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IIT Bombay

Letter of Participation

This is to certify that **Manav Bhavesh Shah**, a student of **Veermata Jijabai Technological Institute, Maharashtra** has participated in the **e-Yantra Robotics Competition (eYRC 2022-23)**.

He/She is a member of the team having the following team members:

1. Manav Bhavesh Shah
2. Sumedh Shrinivas Patil
3. Aman Singh
4. Shubham Nithyananda Nayak

This team has participated in **Swatchhta Bot** theme.

Prof. Kavi Arya
Principal Investigator, e-Yantra
Professor
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e-Yantra is a project sponsored by MHRD, Government of India, under the National Mission on Education through ICT (NMEICT).

Certificate of Merit: awarded to finalist teams.

Certificate of Completion: awarded to teams for completing all the tasks of the competition.

Certificate of Participation: awarded to teams for partial completion of tasks in the competition.

Letter of Participation: awarded as an acknowledgement of participation on e-Yantra Letterhead.

Theme: *Swatchhta Bot*

Theme Description: In the theme Swatchhta Bot (SB), as the name suggests the team builds a robot for deployment on an arena which is an abstraction of a Smart City. The robot swiftly navigates through the different cities to collect segregated waste and then goes to the dumping area to dispose of them in different bins. The brain of the robot is powered by an FPGA (Field Programmable Gate Array) that controls its sensors, actuators and pick-place mechanism.

Theme Learning: *FPGA, Verilog HDL, Build-a-Bot, Parallel Processing, Wireless Communication, Pick & Place mechanism, Path Planning Algorithm*

Team Learning: The team has been awarded **Level 4** in the e-Yantra Robotics Competition (eYRC).

This level indicates that the team was able to complete initial tasks (mostly Task 0, Task 1 and Task 2 out of the total 6 tasks)

Certificate Table

Certificate Level	Certificate Description
Level 1	Certificate of Merit
Level 2	Certificate of Completion
Level 3	Certificate of Participation
Level 4	Letter of Participation

**level 1 > level 2 > level 3 > level 4*