**Declaration**

I hereby declare that the dissertation work entitled “Low Cost Secure Routing Protocol for Wireless Sensor Networks” in this report is carried out by me at M S Ramaiah Institute of Technology, under the guidance of Mr. Divakar Harekal, Assistant Professor, Dept of CSE, Bangalore for the partial fulfillment of the requirements for the award of the degree of Masters of Technology. I further declare that work reported in this project has not been submitted as the basis for the award of any degree or diploma or certificate in this institute or any other institute or university.

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**Abstract**

To enhance the lifetime and security which are two important issues for wireless sensor networks (WSNs) with available energy resource. We design the low cost secure routing protocol to overcome the above two issues through: probabilistic based random walking and energy balance control (EBC). We further understand the energy resource consumption is not proportional to energy deployment for a given network topology, which undesirably retrieves the lifetime of WSNs. To unfold the above problems, an effective and organized non-uniform energy deployed strategy is used to increase the life and packet conveyance ratio under the available energy and security demands. We then provide a quality security assay on the proposed routing protocol. Our theoretical understanding and different survey signifies that the low cost secure routing protocol can provide a supreme tradeoff of routing quality and balances the energy, and significantly enhance the lifetime of the wireless sensor networks in all scenarios. In, case of non-uniform energy deployment, our survey shows that we can increase the lifetime and the number of packets that can be delivered totally is more than four times under the same assumption. We also look at the low cost secure routing protocol can achieve a high packet delivery ratio and avoiding the route trace back attacks.

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