions to interact with students directly.

MDecoder

MDecoder is a platform where contestants solve math puzzles and get awarded points based on their performance. Since it used old versions of PHP and node, most work went into rehosting and resolving dependencies and dockerizing them. Contest had up to 120 registered users and 70 active users.

SOFTWARE INITIATIVES:

Tri-NIT Hackathon '23

The 2nd edition of the National Level Tri-NIT Hackathon was held on the 10th to 12th of February 2022 and was conducted by the technical clubs of three of India's most eminent NITs; Spider R&D (NIT Trichy), ACM NITK Surathkal and NIT Warangal CSEA. This 24-hour long hackathon was designed to give the participants a platform to showcase their innovation, creativity, and skill to discover new solutions to existing real-world problems in the fields of education, healthcare, finance, and more.

Participants could register in teams with a maximum limit of 3 members per team. Registration was free and amazing prizes, an informative website and well-known sponsors ensured that the competition was able to pull in undergraduate students from colleges all over the country, and from different years as well. Like many other hackathons, we had multiple problem statements in 5 different tracks - Development, Machine Learning, Blockchain, Digital Electronics and IoT. The problem statements catered to various real-life situations and required innovative and efficient solutions.

The hackathon got off to a great start, receiving over 4100+ registrations from 492 colleges across India. The registrations ranged from beginners wanting to try their hand at hackathons to final-year veterans itching to show off their skills, and they were allowed to participate without any sort of prior screening.

WIN-NITT Workshop & Contest

This was a workshop based on "Introduction to competitive programming", followed by Code- A-Thon, a programming contest, organized on the occasion of International Women's Day Celebrations. It was conducted with collaboration of WIN-NITT. Workshop was conducted online on Microsoft Teams for 3 hours. Contest was conducted on Hackerrank. Participants were taught with different topics and given by 5 problems of varying difficulties to solve in 2 hours. The workshop and contest were organized and conducted smoothly. Participants were got familiar with competitive programming. 136 participants registered for both workshop and contest. All participants were awarded with certificate. Top performers and top female performers from first and second years were awarded with goodies from first and second years.

Topics covered during workshop: Time Complexity, STL (Standard Template Library), Sieve of Eratosthenes, Fast Exponentiation, Fermat's Little Theorem, Pigeonhole Principle, Binary Search, Recursion, Divide and Conquer, Backtracking.

Code Venture

Code Venture was an inter-college coding contest based on algorithms, data structures and problem-solving. It was conducted under Pragyan 2023. It was an individual contest. It was conducted on CodeChef. Participants were given six problems of varying difficulties to solve in 100 minutes. The contest was organized and conducted smoothly. 339 participants from different colleges in India participated in the contest. Top-3 positions were awarded total cash prizes worth 30K.

- Total Users/Teams who have submitted: 339
- Total Submissions: 1503
- Number of distinct users/teams with correct submissions: 334
- Number of distinct users/teams who have visited during the contest: 413

HARDWARE PROJECTS:

ROADBOT

The Road-Bot constantly works to assess the road and tries to work on the construction zone as swiftly as possible. The arena is an abstraction of a road area that requires maintenance. Controlled using Raspberry Pi and programmed in Elixir [Elixir is a Functional Programming language which helps in the efficient utilization of multiple cores in Raspberry Pi], the Road-Bot searches for faulty road segments and provides service by filling potholes with the dispensing mechanism and operates following the traffic on a specific road segment.

HOLABOT

The objective of the Hola Bot is for deployment in an arena which is an abstraction of different settings in a Smart City. To enable the robot to do more complex art, we will explore an exciting type of mobile locomotion, known as Holonomic Drive. Unlike the usual, more popular differential drive robots, the holonomic drive robots can control all the three degrees of freedom possible on a plane (translation along the x, y-axis and rotation along the z-axis).This gives the robot the ability to make art that would otherwise not be possible with the usual two-wheeled differential drive robot.

UHUGV - UNMANNED HYBRID UNDERGROUND VEHICLE

UHUGV is an amphibious bot that is capable of traversing both land and underwater. The ground locomotion is achieved by track drive and the underwater motion is achieved by bio -mimicking fin ray fish locomotion. The robot has a track drive mechanism for the purpose of traveling in marshy terrains. It has 4 servo motors on either side of the robot to enable its movement underwater by implementing the mathematical model of fin ray motion. We can control the movement of the bot underwater by adjusting the amplitude and angular frequency of the servos attached to a fin-like material

NON-INVASIVE FPGA-BASED BRAIN COMPUTER INTERFACE FOR AUTOMATED WHEELCHAIR CONTROL

The project involves the implementation of a non-invasive Brain-Computer Interface on FPGA to estimate the preferred direction of motion of a patient on a wheelchair. EEG signals of the patient are run through feature extraction algorithms and classified using an ML model in the desired directions. The project aims to overcome the limitations of microcontroller implementation of a controllable wheelchair by implementing an FPGA to improve real-time performance and processing. This project is a club project and part of the eYIC 2022-23 conducted by IIT Bombay.

HECKERL - SMART ENERGY MANAGEMENT SYSTEMS USING REINFORCEMENT LEARNING

The project consists of our solution to the CityLearn Challenge conducted during NeurIPS 2022 and aimed to leverage AI in the field of Energy and Environmental Research.

The aim was to use Reinforcement Learning to create intelligent agents for energy management to optimize battery storage and discharge of solar energy for a group of buildings. The main aim is to minimize the power consumed, carbon emissions and cost of electricity. Various algorithms using both single-agent and multi-agent policies were used to solve the problem. The algorithm achieved a global rank of 30.

ASTROCOLLECT

A 4-DOF Robotic Arm Manipulator prototype was developed to capture space debris using Visual Servoing. It uses Visual Servoing to track the moving debris in space and capture it without creating more debris like existing debris capture methods.

AUTONOMOUS DRONE NAVIGATION

An autonomous drone navigation algorithm was formulated using AruCo ground markers. The drone was simulated in CoppeliaSim and ROS and made use of Computer Vision to detect ground markers and estimate their depth for ensuring navigation across various terrains. Furthermore, the possibility of using Reinforcement Learning for autonomous path planning was explored by creation of a custom environment in Unity and running baseline RL algorithms.

PERSPECTLIT INTELLIGENT INTERSECTIONS

Road intersections often prove to be a hotspot for traffic congestion. This leads to fuel wastage and amongst the worst traffic jams. Intelligent Intersection aims to solve this problem by taking into consideration the actual densities of each lane and comparing them to decide which lane should be given the green light. We obtain frames of each lane every 5 seconds from CCTV cameras at intersections and using the YOLO algorithm we identify the traffic density. After comparing them we communicate with the lights at signals using GSM to switch to red/green accordingly. To scale it up to an entire city we have also come up with a multi-agent RL model that will take into consideration multiple intersections and make decisions for each of the intersections in the entire city.

WORRY WARRIOR MENTAL HEALTH SUPPORT

The project addresses the issue of detecting stress in individuals using a novel deep learning-based solution. The project utilizes 3D CNN-based models to monitor facial skin pixels to predict individual stress levels. Unlike current solutions that require expensive equipment such as EEG monitors, this proposed solution uses readily available cameras, making it suitable for production. The solution also aims to retrieve heart rates from facial skin pixels, thereby improving the accuracy of stress prediction. It is also incredibly lightweight and can be integrated and run in real-time on a user's PC to analyze their mental health.

TRANSFORMER SHIELD

A transformer health monitoring system, checks the most significant factors that can lead to the deterioration of transformer health including Temperature, Humidity Transformer Load and Oil Level. The existing systems for monitoring transformer health requires the user to be present physically in the transformer's location were the values are on a display Our project promises the user a convenient and effective way of monitoring. The measured sensor data is sent over the cloud and displayed to the user through an app. The blend of IoT enables user to monitor real time data with mobile phones. The app also classifies transformers as good, fair and bad.

SENTINEL DRONE

This project is part of the eYRC 2022-23, conducted by IIT Bombay. The project involves autonomous drone surveillance of a city, and real-time updates of city activities on a satellite map with GPS coordinates.Purpose-defined "anomalous objects" are detected through image processing and their real-time GPS coordinates are plotted on a satellite map. The project involves ROS, GIS, Drone Gazebo, image processing, etc. The drone comprises a 3D-printed chassis, a flight controller, a WiFi equipped single board-computer, a camera, battery, high-speed motors, and propellers. The flight controller is configured using BetaFlight (a flight controller configurator), and the single-board-computer runs on a Linux OS, Armbian. ROS is employed over a WiFi network, and all the drone-related information is relayed to the PC, which is on the same network. The PC commands the drone to move, via the WiFi network

KRIB REAL ESTATE

Krib is a Bangalore based real estate firm which specializes in the use of Machine Learning algorithms for the predictions about the real estate market. We developed a machine learning algorithm which dynamically monitors and predicts both the rental and purchase values of properties across Bangalore. In addition, we also developed an algorithm which allows the tracking and retrieval of properties based on filters set by the user. The algorithms were tested and deployed to production by the firm.

DL BASED INFRASTRUCTURE FAULT DETECTOR

Our project solves the problem of concrete cracking in bridge engineering by developing a deep learning framework that can detect cracks in bridges from open-source datasets. And also includes the development of an Android app that allows the construction company to detect cracks at the construction site using the deployed DL model in smart camera devices. The app provides real-time feedback on the presence of cracks and displays them on the dashboard. With the app, the company can quickly identify and address any structural issues, ensuring the bridge's safety and those who use it.

HARDWARE INITIATIVES:

STELR - INTRODUCTION TO MACHINE LEARNING

A workshop conducted in collaboration with Pragyan Social Responsibility Team (PSR) for 11th and 12th government school students. Conducted on the 3rd week of November as a part of TECHIDS event it introduced school students to the fundamentals of machine learning. It taught them basic concepts such as python programming, linear regression and use of google colab. The students also implemented the algorithms taught to them in the workshop on test cases provided to them successfully.

SPIDER CIRCUIT DESIGN CHALLENGE

Conducted in the 3rd week of January exclusively for freshers the event was designed to expose them to the fundamentals of embedded systems and electronics. The event saw the participation of 120+ participants. The event had two stages, a qualifier and a final. In the first stage the students were given real world problem statements for which they had to design efficient circuits. In the second stage the selected students implemented the designed circuits on hardware provided by the club. This event helped the participants understand about the various technology stacks in embedded systems and electronics and how they could grow in this domain.

CIRCUITRIX

The Circuitrix event evaluated students' understanding of various ICs, transistors, analog and digital lab components, as well as their capacity for creative circuit design. The event consisted of three rounds, and students were able to gain knowledge about circuit design in a short amount of time. The first round was an online mode multiple choice question round. Out of multiple teams, 20 teams were selected for the 2nd round. The 2nd round required the contestants to simulate circuits based on questions given to them. Competitors in the final round had to answer as many as questions as possible from the given list of questions and realize them in hardware.

YOUNG TECHIE

In collaboration with Pragyan, Spider mentored middle school students over 4 weekends in March to help them execute their project ideas. Spider R&D mentored three teams with projects in the field of IoT. Online sessions were conducted where they were taught the fundamentals of circuit design and embedded programming. We also helped in the selection of components and in demonstrating how the various components are to be assembled and programmed. The teams successfully built their projects and demonstrated them in the final week of March during Pragyan.

NIT Trichy's
pragyan ®
2023
AN ISO 9001 AND 20121 CERTIFIED ORGANISATION

PRAGYAN ANNUAL REPORT

A detailed summary

2023

2023

PRAGYAN '23
FORAYS INTO THE CYBERSCAPE

Pragyan, the techno-managerial fest of NIT Trichy, proudly hosted its 19th edition from 23rd to 26th March 2023. With an ISO 9001:20121 certification, Pragyan remains one of India's largest student-run fests. Pragyan '23 was no exception and had set out to reach even greater heights. It most certainly achieved this goal with the support and dedication of all its student members and the Pragyan fraternity.

The National Institute of Technology, Tiruchirappalli, has strived to provide students with the best academic syllabi and even better academic exposure since its establishment in 1964, cementing its position as one of the premier educational institutes in the country.

Pragyan, the international techno-managerial organisation of NIT Trichy, which came into being in 2005, achieves just that by providing a platform for a multitude of students to showcase their technical ingenuity and prowess. Pragyan has come a long way since its inception, propelling the fields of science and technology toward greater heights.

It basks in the limelight with the London Olympics and Manchester United as one of the three organisations to have ever achieved the ISO 20121:2012 Certification for Sustainable Event Management. Pragyan also holds the coveted honour of being the only student-run organisation amongst the three. In addition, Pragyan has the ISO 9001:2015 Certification for Quality Management Systems. Moreover, it has been registered as a case study in The Case Centre, London.

Pragyan '23 set foot into the Cyberscape, a realm of cutting-edge technological advancements, that symbolised the aim of the fest to be a platform for today's young generation in their pursuit to become the leaders of tomorrow. The fest was powered by High Energy Batteries, with TVS Apache as the title sponsor, RECAL as the legacy partner, and Abhi Bus as the travel partner. Pragyan was able to host this extravaganza due to the support of its sponsors and media partners.

On all four days, students experienced varied elements: informative guest lectures, interesting and engaging workshops, enthralling infotainment shows, and interactive exhibits. Staying true to its tagline, "Let's Celebrate Technology", Pragyan '23 brought the student community under one roof to learn, grow, and contribute to the comprehensive progress of society.

YOUTH SUMMIT:
CREATING THE LEADERS OF TOMORROW

Pragyan conducted the latest edition of the Youth Summit, an outreach event dedicated to facilitating interactions and conversations among the youth of today, at the Comfort Inn Hotel, Bangalore on 26th February, with enthusiastic participation from students pursuing a future in STEM fields.

The Youth Summit hosted guest lectures with renowned speakers such as Aanand Srinivas, Nirali Bhatia, Prateek Sethi, Rajeev Palanki, Dr Prakash Selvakumar, Poorvi Sachar, Narendra Raj, and Suthas Motwani. The panel discussions on topics such as psychology, entrepreneurship, data analytics, and much more gave an insight into various industries.

The summit aimed at encouraging students to explore innovative ideas, interact with the industry's best, and network with their peers.

EVENTS AND WORKSHOPS

The essence of Pragyan, as colossal as it may sound, can be summed up in three words - Let's Celebrate Technology. And that is exactly the inspiration behind one of Pragyan's main highlights - the events. Spanning over eight different clusters, Pragyan '23 witnessed the execution of 27 remarkable events. The clusters, namely - Bytehoc, Conception, Concreate, Manigma, EWitts, Phronesis, Roborex and Pandora's Box, covered a variety of topics, including coding, product design, construction, management and marketing, quizzing, robotics, and more.

A car designing and racing event, Old Town Road marked the start of the myriad of events at Pragyan. Conducted on the CEESAT ground at NIT Trichy, Old Town Road was a huge success with its adrenaline-fuelled racing matches. Quadcombat showcased the ingenuity of students in the form of their aeromodelling skills.

Pragyan Main Quiz tested participants on their general knowledge and prowess in business and management. Friendly saw one of the most popular informa;l event, Feud, a fun trivia event based on the famous game show "Family Feud."

Robowars, a robot-combat event, was one of Pragyan's grandest events which was carried out in a sturdy, self-built 16ft x 16ft arena. Marketing Hub was an event that was conceived to create while keeping all future entrepreneurs in mind and tested the participants' acumen in marketing concepts, logical reasoning and critical thinking.

Pragyan '23 boasts of an achievement on this edition's lineup of workshops. From artificial intelligence to financial planning, Pragyan left no territory uncharted while curating its set of topics. Latent View Analytics, IBM and NITT's CoE kicked off the first day with three excellent workshops on conversational data analytics, enterprise design thinking (EDT) and industrial automation, respectively.

On the second day, Intel conducted a seminar on FPGAs for various computing applications, Zoho gave an enlightening hands-on discourse on building cloud solutions, Ubisoft offered valuable information on the ever-popular field of game development through their workshop, Daulat tackled the important topic of maintaining personal finances and investing during their talk and Skill Lync provided a beginners course on mechanical automotive design using Catia V5.

The final day rolled out two additional workshops; Grant Thornton Bharat conducted a beginner's guide to Six Sigma, and Brillio organised a workshop on Digital Twinning. The workshops were a grand success and gave students new knowledge on various subjects.

GUEST LECTURES : AN OVERVIEW

A prominent aspect of Pragyan is its guest lectures. Prominent personalities, successful in diverse spheres of life, offer students much-needed exposure to various facets of life to help them confidently choose their career path. Pragyan '23 conducted seven guest lectures covering a range of topics including theoretical physics, geopolitics and history, IoT, and much more. Tech Talk by Jackson Johnson and Mohammad Rahamtulla from Silicon Labs were held on the first day. They gave an excellent lecture on IoT privacy and security. The first day ended on a spectacular note with a stimulating session by Advait Danke about spirituality, technology and everything in between.

On the second day Atul Gurtu graced the stage with his brilliant talk on particle physics and its applications. His intellect and passion motivated students and inspired them to pursue a research career.

Three guest lectures were programmed for the final day. Abhijit Chavda, engaged the audience in a splendid discussion about Indian history and the political scenario in India. A renowned constitution litigator, J. Sai Deepak, provided a valuable insight into India's political and societal issues that urged students to be model citizens. Ashneer Grover discussed his viewpoints on how to build a business in modern society. The guest lectures were a huge success, and the students were highly enlightened.

TECHNOLOGY COMBINED WITH FUN

Apart from the technical events and lectures, Pragyan was beaming with fun events and shows. The Dance of Light and Fire show by Indieflow was a dazzling display of elegance and sparkling lights. Spectators were treated to the master performances of the Indieflow artists, who combined shining light sticks with stylistic flair and grace.

The OULALA show by Sylvian Oulala thrilled the crowd with its theatrical sense and tricks that tested the boundaries of human capability. Karan Singh Magic took the stage by storm with his puzzling magic tricks and enigmatic moves. The Skeleton Dance Crew showcased their perfect choreography and brilliant engineering with their four-act performance, each one more mind-

bending than the last. Interjected between these performances, Tejaswini DS and Manav Agarwal stunned the crowd with their mesmerising solo dance performances, where they bent lights into patterns and shapes that left the crowd enrapt.

Pragyan ended with the energy-filled live performances from the fusion rock band Pineapple Express and the electronic music duo Lost Stories. Pineapple Express's effortless blend of Carnatic and Western sensibilities erupted the crowd, while Lost Stories' collection of energetic songs set the mood for the finale.

Pragyan '23 also provided a respite from the high-intensity events with their casual Gaming lounge, where participants could play games and relax, as well as informal events such as Laser Tag.

EXHIBITIONS, SANGAM, AND INGENIUM: A LOOK INTO THE FUTURE

Pragyan hosted Sangam, the premiere intra-collegiate technical competition, a platform where enterprising students showcased their talents for building practical solutions for various problem statements in different categories, namely, healthcare and life sciences, energy and environment, and space technology.

Pragyan also hosted Ingenium, an inter-college flagship event where participants from colleges all across India brought out their most innovative creations and inventions. Students were encouraged to think creatively as well as economically, providing the best solutions for the problems provided. The finalists of this event earned the privilege to display their finished projects in the exhibition during Pragyan.

During the second day of Pragyan, the expansive Golden Jubilee Convention Hall housed the Open House Exhibition, where technical clubs and the finalists of Sangam and Ingenium displayed their innovative and unique projects in a series of exhibits. The exhibition witnessed a footfall of hundreds of people, including school students hailing from Trichy.

Various models in the fields of robotics, 3D modelling, and humanitarian causes were on display in this exhibition. A number of special exhibits were on display, namely, the Indro Robot, a humanoid robot capable of human-like functions, Mitra Robot, a humanoid robot with linguistic capabilities and advanced facial recognition, Go1 robot, a dog-like robot with quick feet, reflexes, and detection system, and Gesture Drone, a flight drone capable of responding to gesture commands using hands.

OUTREACH EVENTS: SOCIAL RESPONSIBILITY, YOUNG TECHIE AND MORE

The periodic release of articles on Medium kept the momentum high, as well as podcasts on Spotify; topics such as science, technology, social welfare and entertainment were discussed on these media.

Igniting the imagination of young students, Pragyan conducted Young Techie 3.0. This was an opportunity for students from grades 6 to 10 to showcase their talent. Students were encouraged to submit written abstracts for solutions to real-life problems, and the most ingenious submissions were awarded a mentorship by the technical clubs of NIT Trichy.

Pragyan, in association with SCIEnT, held an Open House Exhibition, showcasing inventions and projects. The students of Santhanam Vidyalaya visited these exhibits, and were left inspired.

Raksha was a social responsibility event conducted in the Seva Sangham Girls' School, on self-defence and awareness. The girls' had an interactive session on topics such as menstruation hygiene, cyber safety, good touch-bad touch, and mental health.

CONCLUDING THE CHAPTER ON PRAGYAN '23

Pragyan '23 created an ideal space for students to connect, discover, and engage in the progress of humankind. Pragyan's drive to establish itself as a platform for innovation, inspiration, and opportunities, will always propel it further and ignite the spark of ingenuity and commitment to its cause.

Heartfelt gratitude from Pragyan '23, and the best of wishes for the years to come.