CERTAIN INVESTIGATIONS ON ENERGY EFFICIENT ALGORITHMS FOR ENHANCEMENT OF QOS IN WIRELESS IOT NETWORKS

ABSTRACT

Wireless sensor networks are basically composed of sensors and these sensors are equipped with limited processing capabilities and limited battery power. They could be deployed in almost all locations where human presence and intervention is very difficult and nearly impossible.

Wireless IoTs can be used in real time include prediction of weather, natural disasters, home automation, medical patient monitoring, crowd surveillance and e-services.

These merits discussed above have been taken up for investigation and research to improve Quality of Service (QoS) rendered to the customer or consumer.

The first objective focuses on improvement of network performance parameters such as throughput, reduction in time delay of transmission, computational complexity, improved packet delivery ratio, achieved by using a supervised learning model achieved through a five layer artificial neural network model.

The second objective is to implement a fool proof and highly robust intrusion detection and defence mechanism The proposed intrusion detection system has been tested against wormhole attacks, R2L attacks, denial of service are compared with Bayesian models and tree based approaches.

The final objective of this thesis is to develop an energy aware routing

algorithm to reduce the overall power consumption by the nodes to improve the network lifetime. This has been achieved by proposing Cuckoo search algorithm to optimize the process of cluster head selection and tested against benchmark algorithms and protocols like LEACH, PEGASIS and TEEN.

The inferences from this thesis could be used for a future scope of research as wireless sensor networks together with IoTs.