K.J Somaiya College of Engineering, Mumbai 77
(autonomous college affiliated to University of Mumbai)

ANNUAL REPORT.

THE MARINE ROBOTICS TEAM

(2017-2018)

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NAME OF THE TEAM MEMBERS AND FACULTY
YEAR 2017-2018

Sr.no	Name of the faculty	department	portfolio
1	Dr. N. R. Gilke	Mechanical Engineering	Faculty advisor

Sr.no	Name of the student	department	portfolio
1	Jatin Mayekar	Mechanical	Captain (SAUVC 2018)
2	Parth Thakkar	Mechanical	Coordinator
3	Isha Bandi	Computer science	Team Member
4	Niraj Gujarathi	Computer science	Team Member
5	Shivam Panwar	Electronics and telecom	Team Member
6	Atharva Iwarkar	Mechanical	Team Member
7	Vivek mange	Electronics and telecom	Team Member
8	Dhwani Shah	Computer science	Team Member
9	Sudhanva Vaidya	Electronics	Team Member
10	Vatsal Shah	Mechanical	Team Member
11	Ninad Khobrekar	Mechanical	Team Member
12	Wamika Sharma	Mechanical	Team Member
13	Nisha Chawda	Mechanical	Team Member
14	Atul Ramkrishnan	Computer science	Team Member
15	Jayant Benjamin	Electronics	Team Member

16	Sankirthana Saraswatula	Electronics and telecom	Team Member
17	Sneh Chitalia	Computer science	Team Member

Details of events/activities held during the academic year (2018-2017)

Sr.no	Day/date	Year	month	Time	venue	Description of activity
1	7-11	2018	march	----	Singapore	SAUVC

Report on events and activities.

Formation of the team: -

Aug 2017 - team formed by two alumni of the college Parth Thakkar and Jatin Mayekar from the Mechanical department. There was no team working on the marine robotics robots before that. These two came up with the basic idea of the robot and managed to convince the principal and concerned authorities for

permission. To begin with, only two people who formed it were present in the team. By the end of Sep end, we were a team of 20 students from different departments dedicated to the team working on a single project that was an autonomous underwater vehicle. The dedication and spirit of hard work were commonly seen in every person in the team.

Progress throughout the year: -

- We started our research on underwater robots. All three departments started to communicate with each other and started working in their respective branches. From the mechanical side, we started researching different design and after brainstorming a couple of designs we came up with the idea of the proton. There are three sections on the electronics side, one is the controller design, 2nd is the processor design and 3rd is the power distribution of the complete robot. From the controlling side, the team started researching different sensors like gyroscope, pressure sensor, etc. based on our research we finalize Pixhawk as our main controller. The 3rd section of power distribution was a selection of battery and how to power the system equipment accordingly, so we designed a system with the help of a power module and a few UBEC (Universal Battery Eliminator Circuits).
- The software team concentrated on image processing and data acquisition of Hydrophones. We tried with Mat lab and haar Cascade methodology for object detecting underwater. We tested the methods on the videos taken by us from GoPro 7 in the swimming pool. All the departments started their design and research work at the same time and side by side started implementing the ideas. By NOVEMBER we registered for SAUVC 2018
- In the Month of Jan & Feb, we started debugging and testing. we successfully worked on the project. On 7th March we had the competition, There were around 30 teams from all around the globe and we had a chance to interact with every team on the 1st day of the competition. We interacted with everyone and got a lot of ideas for debugging and increasing the accuracy of the system. There was a panel of judges who were inspecting all the robots and trying to get more and more details about their ideas and motivation for building AUVs.
- 2nd day was the qualification round, before the round starts, there was an inspection of the robots and they measured the kill switch, weight, and other external features, our team had an advantage over others as our design was well within the size boundaries and that earned us a few extra points. The qualification round comprises a 10-meter mark and the robot has to successfully complete this 10 meters with touching the floor and the surface.

At a time two teams were allowed to run their robots. There were 20 minutes' time slots for each team.

- After 4 rounds it was our turn, and we started with a high note but due to a system failure, the robot did not respond according to the instructions and after multiple attempts, we couldn't qualify for the main event. We tried 8 times the maximum attempts of all the teams, but the robot couldn't cross the 10m mark. And that was the end of our journey into the competition.
- After coming back to India we analyze the robot and found out that the pixhawk, the controller had few issues.

Conclusion: -

The Team focuses on building Autonomous Underwater Vehicles and working with members from the inter-department courses helps in gaining an knowledge from every department. The competition was a very good learning experience. It allowed the team members to interact with teams and experts which helped the team in the future.

Interaction with people: _

- In 2017-2018 we attended a few exhibitions such as Abhiyantriki, MakerMela, INMEX, etc. and got a huge and positive response from the crowd.

INMEX:

Abhiyantriki: