IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, June 2022
Impact Factor: 6.252

vSLAM using Deep Learning for Semantic Mapping

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Abstract: *As the domains of deep learning and computer vision are developing, we are trying to find new applications as well as utilization in old problems. In this paper we are trying to apply deep learning methods to augment the traditional robotics problem of Simultaneous Localization and Mapping (SLAM). Most traditional SLAM methods build metric maps only, but we are trying to build a semantic map which identifies individual objects in the map meaningfully. We are using basic RGB-D SLAM to start with for the localization part, along with a deep learning-based module for the object detection and recognition. These together provide a semantic map for the environment. For better computational performance and efficiency, we are using OctoMap for the map data structure. To be qualified, our approach has to yield good results in localization, mapping as well as in object detection.*

Keywords: SLAM, vSLAM, Semantic Map, Robotics, Deep Learning, etc.

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