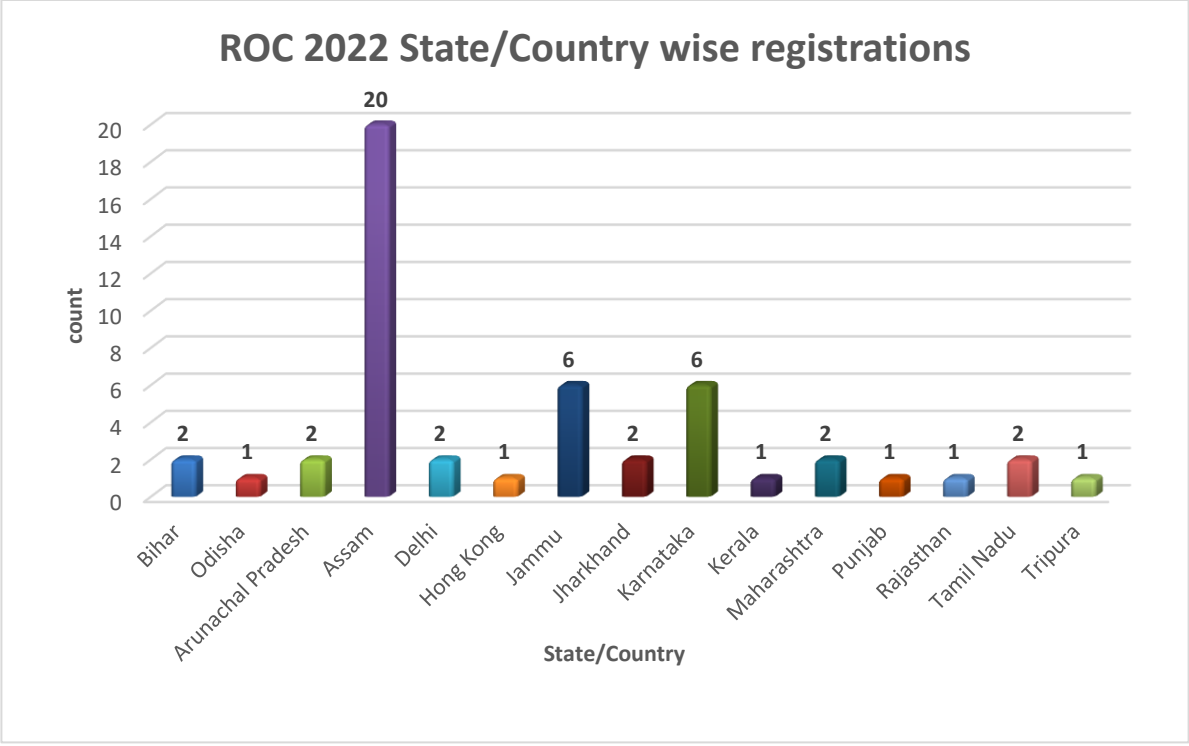
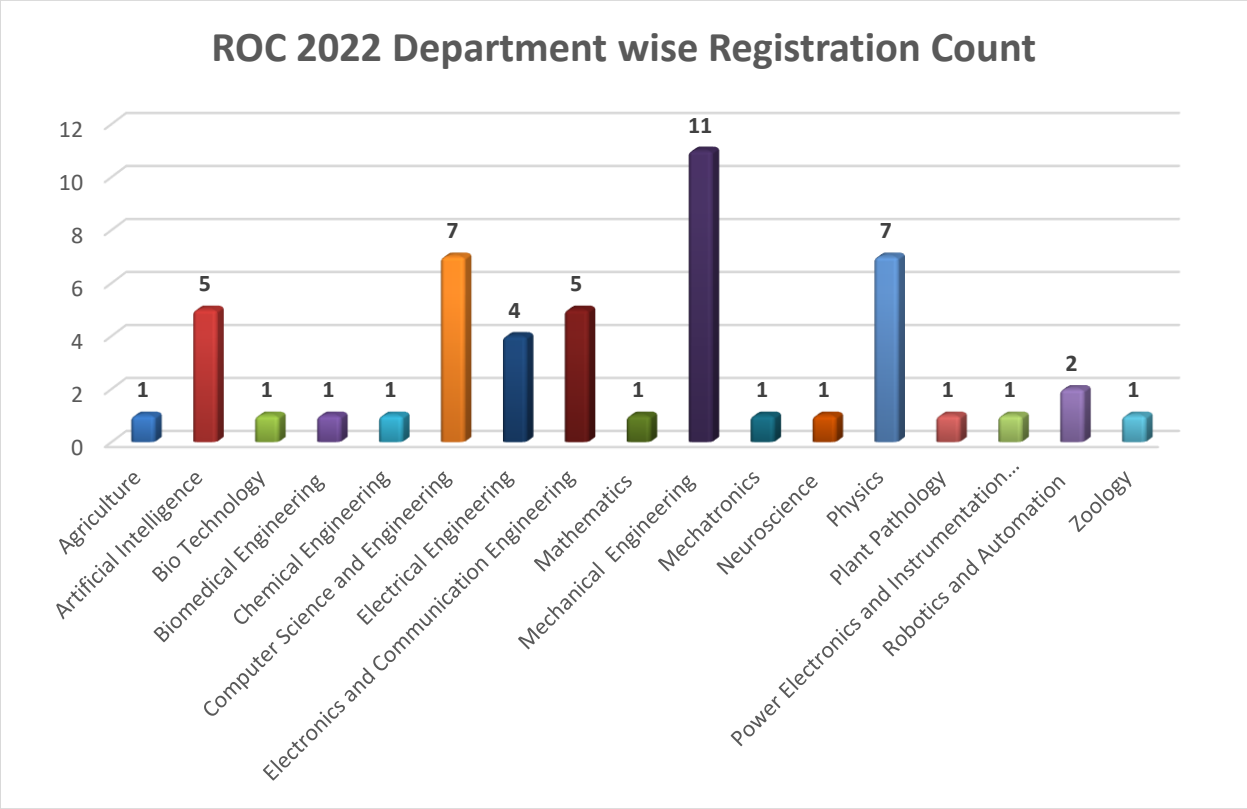
Report on RoboAnalyzer based Online Competition (ROC) as Virtual Summer Internship 2022

RoboAnalyzer-based Online Competition (ROC) as Virtual Summer Internship 2022 was organized by Tezpur University in collaboration with two main developers of RoboAnalyzer, Professor Subir K Saha from Indian Institute of Technology Delhi and Mr. Rajeevlochana C. G., Amrita Vishwa Vidyapeetham, Bengaluru Campus. This event was a continuation of its second version as RoboAnalyzer-based Online Competition (ROC) as Virtual Summer Internship 2021, with its initial version as RoboAnalyzer based Online Competition (ROC) in the year 2020. This event mainly focusses on providing an opportunity to participants to correlate the concept of classroom knowledge of robotics into practice by working in teams and becoming industry ready through Self Driven-Self Learning-Self Evaluating pedagogy. A total number of 50 candidates including students and faculty members from different institutions and organizations of the country and abroad registered for ROC 2022.





National participants were from Tezpur University (Assam), Amrita School of Engineering, Bangalore (Karnataka), Assam Agricultural University, Baba Farid Group of Institutions (Punjab), Bhupendra Narayan Mandal University (Bihar), Birla Institute of Technology Mesra (Jharkhand), Crimson Healthcare Pvt. Ltd (Delhi), Dibrugarh University Institute of Engineering and Technology (Assam), HRH THE Prince of Wales Institute of Engineering and Technology (Assam), Institute of Chemical Technology IOCB (Odisha), IHFC IIT Delhi, Jagannath Barooah College (Assam), Jorhat Institute of Science and Technology (Assam), K. K. Wagh Institute of Engineering Education and Research (Maharashtra), Mody University (Rajasthan), National Institute of Technology Arunachal Pradesh, National Institute of Technology, Calicut (Kerala), Shri Mata Vaishno Devi University (Jammu), Thiagarajar College of Engineering (Tamil Nadu), Tripura University and Vellore Institute of Technology, Technology Business Incubator (Tamil Nadu). One international participants was from City University of Hong Kong.

Important Dates

Call for Participation: April 01, 2022.
Last date for registration: May 20, 2022.
Date of announcement of the teams: May 30, 2022.
Date of Webinar: June 12, 2022 (Sunday)
Dates of Interaction: June 18 and June 25, 2022 (Saturday evenings)
Date for video and .pdf of six slides submission: June 30, 2022 (Thursday)
Peer review marks submission: July 3, 2022 (Sunday)
Final Day of Competition: July 10, 2022 (Sunday)

Interactive Day 1

The event started with a pre-webinar session on June 11, 2022. It was an interactive session in which the participants could freely interact with the experts for any queries regarding the competition. There were discussions on the modality of the event. The participants were interested to know about the kind of tool they will be using during the event, whether they would be taught the basics of robotics and the types of problem statements they will be solving throughout the event. There were also doubts regarding receipt of certificates after completion of the event. The participant have been cleared that there is a "No Explicit Certificate policy" which means that the participants will not be given any physical or e-certificates. Instead, their works will be recorded on the Embedded Systems and Robotics Laboratory website of Tezpur University and on the RoboAnalyzer website, which they can claim as recognition references for their future interviews.

Interactive Day 2

The webinar for ROC 2022 was conducted on June 12, 2022 in Google meet platform. The experts for the webinar were Professor Subir K. Saha, Department of Mechanical Engineering, Indian Institute of Technology Delhi; Dr. Ratan Othayoth (RA-Ambassador) from Howard Hughes Medical Institute, United States; Professor Nayan M. Kakoty, Department of Electronics and Communications Engineering, Tezpur University and Mr. Rajeevlochana C. G., Department of Mechanical Engineering, Amrita Vishwa Vidyapeetham University, Bangalore, India. The webinar started with the inaugural speech by Professor Subir K. Saha followed by a motivating speech by Mr. Ratan Othayoth where he shared his journey and experience in the field of robotics. This was followed by a session on Introduction to Robotics by Professor Kakoty. Finally, Mr. Rajeevlochana C. G., presented on learning robotics using RoboAnalyzer

software and concluded his session with the problem statements for the competition. The problem statement was kept open ended where the participants will be focusing on one of the 17 Sustainable Development Goals of the United Nations Development Programme.

Interactive Day 3

The second interactive webinar for ROC 2022 was conducted on June 19, 2022 in Google meet platform. The experts for the webinar were Professor Kakoty and Mr. Rajeevlochana C. G.

The session started with discussions about the competition and how much the participants are eager to continue with the competition. Few queries by the participants were as follows:

- Some participants asked for an explanation of the DH parameters.
- Some queries were about transformations and how the pre and post multiplication with regards to global and local transformation can be carried out.
- Participants wanted to know if they can use tools other than MATLAB, as it is licensed. The experts suggested tools like Scilab and Octave as alternatives.
- Few participants inquired about the importance of the single page limitation that was imposed on tasks submission.
- Few participants from the field of robotics expressed gratitude to the team of ROC as the event has enhanced their skills to learn the fundamentals of robotics.

The session was concluded with a brief explanation on how the participants have to submit their tasks.

Interactive Day 4

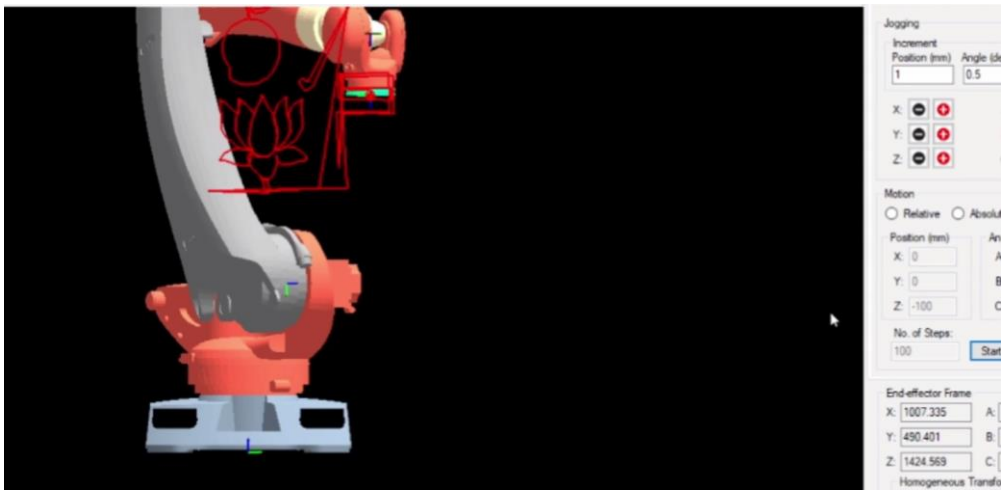
The third interactive session for ROC 2022 was conducted on 26th June, 2021. Professor Kakoty and Mr. Rajeevlochana C. G. Mr. Rajeevlochana C. G cleared many queries on the newly added tutorial videos on RoboAnalzer website. The session concluded with few final comments on the submission procedure of the task including the videos and presentation slides.

Interactive Day 5

The final interactive session for ROC 2022 was conducted on July 10, 2022 in Google meet platform. The experts for the webinar were Professor Saha and Professor Kakoty. There was a one submission on the final day which was reviewed by the experts as well as the peers. ROC 2022 was concluded with a

deliberation by the members on the future aspects as well as the future mode of conduct of the event to make it much exciting among the participants.

A snapshot from task submitted by the participating team



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