Paper ID: 76953
student

26th IAA SYMPOSIUM ON HUMAN EXPLORATION OF THE SOLAR SYSTEM (A5)
Human and Robotic Partnerships in Exploration - Joint session of the IAF Human Spaceflight and IAF Exploration Symposia (3-B3.6)

Author: Mr. Ilkin Abdullayev
Azerbaijan State Oil and Industry University (ASOIU), Azerbaijan

Mr. Qurban Haciyev
Azerbaijan State Oil and Industry University (ASOIU), Azerbaijan

ROBOTICS IN THE SPACE EXPLORATION

Abstract

Space exploration is an investigation, utilizing spacecraft and robotics, of the reaches of the universe beyond Earth's atmosphere and the use of the information so gained to increase knowledge of the cosmos and benefit humanity. Space exploration is the use of astronomy and space technology to explore outer space. While the exploration of space is carried out mainly by astronomers with telescopes, its physical exploration though is conducted both by uncrewed robotic space probes and human spaceflight. With the aid of robotics, our ability to explore and learn about our universe has grown exponentially. From rovers on Mars to humanoid robots aboard the International Space Station (ISS), robots have become essential tools for space exploration. The use of robotics in space exploration has revolutionized the way we explore our solar system. Robots are critical for performing tasks that are too difficult or too dangerous for human astronauts, such as exploring hazardous environments, conducting experiments, performing maintenance and repairs, transporting equipment and supplies, and even constructing structures. This article focused on robotics supporting space exploration and the type of robots which is used in ISS. One of the most notable examples of robotics in space exploration is the use of rovers. NASA's Mars rovers, including Curiosity and Perseverance, have been instrumental in exploring the red planet. Another important robotic technology on the ISS is the Robonaut, a humanoid robot developed by NASA. Robonaut can help humans work and explore in space. There are also astronaut assistants, satellites, and space probes that are used for exploring other planets, asteroids, comets, and other celestial bodies. In conclusion, robotics is an essential tool for space exploration, enabling scientists and engineers to perform tasks that would be difficult, dangerous, or impossible for human astronauts. As technology continues to progress, we can expect to see even more advanced and capable robots being used in space exploration in the future. Robotics is an integral part of human exploration beyond our planet and will continue to play a crucial role in shaping our future in space.