

Innovative Design of Spherical Robot with Hydraulic Actuator

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Abstract : In this paper, the spherical robot is modeled using the Band-Graph approach. This breed of robots is typically employed in expedition missions to unknown territories. Its motion mechanism is based on convection of a fluid in a set of three donut vessels, arranged orthogonally in space. This robot is a non-linear, non-holonomic system. This paper utilizes the Band-Graph technique to derive the torque generation mechanism in a spherical robot. Eventually, this paper describes the motion of a sphere due to the exerted torque components.

Keywords : spherical robot, Band-Graph, modeling, torque

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