Abstract

Patrolling an environment involves a team of agents whose goal usually consists in continuously visiting its most relevant areas as frequently as possible. Hence, patrolling consists in continuously visiting relevant areas of an environment, in order to efficiently supervise or control it. The Ant Colony Optimization (ACO) is adopted as the solution approach that efficiently solves the multiagent patrolling problem. Two strategies are employed: all agents are located on the same node at the initial time, and the agents are dispersed over the graph, they start to patrol from their new locations. This paper mainly describes the formulation problem of event detection by a multi-objective approach, an ACO and multi-agent approach are used to model and simulate the detection of events. Different parameters are evaluated in order to minimize them. The minimization of Worst Idleness,
Energy consumption and Communicational Idleness are not compatible. It is therefore necessary to seek compromise solutions. The set of compromise solutions is called Pareto Front. The set of solutions and Pareto Front are presented respectively for the cases of non-dispersion and dispersion of agents.

References

Telecommunications, 2009.

Index Terms

Computer Science
Wireless

Keywords
Agent ant mobile sensors optimization patrolling