Simulation of Path Planned Differential Drive and Obstacle Avoidance Medicine Delivery Robot Using V-REP CoppeliaSim

MMP Fernando[1#], WWMTNB Wijesundara[1], EWSMDB Wickramasinghe[1], and AMMGHTB Abeykoon[1]

[1]NSBM Green University, Pitipana, Sri Lanka

[#]mmpfernando@students.nsbm.ac.lk

Abstract

The purpose of this research paper is to explore the development of a medicine delivery robot using path planned differential drive and obstacle avoidance techniques. The use of such a robot has the potential to improve efficiency and reduce the risk of transmission of infectious diseases in medical facilities. This paper discusses the concept of a differential drive robot, path planning algorithms, and the factors to consider when using a robot for medicine delivery. Additionally, it presents the design process followed to develop the robot, including defining the requirements, creating a 3D model, programming the robot's motion, adding object avoidance sensors, and integrating with a communication system. While the complete implementation of the planned path was not achieved, significant progress was made in developing the obstacle avoidance functionality.

Keywords: *Differential drive, Obstacle avoidance, Infectious diseases, Medical facilities, Path planning algorithms*