

A new mathematical model for mapping indoor environment

Abstract

This paper presents a mathematical model as a new approach to object mapping, the system is proscribed to indoor and applied to approach a landmark. The contribution of this paper is to propose a new mathematical model for object mapping, the landmark is captured at varying distant points, the Scale invariant Feature Transform (SIFT) to extract object options, at the side of their uncertainty, from camera sensors. The (SIFT) features are invariant to image scaling, translation, and rotation, and partially invariant to illumination changes and affine or 3D projection, which is suitable for our application. As image options do not seem to be noise-free, the error analysis of the landmark positions and a preprocessing to obtained information which is incorporated into a model, using curve fitting techniques. Predictions created by our model square measure well and correlate with experimental knowledge. This has eliminated correspondence Problem also known as a data association problem.

Keyword: Mapping; Feature extraction; Fiiting; Threshold; Clusters; Landmark; SLAM