

1 Introduction

Motion planning is broad field of robotics which started of majorly for the planning of manipulators which has now into the diverse subtopics across breadth of robotics as it the state of the art evolves, like Autonomous vehicles, Mobile robots etc. For the above examples motion planning does not consider application or situations where resources are constrained. Lets say we have to deploy are robot into the different unknown, uncertain environment which is executed via space shuttles. Do we have enough space to carry heavy robots which will suffice the needs of experiment ? Maybe no. Modular Reconfigurable robots are individual intelligent robots which can physically configure with other robots (agents) to collectively completely a task which could be challenging for standard robots due to its heavy physical framework.

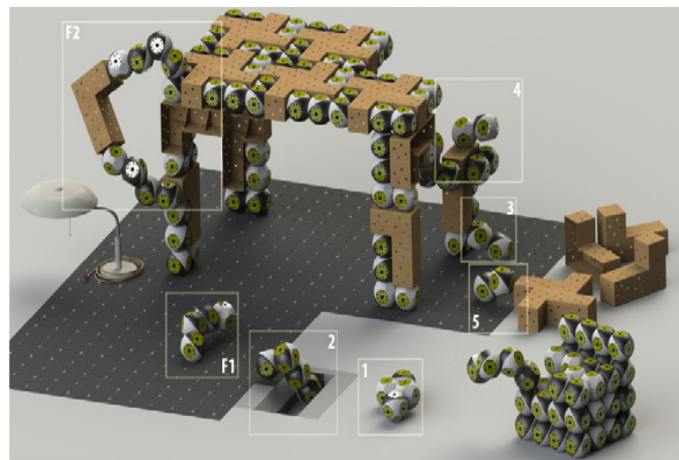


Figure 1: Self-reconfigurable Modular Robots - Roombots [1]

1.1 Distinctive aspects & Examples.

Self reconfigurable modular robots are quite small in size which has features like it could dock into another robots and form a manipulator arms or any other configurations to solve the task. A. Sprowitz *et.al* [1] discusses the applications of 3D self-reconfiguration of modular robots Fig. 1 illustrates the same. Interesting part of the motion planning of such robots is get the configuration of as collective part and not as the single unit. Modular robots are into service robots too, Rizuwana Parween *et. al* [4] sheds light into usage of reconfigurable robots which change thier shape and size to achieve maximum coverage for cleaning the floor this aspects of modular robots is fascinating. It illustrates motion planning giving a generalised algorithm in 2D that considers various configurations of modular robots called tiles. Interesting application of these is shown by C. H. Belke *et. al* [5] that develops a modular robot called Mori which is triangular shaped robot that docks with other same robot and forms shapes in 3D too. Such robots have applications in space and resource constrained environments. These reconfigurable robots solve the problem of motion planning in 2D/3D spaces.

2 Bibliography

Literatur

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