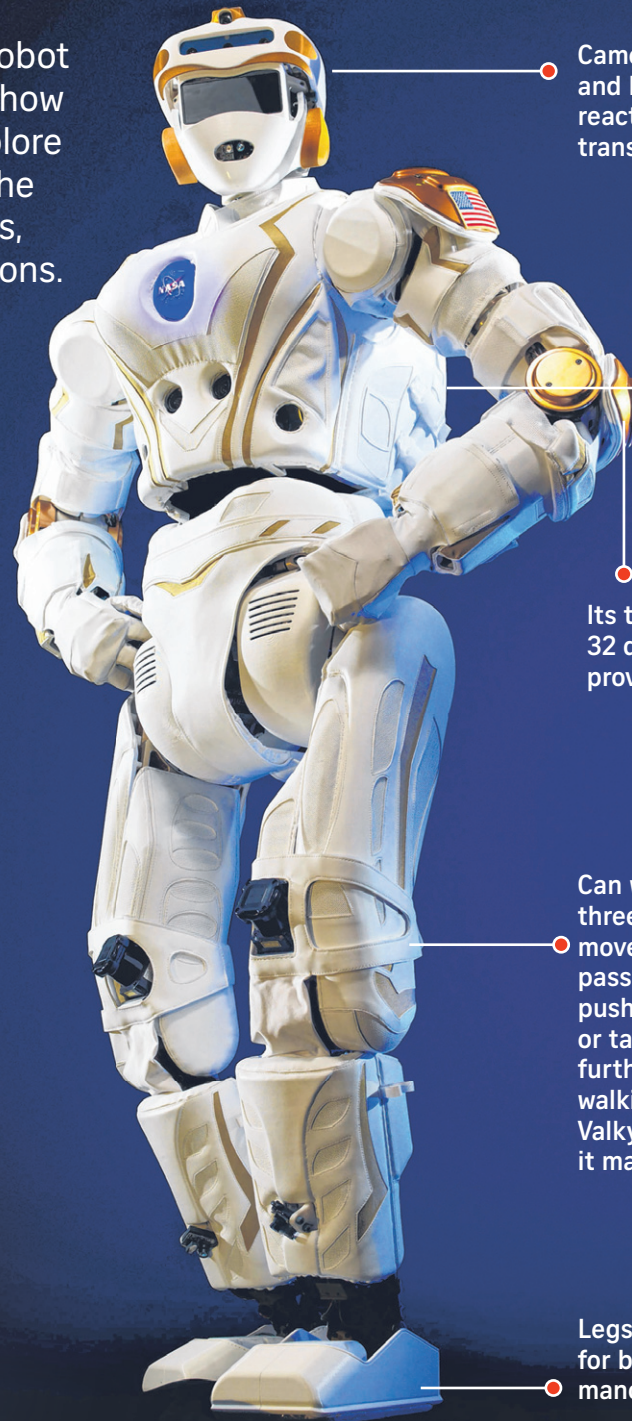


# Meet Valkyrie, one of the world's most human robots

Standing at 1.8m tall, this 125kg robot can already walk, and is learning how to interact with people. It will explore Mars before astronauts land on the Red Planet around the mid-2030s, and will help them in space missions.

- Valkyrie, also known as R5, is the only robot of its type in Europe, and one of three prototypes in the world. Its human-like shape is designed to allow it to work alongside people, or conduct high-risk space missions in place of humans.
- The robot's basic hardware was built by Nasa, which shipped it to Scotland's University of Edinburgh in March to be developed. The university has an international reputation for designing "smart" robot systems.
- Can be used in long-haul space missions as a precursor robot performing mission tasks independently, or as a human-assistive robot working alongside the human crew.
- Initially designed to assist in disaster-relief operations, its main goal is to eventually navigate the tricky terrain of the Red Planet.
- Named after the female war spirits of Norse mythology, perhaps fitting for a robot entering hostile territory.
- The project is being conducted at the Edinburgh Centre for Robotics, a joint initiative between the University of Edinburgh and Heriot-Watt University, and is supported by Britain's Engineering and Physical Sciences Research Council.



Cameras on its head, arms, abdomen and legs, and force sensors help it to react to touch and pressure and transmit information.

Goes through rapid computations to alter its centre of mass to stay upright.

Its torque-controlled joints and 32 degrees of freedom body provide dexterity.

Can walk on two legs up a flight of three small steps and perform basic movements, such as holding and passing objects. It reacts when pushed against, either by swaying or taking a step back. Scientists will further improve its handling and walking capabilities, and use Valkyrie's on-board sensors to help it make sense of its environment.

Legs are used instead of wheels for better accessibility and manoeuvrability