Connectivity Maintenance of a Set of Agents through MST-based Algorithm

Abstract

In this paper, it is proposed a solution to the problem of positioning a set of agents that play the role of pursing a set of moving targets, while the global connectivity among such agents is maintained throughout positioning a second set of relay agents. The role of the agents consists of organizing themselves in order to allow the underlying network to stretch at its maximum (maximizing the action of pursuers), while ensuring the connectivity. In order to do that, this work proposes a positioning algorithm that uses the Minimum Spanning Tree (MST) in a way that maximizes the mobility of the nodes while deciding on the position of relays and pursuers. The approach is validated through experimental simulations using a set of behaviors to some deployed targets showing the feasibility of the proposed solution.

References

1. Tekdas, O., Kumar, Y., Isler, V. et al. 2012. Building a Communication Bridge with Mobile

Index Terms

Computer Science

Algorithms

Keywords

Connectivity Problem, Pursuer-evasion, Minimum Spanning Tree, Dynamic positioning problem.