

ABSTRACT

*Simulation of Mobile Robot Trajectory Path Based on Lagrange Polynomial
and Bezier Curve for Dynamic Collision Avoidance Using V-REP (Virtual
Robotics Experimentation Platform)*

By

Yohan Christian

For years robotics has become a common objects in industrial business. For Industrial businesses to improve the efficiencies of robot management is one of the best ways to improve productivity. This create an big opportunity in robot simulation for years to come as industrial companies will integrate more robots in their production. In the field of logistic that uses multiple Automated Ground Vehicles(AGV) specifically will need Robot Traffic management system. The purpose of this study is to derivates an multi-robot traffic management system using Lagrange, and Bezier Curve Polynomial as path planning tools to follow or avoid each other using simulation software. CoppeliaSim will be used as an integrated simulation software mainly because it has features for the project and its compatibility with Solidworks and other software. This thesis paper provides a fundamental basics of multi-robot simulation and managements as such can be used as example, overview or starting references for student who interested in this type of study field.

Keywords: Automated Guided Vehicle (AGV), obstacle avoidances, path planning, CoppeliaSim, Lagrange polynomials, multi-robot, dynamic obstacles, simulation software,