INTEGRAL ROBOTICS LAB
INTEGRAL UNIVERSITY LUCKNOW
BACHELOR'S THESIS

DESIGN AND DEVELOPMENT OF SPHERICAL ROBOT

Project Description:

Our goal is to develop a Spherical Robot which is a mobile rolling robot that can be teleoperated using an android app in indoor environment. Robots like humanoid, wheeled and legged robots are developed to perform operations such as pick and place, object detection, surveillance operation, search and rescue operations. The constraints of available robot are in terms of computational speed, cost, structure complexity and space. To overcome such difficulties of the current technologies, the proposed spherical spy robot includes pendulum-based drive system with video streaming of live activities and obstacle detection .

This type of robot is run by the pendulum, two mutually perpendicular rotors attached to the inside of sphere, a central body with weights distributed radially along spokes fixed to the inside surface of the sphere and the multiple mass-shifting propulsion mechanism with a radial configuration. A 360-degree rotation camera is attached at the outer shell for spying any unusual activity. Spherical Spy Robot has a huge application in defence and covert operations with obstacles avoidance and perform locomotion by providing stable platform sensors with steering mechanism using suitable control algorithms.

Tasks Involved:

1) Teleoperation using an android app over a wi-fi communication.
2) Video streaming of live activities on various devices for visual feedback.
3) Obstacle Detection.
4) Autonomous operation using GPS sensors.

Supervisor:-

DR. FAIYAZ AHMAD

Start Date: 11/SEP/2023.

End Date: 10/DEC/2023