'CAN READ, TALK': ISRO'S HUMANOID VYOMMITRA'S SKILLS GET A LIFT-OFF WITH DIGITAL GREY MATTER

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Vyommitra is a half-humanoid lacking lower limbs. | Photo Credit: Special Arrangement

'Vyommitra', the humanoid designed and developed by the Indian Space Research Organisation (ISRO) to fly aboard unmanned test missions ahead of the Gaganyaan human space-flight mission, is undergoing pre-flight ground tests at the ISRO Inertial Systems Unit (IISU) here.

Over the past few months, IISU has successfully integrated it with a computer 'brain' which enables it to 'read' control panels aboard the unmanned test flights and communicate with the ISRO ground stations, IISU director Sam Dayala Dev told *The Hindu*.

ISRO and IISU were in the news when they unveiled Vyommitra — the 'female' robot astronaut — in 2020. Vyommitra is a half-humanoid lacking lower limbs. IISU was responsible for the design, development, and integration of the robot, while sister ISRO centre Vikram Sarabhai Space Centre (VSSC) at Thumba here developed its fingers.

The AI-enabled robot is designed to fly aboard a rocket, withstanding vibrations and shock during the flight, the IISU director said. It has been designed to resemble a human with facial expressions and speech and sight capabilities, he said.

"It has a certain level of intelligence. What we intend is that it should operate and read the display panels and communicate back to us using its own voice," he said. Vyommitra will fly aboard the first unmanned test flight ahead of the crewed Gaganyaan flight expected in 2024.

The IISU, which designs and develops navigational systems for ISRO launch vehicles, had special teams working on the humanoid over the past several months.

In the meantime, Vyommitra is also set to get a digital twin. The 'twin' will undergo computer simulations where the control systems are tested for microgravity conditions. The twin will be developed in collaboration with academic institutions like the IITs.

In September this year, the Minister of State (Independent Charge) for Science and Technology, Jitendra Singh, had indicated that the first unmanned test-flight of the Gaganyaan mission would take place later this year. The Gaganyaan programme would demonstrate human spaceflight by sending a crew of three astronauts to the 400-km Low Earth Orbit (LEO) and bringing them back safely.

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