

SHRI RAMDEOBABA COLLEGE OF ENGINEERING & MANAGEMENT, NAGPUR- 440013

Department of Mechanical Engineering

Report on VORTECHX 4.0

Vortechx is one of the biggest technological events in the Central India. This biannual event gives the ideal environment for discovering and studying cutting edge innovations. In the last 3 years, over 4000 students and professionals have visited Vortechx. The fourth edition of Vortechx was organized in harmony with the department of Mechanical Engineering from 13th to 15th September, 2022 at RCOEM campus. In total, 3 workshops, 5 events, 1 Student Conference and 1 Open Mic was organized. Overall, around 130 students participated in engaging and interesting workshops that were delivered by industry experts and almost 300 students showed active participation in various events and competitions that were organized. The total revenue generation was around Rs. 51,000/- from the registrations and almost Rs. 63,000/- worth of Sponsorship amount was raised. The Convener of Vortechx 4.0 was Mr. Vidit Tambi, President, MECHASSO and the faculty coordinators were Dr. Pranjali Deole and Prof. Bhushan Bissa. The detailed report on each Workshop and event is discussed below.

➤ Inauguration -13th September, 2022

The Inauguration ceremony of Vortechx 4.0 was held at Industrial Auditorium on 13th September, 2022 from 11 AM onwards. The Chief Guest of the event was Dr. G K Awari, HOD, Automobile Engg., Govt. Polytechnic and the Guest of Honour was Mr. Sandeep Karemore, Director Technical, Sensors and Systems Industrial Solutions Pvt. Ltd. The opening address was given Prof. Bhushan Bissa followed by the speech of Dr. Vishal Shukla, HOD, Mechanical Engg. Felicitation of the guests was done followed by some words of Wisdom from the guests. Vote of Thanks was given by Mr. Vidit Tambi, Convener, Vortechx 4.0 followed by the National Anthem.

➤ Student Conference – 13th September, 2022

On 13th Sep, 2022 Student Conference was organized successfully at SHRI RAMDEOBABA COLLEGE OF ENGINEERING & MANAGEMENT, NAGPUR by the Department of Mechanical Engineering. Student Coordinators started the event with opening speech explaining the meaning and significance of Student Conference. The Panelists, Dr. Ashish Urade & Dr. Swati Moghe, graced the conference with their presence and were welcomed by a bouquet.



An enthusiastic environment was developed by then for the conference. The first group gave their presentation on the topic “Hybrid Electromagnetic Braking System.” After their presentation both panelists asked technical questions regarding the work done by the group members. Panelists were satisfied by the knowledge shared by the members of Group 1. Hereafter, Group 2 gave their Presentation in which the topic was “The Deliberative Study of Nuclear Fusion”.



After that Group 3 from final years had started their Presentation with the fantastic topic “Battery Swapping for E vehicles” and they spoke fluently, also they had surveyed market for their project requirement which won the hearts of the panelists. The group also cleared all the queries of the panelists.



Group 4 was represented by only one student and he gave the presentation in a wonderful way and also answered and cleared the doubts of panels.

After the completion of all the presentations, panelists then discussed the among themselves and unanimously decided that the presentation on “Battery Swapping for E-Vehicles” was the best and the runner up was “Convertible Recreational E-Vehicle”. After that Conference In-charge gave a Vote of Thanks and thus ending the Student Conference successfully. The Student Conference winners were felicitated on the valedictory function of VORTECHX 22 on 15th September.

➤ **Robotics Workshop – 13th September, 2022**

On 13th Sep, 2022 – Robotics workshop organized under the event VORTECHX 4.0 by the Department of Mechanical Engineering. Student Coordinators started the event with welcoming Guest Speaker Er. Vijay Bhambri. The speaker was felicitated by Shantanu Kulkarni Assistant professor, Department of Mechanical Engineering with a memento and a sapling. Student Co-ordinator Mayank Deshpande, introduced the speaker and their industrial projects, achievements, publications, etc. Thereby the workshop was started.



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Thereby enthusiastic environment was set in the workshop. The speaker started the workshop by interacting with the students, talking about their branch, etc. With this the workshop moved further towards a very interactive session rather than just a speech.

The speaker started with explaining the basic concept like what is the zeroth law of Robotics. The meaning of the term Robotics was explained preceded by previous industrial eras and their significances. Then the most fundamental part of Robotics i.e. Microprocessor and microcontroller was familiarized to students. He then mentioned the glimpse of life philosophy. The speaker then put some light on pin configuration, moving further explaining the concept of Digital and Analog System. Further concept like ADC converter/calculator, Eagle, Reset Button, USB Connector, voltage regulator, flash memory, etc. very made familiar to the attendees. He broadly enlightened embedded systems and their significance in Robotics. Embedded systems components were demonstrated to the attendees.



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Post break session was full of live practical demonstration of several projects followed by explaining the importance of feasibility in any project. Following projects were not only demonstrated by the fundamentals along with methodology for the development and execution were also explained.



Speaker also demonstrated a Robotics kit, completely designed, manufactured in Nagpur by their firm. They also showed the kit to the students.

Last but not the least, the speaker ignited attended minds with various project ideas and also solved students queries regarding their Robotics projects, the speaker extended the helping hand by giving an opportunity to the interested students, the complete guidance and assistance to the students for any Robotics projects that they want to do in their academics. Thereby the workshop came to an end at around 5:00 pm.

Pre-final year workshop co-ordinator Rutuja Parsodkar gave Vote of Thanks.

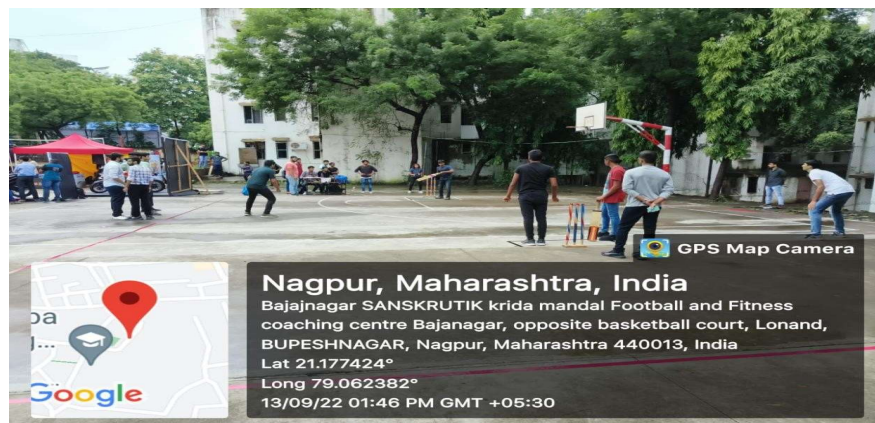
➤ **Box Cricket – 13th September, 2022**

On 13th Sep, 2022 – BOX CRICKET was organized under the event VORTECHX 4.0 was held successfully at SHRI RAMDEOBABA COLLEGE OF ENGINEERING & MANAGEMENT, NAGPUR

by the Department of Mechanical Engineering. Event Coordinator (Aditya Choudhary) started the event with explaining the rules to every participant teams and by giving a brief introduction about VORTECHX.



Around 17 teams registered in the competition and some were reentry out of which 16 were from Shri Ramdeobaba College of Engineering and Management and 1 team from Hislop College. Every match was knockout and were played on Basketball Court where confined space has been created for playing as it's a box



Cricket competition. On 1st Day , Round 1 was completed and we were supposed to complete round 2 as well but due to weather conditions the round was postponed to Day 2 , on day 2 round 2 was completed and out of all teams 8 teams qualified for the quarter finals , till quarter finals all the games were of 3 over per innings.

On 3rd day , Quarter finals , semifinals and Finals was scheduled , only 4 teams made into semifinals which was of 4 over per innings and then the FINALS was played between team named 5 Pandavas, and KUCH BHI out of which Team KUCH BHI emerged out as a winner and grabbing the trophy.

On 15th September the runner up 5 Pandava and winning team KUCH BHI were given their certificates and trophy by Dr. Y. M. Sonkhaskar Sir in valedictory function of VORTECHX 22.

This event was able to turn into a successful event just because of the guidance of Dr. P. Deole Mam and Prof. B. Bissa sir and the volunteers from 3rd year Owais Sheikh , Vibhanshu Dhongade , Rizwan Qureshi and 4th year volunteers Himanshu Trivedi , Raman Mantri, Kaushik Dubey, Divesh kothari, Vedang Joshi , Om Sharma, Om kailashwar, Anuj Mudgal, Girish Chorghade.



➤ **IOT and Industry 4.0 – 14th September, 2022**

On 14th Sep, 2022 – IoT and Industry 4.0 workshop organized under the event VORTECHX 4.0 was held successfully at SHRI RAMDEOBABA COLLEGE OF ENGINEERING & MANAGEMENT, NAGPUR by the Department of Mechanical Engineering. Student Coordinators started the event with welcoming Guest Speaker Mr. Nilesh Sahare. The speaker was felicitated by Dr. Vishal Shukla (IoT faculty in-charge), HOD Mechanical Department, RCOEM with a memento and a sapling. Student co-ordinator Ritesh Sahu, introduced the speaker and their industrial projects, achievements, publications, etc. Thereby the workshop was started.



Thereby enthusiastic environment was set in the workshop. The speaker started the workshop by interacting with the students, talking about their branch, etc. With this the workshop moved further towards a very interactive session rather than just a speech.

The speaker started by explaining the meaning of IoT with real life understandable examples. The meaning of the term Industry 4.0 was explained preceded by previous industrial eras and their significances.

Then the most fundamental part of IoT i.e. Internet and its working was familiarized to students. He mentioned various case studies which led to major changes on the field. The speaker then put some light on Internet and its working. Communication which is the core part of IoT, was elucidated along with real life examples. Things i.e. the hardwares in the IoT capable of using above mentioned elemental things, was explained and major of those were brought by the speakers which were shown to the attendees some hands-on experience. He broadly enlightened embedded systems and their significance in IoT and Industry 4.0 Embedded systems components were demonstrated to the attendees, which included Arduino Uno board, Raspberry Pi, etc.



Post break session was full of live practical demonstration of several projects followed by explaining the importance of feasibility in any project. Following projects were not only demonstrated by the fundamentals along with methodology for the development and execution were also explained.



Demonstration 1: Operating a device by phone call from remote location with SMS alerting of the status.

Demonstration 2: Operating a device by SMS from a remote location.

Demonstration 3: Accessing location data of device at remote location on phone.

Demonstration 4: Water level monitoring and valve operating system, from a remote location through mobile phone.

Demonstration 5: IoT SaaS, TCIP, MQTT protocols, etc.

Demonstration 6: Live demonstration of IoT platforms like IoT analytics- Things Speak, IFTTT- If This Then That platform, etc. being used for Internet automation and communication.

Demonstration 7: Speaker also demonstrated an Iotronics kit, completely designed, manufactured in Nagpur by their firm. They also showed the kit to the students which is planned to be launched by the end of the September month, by the hands of honorable transport minister Shri Nitin Gadkari.



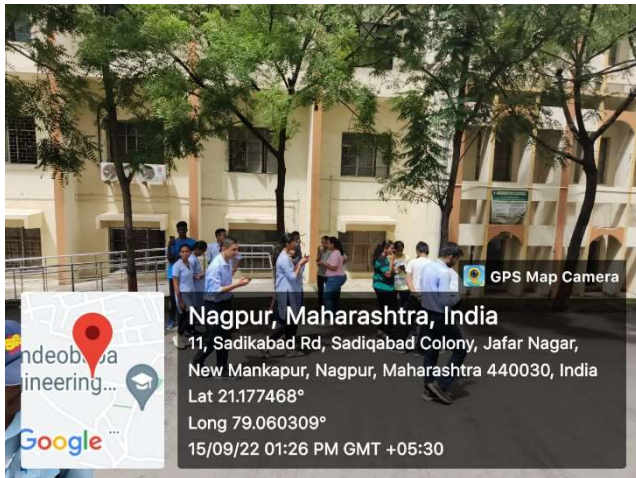
Last but not the least, the speaker ignited attended minds with various project ideas and also solved students queries regarding their IoT projects, the speaker extended the helping hand by giving an opportunity to the interested students, the complete guidance and assistance to the students for any IoT projects that they want to do in their academics. Thereby the workshop came to an end at around 4:30 pm. Pre-final year workshop co-ordinator Swarali Wadatkar, gave Vote of thanks to the speaker and assisting person with them. Post refreshment the speaker departed.

➤ **Talaash – 14th September, 2022**

On 14th Sep, 2022 - Talaash organized under the event VORTECHX 4.0 was held successfully at SHRI RAMDEOBABA COLLEGE OF ENGINEERING & MANAGEMENT, NAGPUR by the Department of Mechanical Engineering. Student Coordinators started the event with opening speech explaining the meaning and rules of Talassh.



The Talaash event was organized in two rounds. During the first round the groups were given several personalized fun tasks and they were instructed to upload the photos/videos on their group's Instagram ID and tag all the other official accounts of Vortechx. The tasks were evaluated by the volunteers and then certain groups were selected based on the time of completion of tasks.



Following the first round, selected groups were invited for the second round where they were given clues on the Instagram ID of Talaash and all the selected teams had to find the respective area in the college where the envelopes were hidden. After finding an envelope they had to report to the volunteers and verify the OTP written on the envelope.



Since all the seven clues were found by different groups. Therefore, we planned a tie breaker round wherein the seven teams were asked to find a clue and the team which found it were allotted the first position. After this, second clue was given to determine the second position.

Team error_505 won the first prize, Team Rowdies won the second prize.

The event was successfully completed within the time frame and the winning teams were given certificates in the Valedictory function organized on 15th September 2022.

➤ **Samwaad – 14th September, 2022**

On 14th September 2022 – Samwaad was organized under the event VORTECHX 4.0 was held successfully at SHRI RAMDEOBABA COLLEGE OF ENGINEERING & MANAGEMENT, NAGPUR by the Department of Mechanical Engineering. This was a cultural event of VORTECHX where artists from all over Nagpur demonstrated their performing arts. This

included music, poetry, shayari, standup comedy and rapping. The venue for this event was Industrial Auditorium in our campus.

This event was anchored by Sarthak Bhojwani who welcomed the HOD – Mechanical Dept. and other faculty members to the event and encouraged the audience to enjoy the cultural evening. The event kickstarted with the performance of music club of our college followed up by some of the artists of our college. The event was also graced by a guest artist – Mr. Ayaaz who performed poetic and comical shayaris and was applauded by all. Maximum participation of this event was from other colleges. Some of the participants were Alankar Tichkule, Vaidehee Kamane, Rudra Garge and Ayush Arbat. There were a total of 15 performances in this event from 6:30 pm to 8:30 pm. This event was coordinated



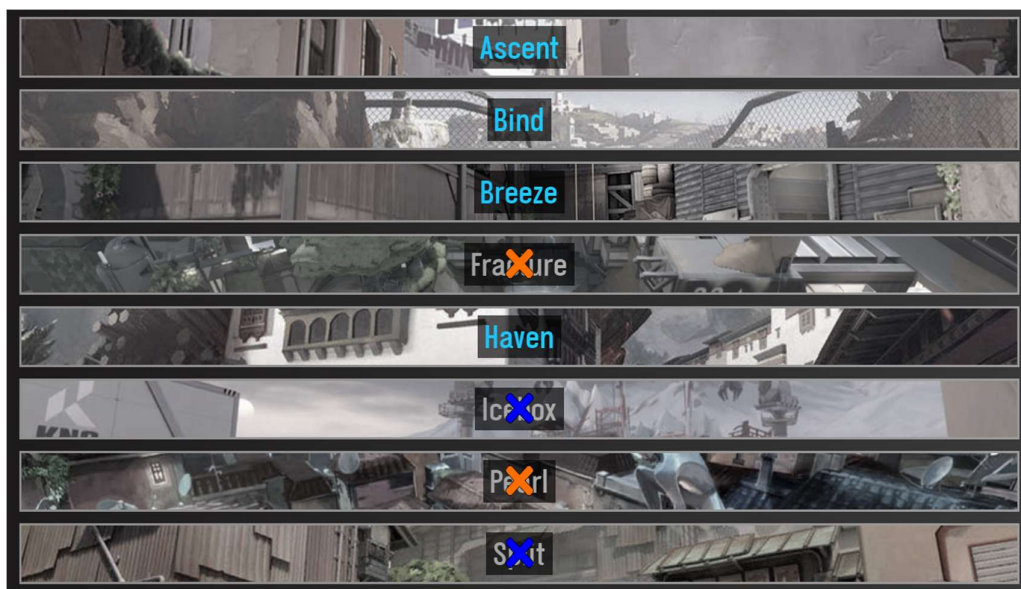
by Eshaan Casmir with the support of all VORTECHX committee post holders, event coordinators and volunteers.



➤ **Gamer's Showdown – 14th September, 2022**

On 13th Sep, 2022 – Gamer's showdown was organized under the event VORTECHX 4.0 was held successfully by the Department of Mechanical Engineering. Student Coordinators started the event with explaining the schedule and further fixtures of the tourney, also briefing about the rules and criteria for the further round of the tournament. There was a total of 6 teams for the Valorant tournament. (Ophi Esports, random 6, Team Hausee, Team Flex, ALT F4 and Team Kimkada).

After detailing about the tournament two teams gather for the toss and the map cancellation where two teams agree for a specific map for the match after the map cancellation from both teams.



The same procedure was done for the other 4 teams and the marches were scheduled according to the fixtures explained.

A competitive environment had developed by then for the showdown. The first round started



where 3 matches were scheduled between 6 teams which was a best of one (BO1).

After the completion of first round the teams were divided into 2 groups Match 1 winners and Match 1 losers and the teams were sorted according to the rounds the teams have won as explained according to the fixtures.

As briefed to the teams the team with more wins had an advantage as they can have an extra match for qualification for the semifinals and the least round win team would face an elimination round in the 2nd round. On 14th sep, 2022 round 2 was scheduled where we would get our final 4 teams for the semifinals.

As sorted the teams in 2 groups the matches were scheduled, the matches created many intense and surprising moment which would also decide the team's further path to the semifinals and making it more competitive among the teams.



After the completion of round 2 we got the final 4 teams for semifinals and the 2 teams with least rounds win were eliminated. We conducted the semifinals in the next half for the teams where we got our 2 teams for finals who had an absolute one-sided win in the matches and had a great performance in the tourney.

The final was between Ophi esports and Team Hausee which was conducted on 15th sep, 2022 which was a best of three (BO3) in which 3 matches are conducted where team with more wins gets the prize.

After the finals we got the winner team Hausee which delivered an extraordinary performance and conquered the title of champions in Gamer's showdown and Ophi esports being the runner up who delivered a tough competition along the tourney.

➤ **Brain Strain – 14th September, 2022**


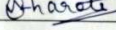





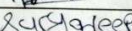
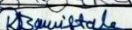
On 14th September 2022, Brain Strain organised under the event VORTECHX 4.0 was held successful at SHRI RAMDEOBABA COLLEGE OF ENGINEERING AND MANAGEMENT, NAGPUR by the department of mechanical engineering.

Brain strain consisted of 2 rounds, the first being a written test which had 3 sections (logical reasoning, General knowledge, current affairs). The time given to students was 30 mins to solve 25 questions and total score was given out of 30 marks.

The following students had participated in the event –

Shri Ramdeobaba College of Engineering and Management, Nagpur
Department of Mechanical Engineering
Vortechx 2022
Brain Strain
Attendance Sheet

Date: 14.09.2022

Sr. No	Name	Sign Round 1	Sign Round 2
1	NIKHIL KAKDE		—
2	NISHAD GHAROTE		—
3	KALASH JAISWAL	—	—
4	SANKET	—	—
5	MITUL ROHAL		
6	MAYANK MUNDHADA	—	—
7	VEDANT PADOLE		
8	AYUSH GAUR	—	—
9	DEEP SINGH	—	—
10	Pawandeepsingh Saluja		—
11	Suryadeep Sahni		—
12	Kunal bawistale		—
13			
14			
15			



The students were paired in groups of 2 and made to solve the test. Students showed outstanding results with one group scoring 24/30 in the test and based on marks 4 groups were selected for round 2.

ROUND 2

This round was a buzzer round where students were shown a question and the students had to press the buzzer to answer it.

The quiz also consisted of 3 sections (Science, General knowledge, sports) each section consisting of 9 questions.



In this round the team of Mr. Vedant Padole & Sambhav Mishra performed incredibly and emerged as winners by scoring a total of 95 points and on the second place with 55 points the team of Shashwant Mishra & Mitul Rohal emerged as runners up.

Both the teams were felicitated in the Valedictory conducted on 15th September where they received their certificates, trophies and prize money.

This concluded the event of Brain Strain.

➤ Electric Vehicle Workshop – 15th September, 2022

On 15th Sep, 2022 – Future Mobility : Electric Vehicle workshop organized under the event VORTECHX 4.0 was held successfully at SHRI RAMDEOBABA COLLEGE OF ENGINEERING & MANAGEMENT, NAGPUR by the Department of Mechanical Engineering. Student Coordinators started the event with welcoming Prof. Bhushan C. Bissa. The speaker was felicitated by Dr. S. R. Kulkarni, Mechanical Department, RCOEM with a memento and a basil sapling. Student co-ordinator Aman Singh, introduced the speaker and their industrial projects, achievements, publications, etc. Thereby the workshop started.

Thereby enthusiastic environment was set in the workshop. The speaker started the workshop by interacting with the students, talking about their branch, etc. With this the workshop moved further towards a very interactive session rather than just a speech.



The speaker started by explaining the meaning of Electric Vehicles with real life understandable examples. The meaning of the term EV was explained preceded by previous industrial eras and their significances. Then the most fundamental part of Vehicles and its working was familiarized to students. He mentioned various case studies which led to major changes on the field. The speaker then put some light on EVs and its working.. Things i.e. the hardwares in the Vehicles capable of using above mentioned elemental things, was explained and major of those were brought by the speakers which were shown to the attendees some hands-on experience. He broadly enlightened embedded systems and their significance in Electric



Vehicles.

The students were given a break of about 30 minutes. Refreshments were provided by the VortechX committee.



Post break session was full of live practical demonstration of several projects followed by explaining the importance of feasibility in any project. Following projects were not only demonstrated by the fundamentals along with methodology for the development were also explained. Further Explanations was carried out in the Electric vehicle of MG & BAHA.

Last but not the least, the speaker ignited attended minds with various project ideas and also solved students queries regarding their EV projects, the speaker extended the helping hand by giving an opportunity to the interested students, the complete guidance and assistance to the students for any EV projects that they want to do in their academics. Thereby the workshop came to an end at around 4:30 pm.

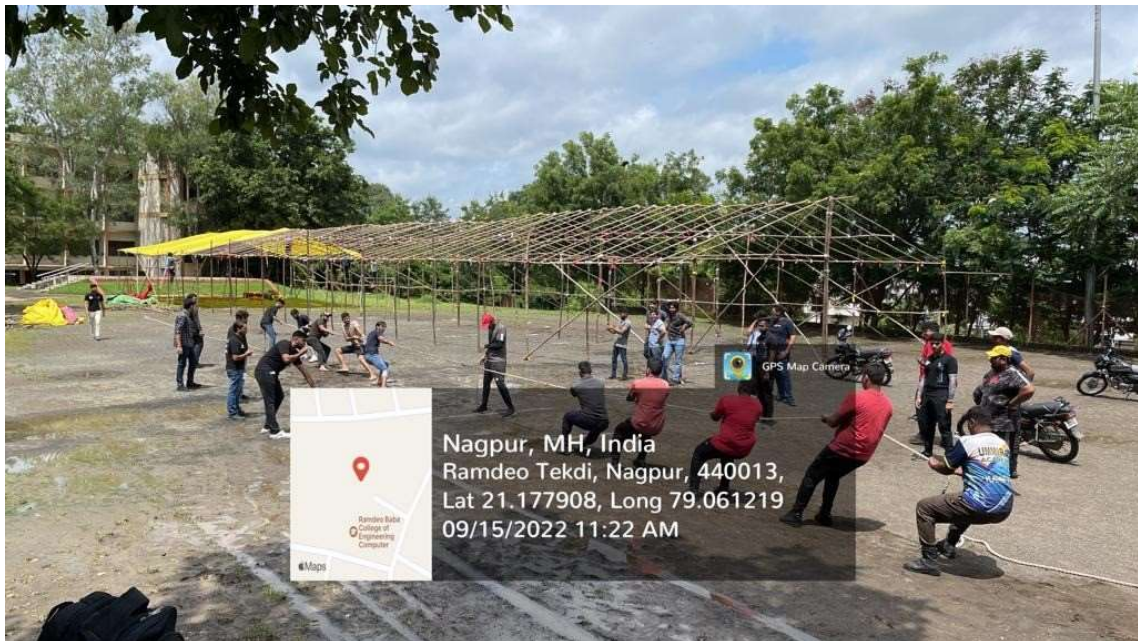


➤ Tuggin' Teams – 15th September, 2022

Tuggin organised under the event VORTECHX 4.0 was held successfully at the football ground of SHRI RAMDEOBABA COLLEGE OF ENGINEERING & MANAGEMENT , NAGPUR by the Department of Mechanical Engineering . Student coordinators started the event by explaining rules of tug of war (Tuggin) . Student Coordinators started the event with explaining the schedule and further fixtures of the tourney, also briefing about the rules and criteria for the further round of the tournament. A proper Excel sheet was maintained to track down the schedule for the matches and rules were defined and shared with the

contestants.

After the detailing about the game, captains from the two teams did toss to select the side they will start playing for. There were total of three rounds in one set, and subsequently the winner was selected on the basis of performance. Every match was a knockout match.



All participants were enthusiastic and excited to show their strength and teamwork to win the tug of war battle as it is a game of strength and teamwork. There was healthy competition between participants and everyone enjoyed the event . There were a total of 4

rounds to get to our final winner. The matches created many intense and surprising moments which would also decide the team's further path to the semifinals and make it more competitive among the teams.



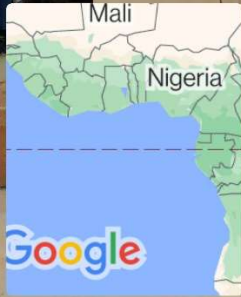
There were many teams participating from 1st year and some teams were from other colleges. After the finals we got the winner team which delivered an extraordinary performance and conquered the title of champions in Tuggin' Teams.

➤ **Valedictory – 15th September, 2022**

Vortechx 2022 concluded with the Valedictory event. The guest for the event was Mr. Anurag Sarda, Founder, Dev Udyog, Nagpur. Dr. Pranjali Deole gave the report on the three day event which was followed by the felicitation of the guest. The winners of the various events conducted in Vortechx were felicitated with Trophies and Certificates. This was followed by the speech of guest and the presidential speech was given by Dr. Vishal Shukla, HOD, Mechanical Engineering. The event concluded with a Vote of Thanks given by Mr. Mohit Bansod, Co-convenor, Vortechx 4.0. This marked the successful conclusion of Vortechx 2022.



GPS Map Camera



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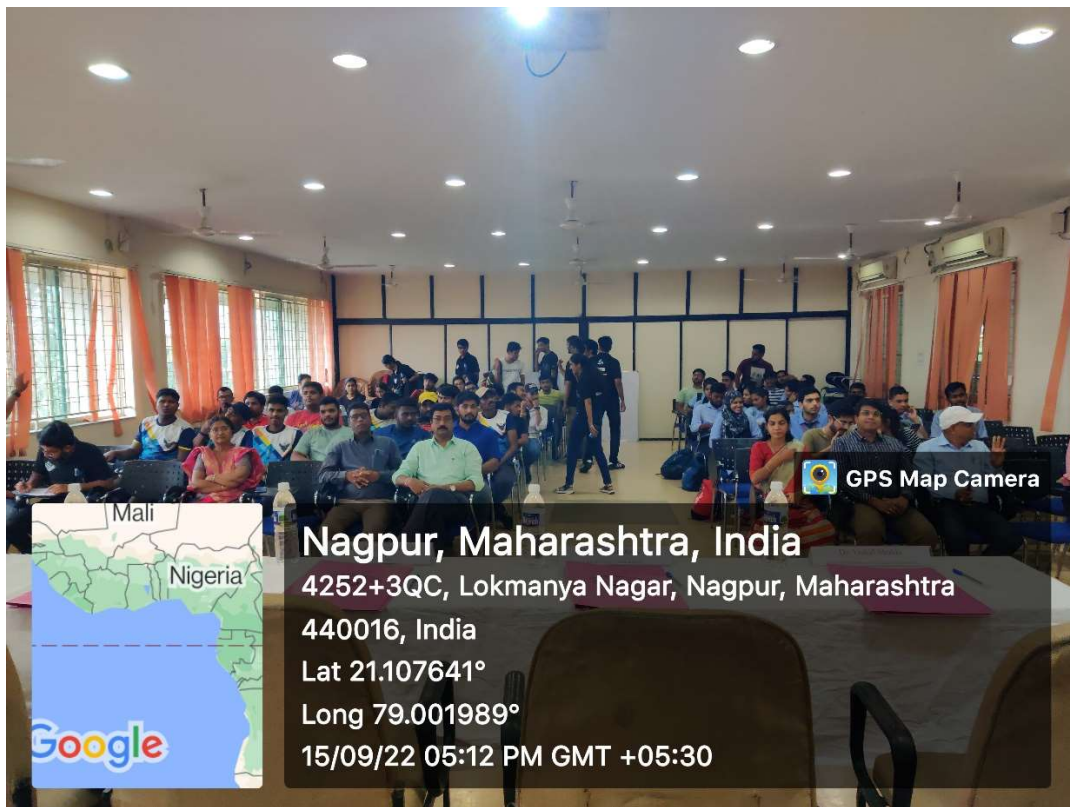
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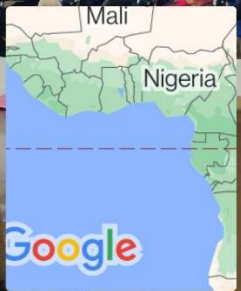
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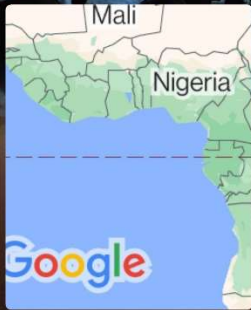
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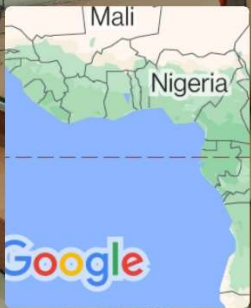
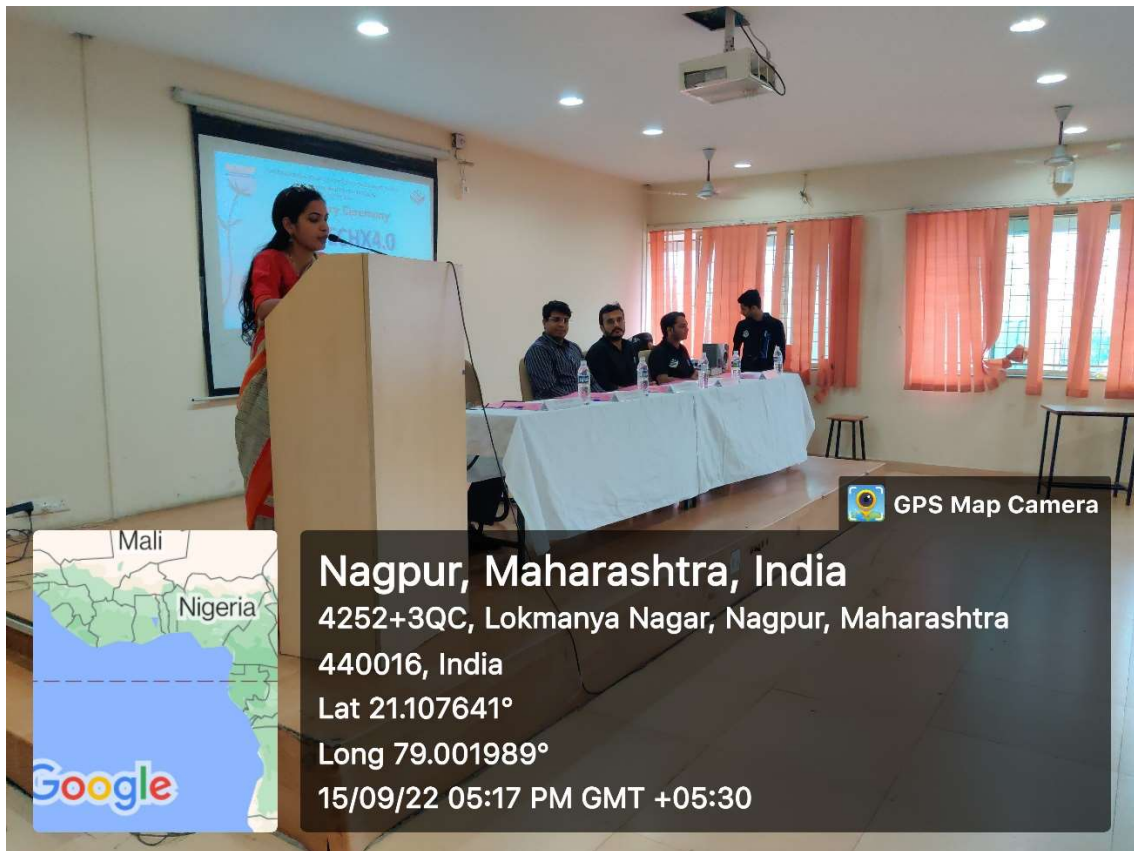
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