

Astrobee robots

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In news— For the first time ever, two Astro-bees have begun working independently, side by side with humans on the International Space Station(ISS).

What are Astro Bees?

- Astro Bees are **NASA's new cube-shaped free-flying robotic system**. These robots are cube-shaped and about 32 centimetres wide.
- The **three Astrobee robots, named Queen, Bumble and Honey** propel themselves around in the microgravity environment of the ISS using electric fans.
- The three robots **propel themselves using electric fans that allow them to fly** through the microgravity environment of the International Space Station.
- They “look around” and **navigate their surroundings using cameras and sensors**.
- All of the robots are **equipped with a perching arm that allows them to grasp handrails** to either conserve energy or grab and hold items.
- When they are running low on charge, they can **automatically return to their docking station to begin recharging**.
- Not only will the Astrobee robots **make space missions safer and more cost-effective** but Astrobees could **manage routine chores** that would free up human operators for more complex work.
- They also **consist of a system that serves as a research platform** that can be outfitted and programmed to conduct microgravity experiments.
- Until now, Astrobee robots have operated on the International Space Station one at a time or with support from human operators.
- The Astrobee robots are **built on the knowledge acquired**

from operating SPHERES (Synchronised Position Hold, Engage, Reorient, Experimental Satellite) robots which have been operating on the International Space Station for over a decade.

- Once fully commissioned, the Astrobees system will take over for SPHERES as the space station's robotic test facility.
- Astrobees robots could be instrumental in future spacecraft that won't be crewed year-round like the Gateway space station planned to orbit the Moon.
- Such spacecraft will need autonomous robots to keep things running while humans are away.