



ANNUAL REPORT 2019-2020

THE ROBOTICS SOCIETY STUDENT'S CHAPTER

Reg. No.: TRS-SC/20/007

BIRLA VISHVAKARMA MAHAVIDYALAYA

ENGINEERING COLLEGE, VALLABH VIDYANAGAR: 388 120

[AN AUTONOMOUS INSTITUTION]

MANAGED BY CHARUTAR VIDYA MANDAL

|| ABOUT

BVM is giving its shelter to another most technically advanced organization, The Robotics Society (TRS). TRS BVM Student's Chapter was all set up in February 2020. We place particular emphasis on practical part because bookish knowledge may guide the way, but practical knowledge experiences the way. We believe that technology will not replace great teachers, but technology is transformational in the hands of great teachers. Members have a set of forums and guidelines, after the provision of the Student's Chapter.

We at TRS BVM believe that any sufficiently advanced technology is equivalent to magic. This magic is reflected by our projects, which are being constructed by the help of faculty and MTech Students. We think we are a team not because we work together but because we respect each other and welcome every member's ideas and projects from their innovative minds. Webinars, Workshops, and Hackathon participation makes us going with the trend.

|| FACILITIES

We have a lab with 24*7 accessibility, a place where machines and students tie their knots to make the best futuristic technologies with sufficient computers having graphics cards at our lab and also a facility of 3D printer. Students have access to our library, consisting of the thesis, research paper, technical books, etc. We are thankful to SSIP and TEQIP for providing us with the resources. A demonstrating robot at our lab motivates students to join the Student's Chapter.

After the college hours, it's the real-time working for the students, which is from 6:00 to 8:00 pm. We are heading the regular meetings to share thoughts and techniques, learn more new and innovative things on last Tuesday of every month. Also, if students are free enough and want to spend some time in the lab, then also they are given an in-between excess to the labs.

The working of this organization is as smooth as flowing water just because of the various teams working in different zone's like,

- Documentation team: deal with the formats of some official letters, make excel records, prepare mails, etc.
- Graphics team: handle poster making, editing photos and videos of events, making templates of letters, etc.
- Finance and Inventory team: maintain financial records, keep records of expenditure, maintain the equipment inventory that is what equipment is available, which are required, which are damaged, etc.
- Developer's team: oversees websites and maintain updates on it regularly.

We all work hands clasped believing that talent wins games, but teamwork and intelligence win championships.

|| PROJECTS AND ACHIEVEMENTS

Our organization believes that "To live is not enough; we must take part." As we participated in ROBOFEST'19, a state-level robot making competition under the banner of GUJARAT COUNCIL ON SCIENCE AND TECHNOLOGY, Department of Science & Technology. A competition where different types of robots were expected to be developed by the students in the following Categories,

1. Four-legged Robot with quadrupedal motion
2. Chess Playing Robot (Two Player and Single Player)
3. Underwater Robot or Submarine Robot
4. Table tennis Robot (Robot to Robot or Robot to Human)
5. Robot Playing Musical Instrument (Mainly string instruments like Violin/guitar)
6. Rovers (Eight wheels, 3 to 4 feet size with the camera mounted, auto memory / GPS guided.
7. Prosthetic limbs with remote sensors. 8. Painting robot with RGB colour variates.

The three entries for Robofest'19 the competition are as follows,



Category: Rover

- Faculty Advisor : Prof. (Dr.) Vinay J. Patel
- Team Members :
 - Mustafa A Calcuttawala
 - Hussain S. Badri
 - Dhairya A. Parekh
 - Prerak A. Kachhia
 - Pratik C. Vaghela
- This robot has been selected for the Level III* of this competition with a prize money of ₹ 50,000/- for qualifying Level I and ₹ 2,00,000/- for qualifying Level II.



Category: Four-legged Robot

- Faculty Advisor : Prof. (Dr.) Haresh P. Patolia
- Team Members :
 - Milan P. Mulani
 - Sanjay A.Karangiya
 - Mitul P.Sukhadiya
 - Smit D.Boraniya
 - Meet M. Modi
- This robot had been selected for the level II of this competition with a prize money of ₹ 50,000/- for qualifying Level 1.



Category: Painter Robot – to print on RGB format

- Faculty Advisor: Prof. (Dr.) Dipak M. Patel
- Team Members
 - Abhishek Pankhaniya
 - Kishan Solanki
 - Yukti Patel

- Rutvik Valand
- Vivek Solanki

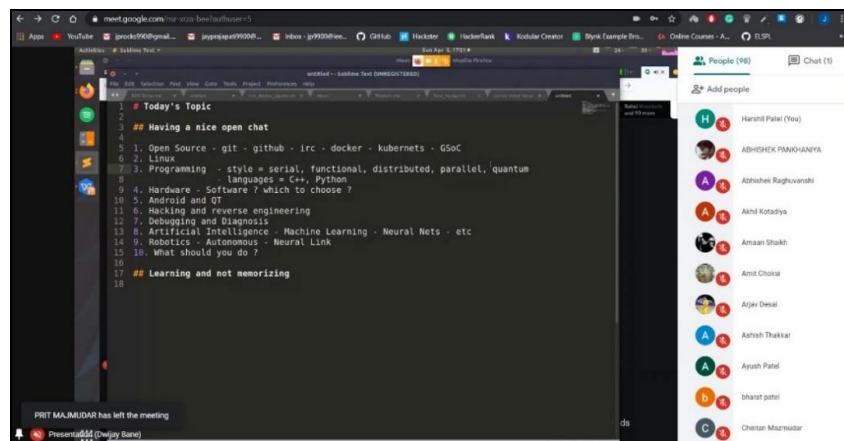
*Level III submissions are awaited.

|| ACTIVITIES

To make the quarantine a fruitful one, TRS BVM Student Chapter conducted an informative and surplus Webinar on “*Approach towards Machine Learning and Artificial Intelligence.*” The main objective was to make everyone aware of the future upcoming technologies which will dominate throughout every field. There are the immense applications of Machine learning and Artificial Intelligence in diverse industries like Electric Vehicles, Self-Driving Cars, pharmaceuticals, E-commerce and especially in Industry 4.0 for many futuristic technologies. There were over 300 participants including students and faculties from different colleges.

Mr. Dwijay Bane, R&D Project Manager at Edutech Learning Solution Pvt. Ltd. He is an Embedded Engineer turned into Robotics Engineer. His recent project involves simulation and hardware glue for learning state estimation, machine learning, and reinforcement learning. Currently, he is working on improving localization and navigation for autonomy.

Participants were briefed about elements like C++, Python, CUDA, ROS, Gazebo, SLAM, PyTorch, TensorFlow, OpenCV, Machine Learning, H2O.ai, Docker and Flutter. Also, the importance of Linux was explained. There was a discussion on Duckietown Challenge, Robotarium, Duckiepond challenge, parallel programming, parallelism, Deep min alpha fold, Quantum computing and, quantum computers, nuscenens.



Glimpse of Webinar



Press Note of Webinar

|| FUTURE VISION

TRS BVM Student Chapter looks forward to developing makers space where all the students can explore different futuristic technologies and concepts with industrial exposure. Our laboratory has developed in a way that a maker will get an enhancing working environment, it is well furnished, with modern computing facilities, well equipped with all the tools, which makes it a perfect Maker's Space. Such a working environment will make students industry-ready.

We strongly believe in project development which makes us actively participate in Hackathons, Ideathons and many more National and International competitions right from the outset of membership of TRS BVM Team.

Also, we expect participation in Robocons, inout Hackathon and many such events. The IT team awaits for working with Student Developers Club, Datacamp for Classroom, and different coding challenges. We aim to develop integrated systems for various projects to work with different technologies and build futuristic projects.

|| SOCIAL MEDIA LINKS



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