

# Fuzzy Logic Based Region wise Routing Protocol for Wireless Sensor Network

Mugdhita Rege<sup>1</sup>, P. P. Narwade<sup>2</sup>

<sup>1</sup>PG Student, MGM College of Engineering and Technology Kamothe,

<sup>2</sup>Professor, MGM College of Engineering and Technology Kamothe, Dept. Electronics and Telecommunication Engg.

<sup>1</sup>[mugdhita32@gmail.com](mailto:mugdhita32@gmail.com), <sup>2</sup>[narwadepp@rediffmail.com](mailto:narwadepp@rediffmail.com)

*Abstract: Wireless sensor networks are collection of several small, battery operated electronic devices known as sensors in order to monitor physical phenomenon such as temperature, pressure or humidity. Furthermore these sensor nodes are usually operated by battery which is normally not easy to replace. Till now many routing protocols have been proposed for energy efficiency of both homogeneous and heterogeneous environments. Hierarchical routing protocols are considered as best in regard to energy efficiency [1]. Clustering technique using hierarchical routing protocols minimizes energy consumption in a great extent. We propose here a protocol designed for the characteristics of heterogeneous WSNs. Region-wise routing protocol (FUZZY-SEP) is used for some nodes to transmit data directly to base station. In FUZZY-SEP, Cluster Head (CH) selection is based on fuzzy level information which minimizes the time for the selection of cluster head.*

*Key Words: WSN (Wireless sensor network), FUZZY-SEP (Region-wise routing protocol), CH (Cluster head), BS (Base station), fuzzy logic, network lifetime, routing, energy efficiency.*