

عنوان مقاله:

3D Formation of Swarm Robots by the Use of Several Sub-Swarms

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نویسندگان:

M Kahali Moghadam - School of Mechanical Engineering, K. N. Toosi University of Technology, Tehran, Iran

A Ghaffari - School of Mechanical Engineering, K. N. Toosi University of Technology, Tehran, Iran

خلاصه مقاله:

This paper presents a new method for formation swarm robots in three dimensional(3D). The 3D form is created by dividing swarm-robots into several sub-swarms which are formed in two dimensional (2D). In order to coordinate sub-swarms, linear dominance hierarchy model is applied. The model provides several levels of dominancy among sub-swarms. Also, the leaderfollower approach coordinates the members of each sub-swarm. This model has many advantages such as: i) ability to form any 3D shapes not only some specific shapes such as pyramid which is presented in previous researches, ii) improving the scalability of swarm, and iii) optimizing the energy consumption efficiency by reduction of communications among the large number of swarms. The performance of this method is illustrated in simulations results.

کلمات کلیدی:

Swarm robots, 3D formation, linear dominance hierarchy model, leader-follower approach

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