



Low Energy Adaptive Routing Hierarchy Based on Differential Evolution

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Abstract- In recent years, wireless sensor network (WSN) is a rapidly evolving technological platform with tremendous and novel applications. Many routing protocols have been specially designed for WSN because the sensor nodes are typically battery-power. To prolong the network lifetime, power management and energy-efficient routing techniques become necessary. In large scale wireless sensor networks, hierarchical routing has the advantage of providing scalable and resource efficient solutions. To find an efficient way to decrease energy consumption and improve network lifetime, this paper proposes a centralized routing called Low-Energy Adaptive routing Hierarchy Based on Differential Evolution (LEACH-DE). Simulation results show that the proposed routing protocol outperforms other well known protocols including LEACH and LEACH-C in the aspects of reducing overall energy consumption and improving network lifetime.

Index terms: Routing Algorithm, Differential Evolution, Cluster Head, LEACH-DE.