

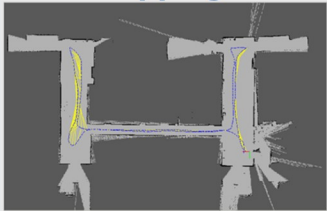
Analysis of a RGB-D SLAM system using Real-Time Appearance-Based Mapping on Kbot

Robot Navigation and SLAM

Autonomous exploration requires the robot to build a precise map of its environment, while simultaneously localizing itself relative to that map, and plan a viable and optimum path from its position to any goal position. This task can be divided on three sub-tasks: mapping, localization and planning.

The task of mapping while estimating the pose of the robot is known as Simultaneous Localization And Mapping (SLAM).

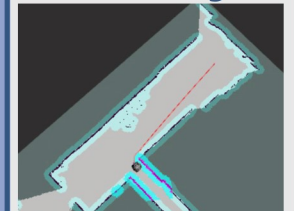
Mapping



Localization

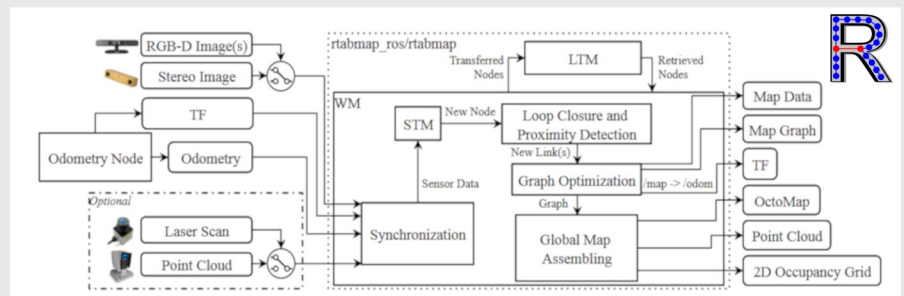


Planning



RTAB-Map

Real-Time Appearance-Based Mapping (RTAB-Map) is a graph-based visual SLAM technique that uses information provided by RGB-D cameras, stereo cameras and Lidar sensors, including an incremental appearance-based loop closure detector with a memory management approach.



Goal: Produce an initial setup of the RTAB-Map algorithm that can be expanded in the future.

RTAB-Map on Kbot

Kbot

rtabmapviz

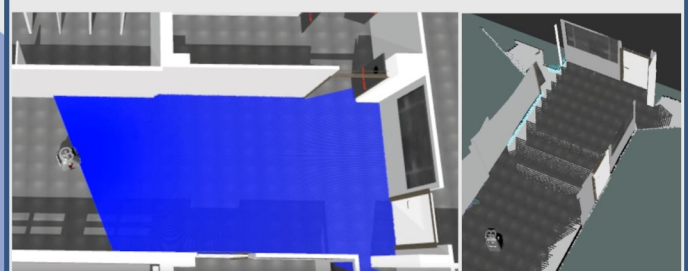


ROS.org

RTAB-Map on simulation

Kbot on Gazebo

rviz



GAZEBO