

## عنوان مقاله:

Map-merging in Multi-robot Simultaneous Localization and Mapping Process Using Two Heterogeneous Ground Robots

## محل انتشار:

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## خلاصه مقاله:

In this article, a fast and reliable map-merging algorithm is proposed to produce a global two dimensional map of an indoor environment in a multi-robot simultaneous localization and mapping (SLAM) process. In SLAM process, to find its way in this environment, a robot should be able to determine its position relative to a map formed from its observations. To solve this complex problem, simultaneous localization and mapping methods are required. In large and complex environments, using a single robot is not reasonable because of the error accumulation and the time required. This can explain the tendency to employ multiple robots in parallel for this task. One of the challenges in the multi-robot SLAM is the map-merging problem. A centralized algorithm for map-merging is introduced in this research based on the features of local maps and without any knowledge about robots initial or relative positions. In order to validate the proposed merging algorithm, a medium scale experiment has been set up consisting of two heterogeneous mobile robots in an indoor environment equipped with laser sensors. The results indicate that the introduced algorithm shows good performance both in accuracy and fast map-merging.

## کلمات کلیدی:

Map-merging, Multi-agents Simultaneous Localization and Mapping, Ground Robot, image processing

## لینک ثابت مقاله در پایگاه سیویلیکا:

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