IIT Bombay

Letter of Participation

This is to certify that Pushpendra Babu, a student of Institute of Engineering and Technology, Lucknow, Uttar Pradesh has participated in the **e-Yantra Robotics Competition (eYRC 2021-22)**.

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

1. Pushpendra Babu
2. Ankit Kumar
3. Sudhanshu Mishra
4. Abhishek Kumar Singh

This team has participated in Soil Monitoring Bot theme.

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Prof. Kavi Arya
Principal Investigator, e-Yantra
Professor
Department of Computer Science and Engineering
Indian Institute of Technology Bombay

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Theme: *Soil Monitoring Bot*

Theme Description: In this theme, we build the SM Bot for deployment on an arena that abstracts an agriculture field. The brain of the robot is powered by an FPGA (Field Programmable Gate Array) that controls its sensors, actuators and pick-place mechanism. Challenges and learnings in this theme include building a Soil Monitoring Bot from scratch using an FPGA. This robot traverses the arena, senses the environment and picks and places necessary supplies from the supply unit to the field. It uses wired and wireless communication. We help teams build a sophisticated architecture using Verilog HDL to unveil the powerful parallel processing capabilities of FPGAs.

Theme Learning: *FPGA architecture, FPGA programming using Verilog HDL, Wireless communication concepts, building a bot using a real FPGA development board.*

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