A REPORT ON STUDENT VISIT

TO

IIT BOMBAY and DRONE EXPO 2023

SUBMITTED BY

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UNERS THE GUIDENCE OF

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Summary

Team Pushpak has visited to IIT Mumbai and Drone Expo 2023 Mumbai on 5th and 6th October 2023. Total 09 students visited the Expo. Dr Shriniwas S Metan was the coordinated this visit.

The visit of IIT Bombay to SINE Agency was a collaborative initiative to foster innovation and entrepreneurship among students, faculty members and alumni of IIT Bombay. The visit aimed to explore the opportunities and challenges of creating and scaling up technology-based ventures, especially in the domains of biotechnology, medical devices and social impact. The visit also highlighted the various support programs and facilities offered by SINE, the technology business incubator of IIT Bombay, to the potential and existing entrepreneurs.

One of the main attractions of the visit was the exposure to the drone technology and its applications, which is one of the emerging fields of innovation and research. The visitors had a chance to interact with the team Rakshak of IIT Bombay, which is a student initiative to develop a fleet of robust Unmanned Aerial Vehicles (UAVs) to support Search and Rescue Operations (SRO) in the event of a disaster. The team showcased their various models of drones, which can provide relief measures in disaster-stricken areas, and can be used for surveys and mapping of cities and conservation of wildlife with slight modifications. The team also demonstrated their skills and achievements in various national and international competitions.

The visitors also visited the E-Yantra lab of IIT Bombay, which is a project sponsored by the Ministry of Education to spread education in embedded systems and robotics. The lab provides a platform for students to learn and experiment with robotics, and also organizes various workshops and competitions to promote robotics education and innovation. The lab also has a drone section, where students can learn and build their own drones using various components and sensors.

The visit was a fruitful and inspiring experience for the participants, who gained valuable insights and feedback from the SINE team, the team Rakshak and the E-Yantra lab. The visit also strengthened the partnership between IIT Bombay and SINE, and paved the way for more collaboration and support in the future. The visit was part of the ongoing efforts of IIT Bombay to promote a culture of innovation and entrepreneurship on campus and beyond.

Day 1   05/10/2023

SINE Agency:

SINE, or Society for Innovation and Entrepreneurship, is a technology business incubator hosted by IIT Bombay as a not-for-profit organisation. It supports early-stage ventures by providing them with various resources, such as prototyping grants, mentoring, networking, and funding opportunities. SINE also administers several programs and initiatives to foster innovation and entrepreneurship in collaboration with industry, government, and academia partners.

Prof Rashmi Mahajani is the Senior Manager of Incubation at SINE. She is responsible for planning, managing, and evolving the incubation and innovation programs to attract and nurture high-quality startups. She also oversees the operations, processes, infrastructure, and facilities of SINE, and liaises with internal and external stakeholders.

The difference between SINE and IIT Bombay is that SINE is an independent entity registered under the Societies Registration Act, 1860, with its own Governing Board and functional autonomy. IIT Bombay is the host institution of SINE and provides it with physical space and other support. IIT Bombay also collaborates with SINE to provide seed funding and translational research support for its students, faculty, and alumni who are keen to pursue entrepreneurship.

Team Rakshak: Developing UAVs for Disaster Relief and Beyond

Team Rakshak is a student initiative from IIT Bombay that designs, builds, and operates a fleet of Unmanned Aerial Vehicles (UAVs) to support Search and Rescue Operations (SRO) in disaster scenarios. The team comprises of over 40 students from various disciplines, led by captains Abhishek and Vighnesh.

The team has created five planes and one hexacopter, each with different capabilities and features. The team has participated in the Student Unmanned Aerial Systems (SUAS) competition, which challenges students to complete a prescribed mission profile using their UAVs. The team has also showcased their UAVs at various events and exhibitions, and has received appreciation and recognition from the industry and academia.

The team's vision is to leverage the potential of UAVs for humanitarian and social causes, such as disaster relief, urban planning, wildlife conservation, and environmental monitoring.

Exploring Drones at e-Yantra, IIT Bombay Lab

Our team had the opportunity to visit the e-Yantra, IIT Bombay Lab, where we were exposed to various drones and their applications. We were amazed by the demonstrations of different types of drones, such as quadcopters, hexacopters, and octacopters, each with their own features and functions. The Octa-copter drone, in particular, caught our attention with its 20kg payload capacity, which showed us the potential and the progress of the field. Smit Kesaria, our guide and mentor, helped us understand the technical aspects of these drones, such as their design, control, and communication. He also explained how these drones can be used for various purposes, such as disaster relief, surveillance, mapping, and agriculture. We learned a lot from this visit, and we gained a deeper appreciation for the engineering innovations and the social impact of drones.

Day 2   06/10/2023

Drone Expo 2023: Exploring the Future of Unmanned Technology

On the second day of our visit, we attended the Drone Expo 2023, one of the largest events showcasing the latest trends and innovations in the drone industry. We had the opportunity to interact with various companies and learn about their products and services related to drones. Some of the notable exhibitors were:

- Mechtex, a manufacturer and exporter of synchronous motors, brushless DC motors, stepper motors, and drone motors.
- Hella Infratech, a global supplier of lighting systems, electronics, and aftermarket solutions for the automotive sector, and a developer of drone solutions for various applications.
- Avidrones, a software company offering AeroMegh, a SaaS platform for transforming drone data into actionable insights.
- PDRL, a company that developed an air taxi prototype and offers PicStork, an AI-powered geospatial analytics platform.
- Aerobott, a provider of cutting-edge drone solutions for businesses and government in India.
- Drogo Krishi 2.0, a UAV drone aimed at addressing the challenges faced by modern agriculture and providing farmers with a reliable and efficient solution for precision farming.

We were amazed by the engineering innovations and the potential of drones for various applications. The Drone Expo 2023 was a memorable and enriching experience for us.

Visit to Three Exhibitions: Fire India, Screentex India, and Taiwan Expo

After attending the Drone Expo 2023, we visited three more exhibitions that showcased the latest trends and innovations in various fields.

- The first one was Fire India 2023, Asia's largest fire and safety expo, where we learned about the best practices and technologies for fire prevention, protection, and rescue.
- The second one was Screentex India 2023, an international tradeshow on screen, digital, textile, printed electronics, UV, and sublimation printing technology, where we interacted with various exhibitors and saw their products and services.
- The third one was Taiwan Expo, a platform for promoting trade and cultural exchange between Taiwan and India, where we explored the diverse offerings of Taiwan in various sectors, such as smart city, green tech, healthcare, education, and tourism. We were impressed by the engineering innovations and the potential of these exhibitions for various applications. Our visit to these exhibitions was a memorable and enriching experience for us.