

This research paper proposes a robot that emulates the behavior of a marine flatworm for use in space exploration. Inspired by the Velox robot, it utilizes rubber fins that have adjustable angles for different terrains. This allows the robot to traverse across sand, ice, and even water with ease. The Slugbot's shell is 3D printed and it also has various sensors in order to collect vital data about its surroundings. The system is controlled by an Arduino, driving 16 high-torque servo motors in a sinusoidal formation.

This robot will be tested and evaluated in order to adapt it to low-gravity environments. The goal is that the robot will be able to trek through almost any space environment it encounters. It will be able to trek across both polar ice caps and sandy deserts, which will make it highly versatile.

The experimentation involved will include incline tests, terrain tests, and water tests in order to note where improvements need to be made. Version 2 of this robot will be miniaturized for increased ease of transportation.

Overall, this research provides a novel approach to designing robots for space exploration, and highlights the potential benefits of taking inspiration from nature when developing new technologies. The use of a robot that mimics the behavior of a marine flatworm represents a significant step forward in developing versatile and adaptive robotic systems for space exploration missions.