

여러대 이동 로봇의 안전한 동작 조정 방법

고낙용[†](조선대) · 서동진* · 김성준****A Method for Safe Motion Coordination of Multiple Mobile Robots**

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Key Words: mobile robot(이동 로봇), obstacle avoidance(충돌 회피), relative velocity(상대 속도)

Abstract : This paper presents a new method driving multiple robots to their goal position without collision. To consider the movement of the robots in a work area, we use the relative velocity. The relative velocity figures the degree of how easily a robot can avoid collision between the robots. Based on the relative velocity, the method calculates repulsive force against a robot from the other robots. Also, attractive force toward the goal position is calculated in terms of the relative velocity. These repulsive force and attractive force adds to form the driving force for robot motion. The proposed method is simulated for several cases. The results show that the proposed method steers robots to open space anticipating the approach of other robots. The proposed method works as a local collision-free motion coordination method in conjunction with higher level of task planning and path planning method for multiple robots to do a collaborative job.

정적인 Passive RFID 태그를 이용한 로봇 위치추정기법

문승욱[†](한양대 원) · 지용관*(한양대 원) · 박장현**(한양대)**An Intelligent Estimation Method for Robot Location using Static Passive RFID Tag**

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Key Words: Mobile Robot(이동로봇), Passive RFID Tag(수동태그), Location Estimation(위치추정)

Abstract : This paper presents methods of robot localization using recent Radio Frequency Identification technology. If the absolute location and orientation of a tag are given in indoor environment which is installed RFID tags, a robot can estimate its location using the relationship of identified tag and robot in relative coordinate. To derive this relationship, we proposes three estimation techniques using probabilistic model of RFID reader, direction of Identification and Identification Range. And selectors are combined in a suitable manner depending on the situations and trajectory of robot in the field of range. Simulation and Experimental results show that the proposed methods can provide good performance and thus be used for localization.