

## Improving Coverage in Wireless Sensor Networks Using Particle Swarm Optimization Algorithm

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**Abstract :** Today WSNs have many applications in different fields like the environment, military operations, discoveries, monitoring operations, and so on. Coverage size and energy consumption are the important challenges that these networks need to face. This paper tries to solve the problem of coverage with a requirement of k-coverage and minimum energy consumption. In order to minimize energy consumption, visual sensor networks have been used that observe and process just those targets that are located in their view direction. As a result, sensor rotations have decreased, and subsequently, energy consumption has been minimized. To solve the problem of coverage particle swarm optimization, coverage optimization has been able to ensure coverage requirement together with minimizing sensor rotations while meeting the problem requirement of  $k \leq 14$ . So energy consumption has decreased, and this could extend the sensors' lifetime subsequently.

**Keywords :** K coverage, particle union optimization algorithm, wireless sensor networks, visual sensor networks

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