

IPC를 통해 조정되는 다중 로봇의 동작 시뮬레이터 개발

서동진[†](조선대) · 고낙용* · 김성준****Development of Simulator for Multiple Robot Motion Coordinated Through IPC**

Nak Yong Ko, Dong-Jin Seo, Sung Joon Kim

Key Words: IPC(Inter Process Communication, 프로세스간 통신), simulator(시뮬레이터)

Abstract : This paper focuses on building multiple robot simulation program controlling the robots via wireless internet and inter-process communication. We tested the proposed simulation program in real heterogeneous multiple robot systems. One of them is TRESTLE project which is a research project in The Robotics Institute of Carnegie Mellon University. The robots in the simulation system are as the followings: a mobile manipulators, crane robot, roving eyes. Also it is tested for motion planning of the Nomad Super Scout II. Using the simulation program reduces a lot of time and cost in algorithm development and also reduces the dangerous job of real hardware test. The simulator is useful to make efficient motion plan of multiple robots as well as verification of the safe motion, So it saves time and cost and reduces possible safety problem.

공리 설계를 이용한 모바일 로봇을 위한 도킹 스테이션 개발

이경운(KAIST)[†] · 최현도(KAIST)* · 곽윤근(KAIST)****Development of docking station for mobile robot using axiomatic design**

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Key Words: Docking station(도킹 스테이션), Axiomatic design(공리 설계)

Abstract : The multi-function vacuum robot, which includes various functions such as repairing, security in addition to cleaning, is efficiently realized by exchanging tools needed for specific functions on one robot platform. Existing vacuum robots recharge their batteries in the station. The docking station, which a robot can precisely docks to and keeps docking condition in, makes a robot exchange tools. We design it to be highly energy efficiency and simple mechanism. For precise docking, the station's movement caused by driving force of robot compensates for entry error of robot. For keeping docking condition, the station grips the robot and fixes it with toggle switch locked by driving force of the robot. The axiomatic design is adopted to provide a framework for design. It makes station design systematic. We develop the docking station for a vacuum robot of LG ElectronicsTM. It weights 6kg and sizes $\Phi 340\text{mm} \times 133\text{mm}$ H. The docking station can compensate for 50mm lateral offsets error, 20° orientation error. It can hold 20N load.