Autonomous Navigation for Mobile Robots

Sagar Khadse | Zack Butler

Abstract

Mobile Robots are developed to be able to move in an environment and perform specific tasks such as warehouse robots moving packages and stocking shelves efficiently. GPS can help when navigating in outdoor environments but fails when used indoors. These robots need to be able to sense their environment while also being able to self localize itself in the environment for efficient path planning. An autonomous navigation system avoids the need to manually program the robot path and allows the robot to handle minor changes in the environment. This project aims to implement Simultaneous Localization and Mapping using a RGBD camera mounted on top of a robot base.

Objectives

1. Researching available SLAM algorithms that could be used for this application and selecting the best fit.
2. Selecting an indoor environment and generate a 3D map.
3. Testing localization of the mobile robot within the generated map while navigating through it.

Architecture

this is the abstract.

Mapping

this is the abstract.