

17 Design and implementation of an indoors navigation system based on the use of autonomous intelligent vehicles

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17.1 Summary

The techniques and algorithms which are used in artificial intelligent vehicles dedicated in indoor navigation and accurate mapping creation is presented. Area detection systems for mapping, techniques and algorithms on artificial intelligence for localization and hybrid systems of Simultaneous Localization and Mapping (SLAM) are analyzed both theoretically and practically.

An analysis on the use and role of the sensors in the context of the above techniques and methods in order to provide localization follows, emphasizing on the use in autonomous vehicle. While the practical part in which the design and development of an artificial intelligence logic based on the use of Simultaneous Localization and Mapping (SLAM) for use in autonomous vehicles is presented in detailed, accompanied by the testing and evaluation results.