Modification in Routing Protocol SEP to Improve Life of WN

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ABSTRACT:
We propose SEP, a heterogeneous-aware protocol to prolong the time interval before the death of the first node (we refer to as stability period), which is crucial for many applications where the feedback from the sensor network must be reliable. SEP is based on weighted election probabilities of each node to become cluster head according to the remaining energy in each node. We show by simulation that SEP always prolongs the stability period compared to (and that the average throughput is greater than) the one obtained using current clustering protocols. We conclude by studying the sensitivity of our SEP protocol to heterogeneity parameters capturing energy imbalance in the network. We found that SEP yields longer stability region for higher values of extra energy brought by more powerful nodes.

KEYWORD: - WSN, Clustering Head, SEP

I. INTRODUCTION:

Conditions that are related to environment like pressure and temperature etc. can be monitor by sensors in wireless sensor network (WSN). Data transfer through network to main location. In modern days bi – directional networks are used that enable to control on sensor activity. First of all this type of network was motivated by military but now it use in many other areas like industrial and consumer applications. WSN is built by hundreds or thousands nodes. There is requirement of some basic components that necessary to build a network. Basic components are like radio transceiver, processor, memory, GPS, sensors, and power source as showing in fig 1. The components need power source that is battery is used for this purpose [1]. The equipment with sensors has capability for data processing and communication. Main function of these components is to provide an environment for the packets transmission
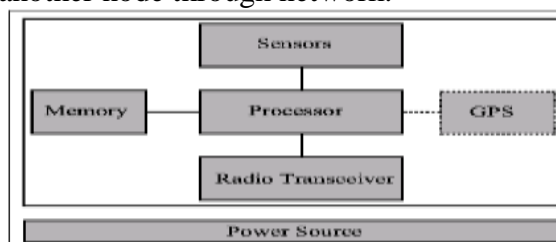and receiving from one node to another node through network.

Fig 1 Basic components for WSN

There are many protocols are available in market that are used to provide communication between two sensor nodes in WSN. One of these protocols is LEACH protocol which we are going to discuss.

LEACH is most commonly used protocol for communication in WSN [1]. Basic concept of this protocol is based on real time service. Actually LEACH is designed only to provide a smooth real time communication service between two nodes. In which a node have information about the neighbor nodes. No routing table is used for the transmission of packets. Here another concept is used for the packet transmission. It is necessary to know the way through which our packet moves. That concept used for routing is Stateless Non-

Deterministic Geographic Forwarding (SNGF). This protocol is known as "stateless". Reason behind calling it stateless is that no use of routing table, that result use of low memory. SNGF is routing module that has responsibility to choose next node for transmission of packet. It needs four other modules to maintain delivery LEACH at network layer. This also provides a function to indicate about congestion or not on selected way. The basic components [2] for LEACH protocol are showing in fig 2 as following.
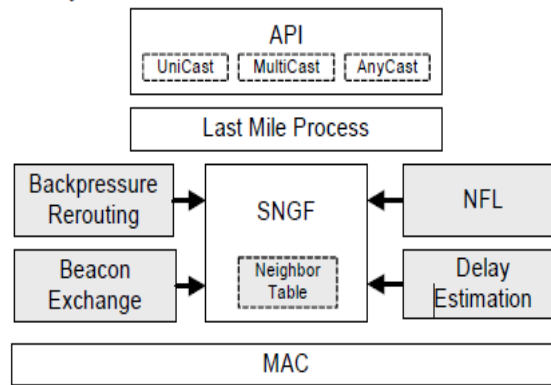

Fig 2 Basic architecture of LEACH

As we have study about the working of LEACH protocol. With this study major limitations arise that is LEACH protocol chooses all packets in same mechanism. No different method is available for real and non-real time packets. Same preference gives to both type packets. It maintains a desired LEACH for each packet. If trying to modify value of any parameter then it will degrade performance of LEACH protocol.

II. PROPOSED WORK:

We used an area of 1000_1000 square unit. We have done 2 different types of experiment. One of them is our SEP model and second one is about Leach protocol. We create some nodes and generate a network then implement our proposed model and get results after that a Leach protocol is implement on the same network and get results. The comparison of both results will decide which one is better. There are some parameters on that basis we can conclude expected results. For performance measurement we have calculated the overall (aggregate) throughput of all the nodes.

III. SOFTWARE USED:

MATLAB (MATRIX LABORATORY) provide a environment for computation in numerical form. This language is programming of fourth-generation. Main part in developing this is by Math Works, there is manipulation on matrix in MATLAB we can say that MATLAB is matrix based. Functions and data are represented in plots; we can implement every algorithm on this tool. To make it friendly nature there is interfaces are provided for users. C, C++, and FORTRAN etc. languages are also interfere with MATLAB tool.

Although preference is given to MATLAB for computation of numerical type, there is a symbolic engine name as MUPAD that is used in optical toolbox. This engine has capability to access computation that is in form of symbol. There is also an additional package that is known as Simulink that provide results in simulation form, model are designed in this Simulink tool.

There are near about one million users for MATLAB tool in 2004 across all over the world. There are users from every field like engineering, science, agriculture, research. Industry or research work prefers mostly this tool for work in their field. As craze of MATLAB increase it comes in teaching of engineering students and Linear Algebra courses, as part of their syllabus in further studies, there are standalone version of MATLAB is used for study in many universities and colleges, a student learn about user interface and script writing. This course help those students who have passed out many years ago before the development of

MATLAB in market, students are prepared for high level degree after study of these type courses. So MATLAB is used as a problem solver, problems belonging to engineering field are solved in this tool. Due to this course study a student feel comfortable in area of company job with technical skills of current market. Technical computation is solved using MATLAB which performance is good as compare to others. This is integrated tool provide an environment for development, computation for integration, and visualization. A modern environment for programming is MATLAB. MATLAB has sophisticated data structures, editing that is built in and tools for debugging, and object-oriented programming is supported. Due to these factors MATLAB has popularity as a tool for teaching and research. There are many advantages as compared to other languages (e.g., C, FORTRAN) in case of technical problem solution. Array is a bsic data element in MATLAB which make it interactive system; also there is no need of dimension for array. In market for use in commercially it allows for this purpose in 1984 and now days achieve as a most popular tool in universities and colleges. There is solution of very heavy computation due to build in routine which is most powerful. Graphics can be used in a very easy manner using commands due to which result of visualization generated quickly. A toolbox is collection of specific applications that are collected in packages. Toolbox available for each filed like signal processing, symbolic computation, control theory, simulation, optimization, and several other fields of applied science and engineering.

In our work there is use of MATLAB to achieve the results. Matrix Laboratory is full form of MATLAB. LINPACK (linear system package) and EISPACK (Eigen system package) projects developed matrix based software. This matrix based software is known as MATLAB which access data, image etc. in form of matrix and manipulate that as a matrix.

For many years, the main language for all engineering and scientific applications involving number crunching was FORTRAN. However, it was a complicated and inefficient task as FORTRAN was very difficult to understand and it also had computational limitations. To address these problems was FORTRAN, was very difficult to understand and it also had computational limitations. To address these problems with FORTRAN, Cleve Moler developed MATLAB in 1970s. In MATLAB the computations were carried out on whole matrices or vectors at once. Later in 1984, Jack little rewrote MATLAB in C incorporating more functionality including plotting gestures and founded The Math works Inc. to market it.

IV.   RESULT ANALYSIS:
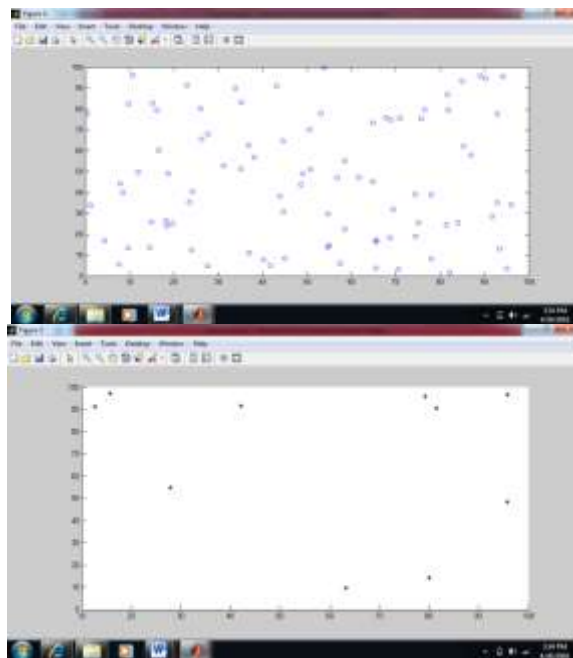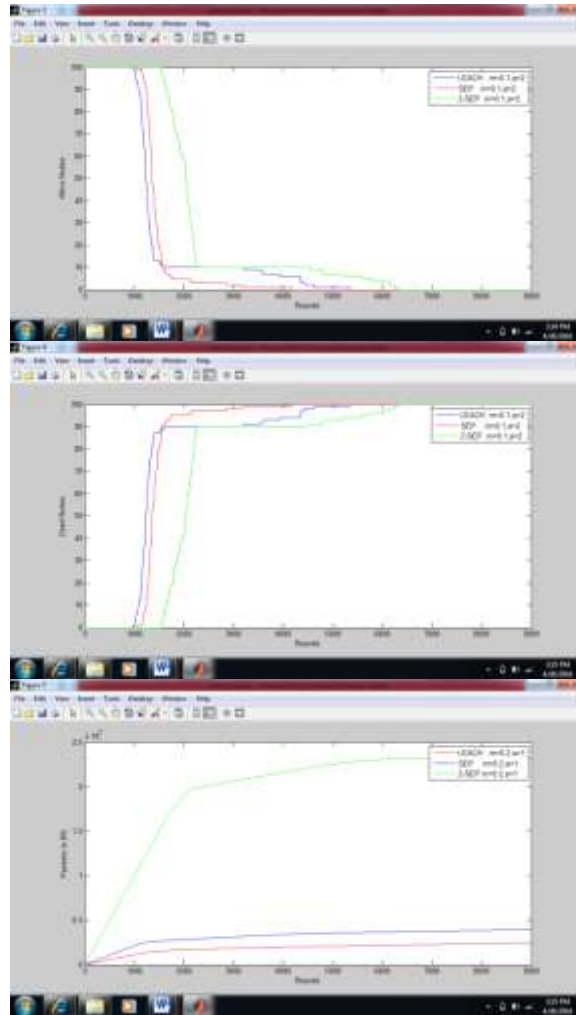
V. CONCLUSION:

We are currently extending SEP to deal with clustered sensor networks with more than two levels of hierarchy and more than two types of nodes. We are also implementing SEP in Berkeley/Crossbow motes and examining deployment issues including dynamic updates of weighted election probabilities based on current heterogeneity conditions as well as the integration of SEP with MAC protocols that can provide low-cost information about the distribution of energy in the vicinity of each node.

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