

Wireless Sensor Network Layout

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Wireless Sensor Networks (WSN) allow the monitoring of wide and remote areas with precision and liveness unseen to the date without the intervention of a human operator. The evolution of wireless networking technologies and their key role in Future Internet scenarios offers an increasing wealth of opportunities for distributing data over wireless networks. When deploying a WSN, the major objective is to achieve full coverage of the terrain. Another objectives are the minimum number of sensor nodes and energy efficiency of the network. In this paper we address a WSN layout problem instance in which full coverage is treated as a constraint, while objective function is a product of the number of the sensors and energy efficiency. To solve it we propose Ant Colony Optimization (ACO) algorithm. The terrain is modeled with 500×500 points grid and both sensing radius and communication radius are set to 30. We compare our results with existing evolutionary algorithms.