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Novel Techniques to Eradicate Energy Inefficiencies That Abbreviate The Lifetime of The Cell Phone Based WSNs

WILSON THOMAS
Department of Computer Science , JJTU Jhunjhunu, Iindia, wilsonthomas111@gmail.com

LAJISH V. L
Department of Computer Science Calicut University, Kerala,India, lajishvl@gmail.com

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[1]WILSON THOMAS & [2]LAJISH V. L

[1] Department of Computer Science , JJTU Jhunjhunu, Iindia
[2] Department of Computer Science Calicut University, Kerala,India
E-mail : wilsonthomas111@gmail.com[1] & lajishvl@gmail.com[2]

Abstract -The Cell Phone Based WSN of compressed micro-sensors for data acquirement and supervise some surroundings distinctiveness, such as noise, trembling, temperature, and strain. These sensors are entrenched devices accomplished of data communication. In numerous of applications, sensor nodes are deployed over a geo-graphically large region. Due to their configuration, data of measured values must be transferred among stations through these sensor nodes. For this reason a successful, energy efficient routing protocol should be implemented to avoid data loss and additional challenges within limited energy levels. This paper presents a cell phone based routing algorithm for wireless sensor networks, based on the selection of the scheme of dynamic nodes. The key objective is to boost the lifetime of a sensor network while not cooperation data delivery. Significant tasks such as, scrutinize, supervise and determine of energy levels of nodes are handled by these independent mechanisms.

Keywords - *Abbreviate of Lifetime WSNs protocol, Cell Phone, Cluster-based Routing Protocol, Mobility Factor etc.*

I. INTRODUCTION

The speedy enlargement of technology has specified increase to a novel class of distributed systems known as Cell Phone Based Wireless Sensor Networks. A WSN consists of several sensor nodes that have the capability to converse among themselves using radio antenna. These nodes are tiny in size with limited memory, energy source and processing power. Hence they all work together in collaboration as a network towards reaching a general goal of sensing a physical parameter over a large geographic area with superior accuracy. The Wireless Sensor Networks are measured as influential sensing network to the present day world due to their agreeable to support a diversity of real-world applications. The elasticity in its use is also the cause for it to be a demanding research and engineering problem. Wireless Sensor nodes are constrained in energy provide and bandwidth. Thus, inventive techniques that eradicate energy inefficiencies that would abbreviate the lifetime of the network are extremely required. Such constraints collective with a distinctive deployment of big number of sensor nodes pretense many challenges to the supervision of Wireless Sensor Networks and require energy consciousness at all layers of the networking protocol stack. Several new algorithms have been proposed for the routing problem in Wireless Sensor Networks. These routing mechanisms have taken into consideration the inherent features of WSNs along with the application and architecture requirements. The task of finding and maintaining routes in WSNs is nontrivial since energy restrictions and sudden changes in node status (e.g., failure) cause frequent and unpredictable topological changes. Routing techniques proposed here employ some well-known routing tactics to minimize latency and energy consumption e.g., data aggregation and clustering.

II. RELATED WORK

Routing in Wireless Sensor Networks is extremely demanding due to the intrinsic characteristics.

- Since the addressing scheme is not well appropriate. Enormous number of nodes makes it more complex. Thus addressing scheme cannot be solved by conventional IP based protocols.
- Sensor networks necessitate supervision for transferred data approximately all characteristic applications of communication networks.
- Sensor nodes are usually cell phone based and difficult to determine location on geographical area. Global Positioning System provides some sort of information but it’s not a practicable solution.
- Many new algorithms have been proposed for the routing problem in WSNs due to dissimilar scenarios and dissimilar situations. None of them overcome above challenged.

In common, routing in WSNs can be divided into three main categories such as data-centric routing, hierarchical based (cluster based) routing, and

location based routing depending on the network structure. In flat based routing all nodes plays the same role and it is not feasible to assign a global identifier to them. Base Stations sends queries and waits for data from the sensors. Well known protocols proposed are the Sensor Protocol for Information via Negotiation [7], [8], Directed Diffusion [9], Rumor Routing [10], Minimum Cost Forwarding Algorithm [11], Gradient based Routing [12], Information driven sensor Querying [13] In a hierarchical architecture, sensor nodes are grouped and the one with the greatest residual energy is usually chosen as the cluster head. Higher energy nodes can be used to process and send the information, while low energy nodes can be used to perform the sensing task of the environment. This routing also called cluster based routing method. Some of the proposed cluster based protocols are the Low-Energy Adaptive Clustering Hierarchy (LEACH) [13], Power-Efficient Gathering in Sensor Information Systems (PEGASIS) [14], Threshold sensitive Energy Efficient sensor Network protocol (TEEN) [15], the location information of the sensor nodes is elegantly utilized in order to determine energy efficient routing paths. The distance can be estimated according to the level of signal strength. To save energy, some location based schemes demand that nodes should go to sleep if there is no activity. Well known protocols in this category are the Minimum Energy Communication Network (MECN) [4]. Geographic Adaptive Fidelity (GAF) , Geographic and Energy Aware Routing (GEAR) , Most Forward within Radius (MFR) etc.

III. PROPOSED CELL PHONE BASED ROUTING PROTOCOL

We present the effective standard of the proposed Cluster Protocol for Cell Phone Based WSN with Pseudo -code. The Abbreviate of Lifetime WSNs protocol (ALWP) works into the following phases.

A. Cluster start assortment

The Clusters are formed based on the environmental locations of sensors by base station and selects cluster heads based on the remaining energy and position of the sensors. Since all nodes, have the same preliminary energy cluster heads, is selected based on a random number between zero and one and cluster heads probability, which is comparable to the method used in the Low-Energy Adaptive Clustering Hierarchy protocol [2, 4]. Once cluster heads are selected they broadcast their positions and identification details. A node N is assigned to a cluster if the cluster heads of that cluster is at the minimum Distance with N. The node N then sends a registration message to the cluster heads with its identification details and current position. Cluster heads send cluster information to Base Station for centralized control and operations. We assume that each cluster heads that is selected at the beginning of a round is static until a new cluster heads is selected in the next round based on the mobility factor of nodes. After a number of rounds a new cluster formation and cluster heads selection phase is initiated to balance the network energy consumptions. Once the network process starts and nodes move at a fixed speed, each node keeps track of the number of movements inside and outside of its recent cluster based on which node's mobility is calculated at each round.

Cluster start assortment Pseudo -code:

```
struct node
{
char[10] clusterarea;
int numberofclusters;
int clusterid;
struct node *next;
}*p;
void initial state(int clusterformation,char*
initialCHselection)
int noofnodes;
void main()
{
int i;
char[10] k;
intial state(i,&k);
}
initial node(clusterinformation,initialCHselection)
{ for (int i=1;i<=noofnodes;i++)
{ for(int j=1;j<=noofcluster;j++)
{ for(int k=1;k<=i;k++)
{ if(position [node[i]]==clusterarea[clusterid[j]]
{ node[i]<-clusterid[j]}
}}} for(j=1;j<=i;j++)
 { CHprobnode[i][j]<-random(0,1)
 if (CHprobnode[i][j] < CHprobability)
 { CH[i] <-node[j]; }
   }
```

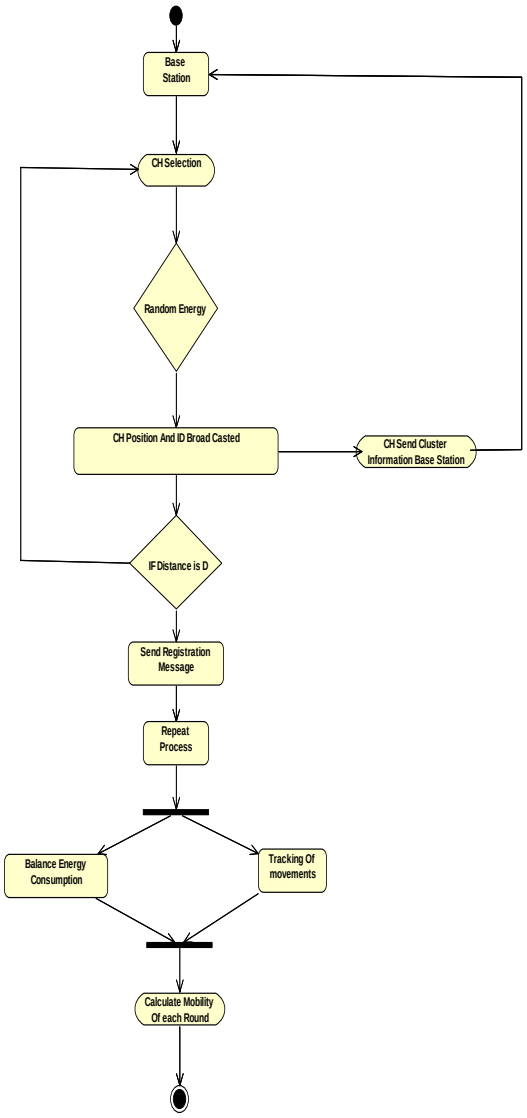

Figure : 1

B. Unwavering segment

In the *Unwavering segment*, cluster heads assign timeslots to the member nodes using time division multiple access scheme. Member nodes of a cluster transmit data, receive acknowledgements from the cluster heads, and calculate their movements inside and outside of the cluster at their allocated timeslot. Thus, no extra timeslot is required to calculate nodes mobility. We also presuppose that every node are consistent in requisites of mobility and so, while a node moves out of a cluster there is a high probability of a further node entering into that cluster. Though, if a node moves into a new cluster and sends J-R message to cluster heads, the cluster heads does not assign the node a timeslot until any timeslot becomes free for moving a node out of this cluster.

Unwavering segment Pseudo -code

```
struct node
{ char[10] clusteranea;
int numberofclusters;
int clusterid;
struct node *next;
}*p;
void Unwavering segment (int TDMA,float mobilitycalculation, char*
newCHselection,int datapacket)
int noofnodes;
void main(){ int i; char[10] k; Unwavering segment (i,&k);}
Unwavering segment (int TDMA,float mobilitycalculation, char*
newCHselection,int datapacket)
{ int r; for (int f=1;i<=r;i++)
{ for(int j= 1;j<=k;j++)
{ if (node[k][j] = senseevent){ node[k][j] sends data to CH calculates
dataenergyConsumption[k][j],
calculate recieveenergy;
 CH sends acknowledgement;
}else{ node[k][j] sends special packet calculate
specialenergyconsumpotion[k][j];
  calculate recieve energy CH[k];
  CH sends acknowledgement node[k][j]; }
if node[k][j] moves inside cluster k {
++countmoveinsidecluster[node[k][j]]
} if CH not recieve data from [k][j] {
delete node[k][j]; notify BS about [k][j];
} else if node[k][j] not recieve acknowledgement from CH
{ broadcast joint request
} if BS recieve new node and moved node for node[k][j]
{ mark node[k][j] as moved
 ++countmoveoutsidecluster[node[k][j]]
} else if CH recieve new node or move node
{ mark node[k][j] as failed;
} }
CH[k]aggregates data and sends to BS
CH energy consumption[k] for aggregating, sending to BS;
}
```

at any time the node N sense the subscribed events at its allocated timeslot, the node N sends data packet to cluster heads In case of no such sensed event of attention, the node N sends a tiny sized particular packet to notify cluster heads that it is unmoving alive or within the communication range of cluster heads. After receiving the data or individual packet cluster heads replies to N with an acknowledgment packet. If a cluster heads does not receive any data or special packet from N at its allocated timeslot the cluster heads assumes that the node N either has moved out of the cluster or failed. Then cluster heads deletes the node N from its members list and also the timeslot allocated to N. cluster heads in addition notifies Base station the identification details of N. On the other hand, whenever x does not receive any acknowledgment packet from cluster head,N assumes that it is no longer attached to its cluster head due to

mobility. Then N broadcasts a J-R packet and the cluster head that are within the communication range of N and in addition have free timeslot replies N with an A-J packet. Then N registers to the cluster of the Cluster Heads from which N receives the A-J packet with the maximum signal strength etc.

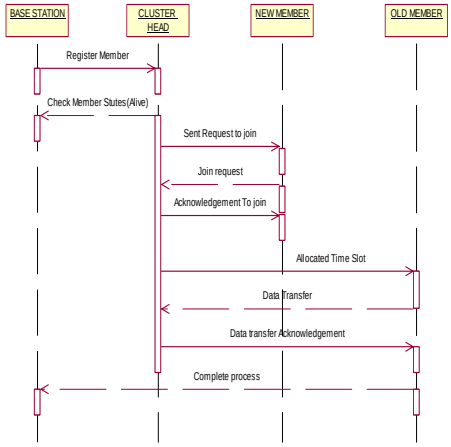

Figure: 2

IV. RESULTS SIMULATION

Simulation results show that the energy consumptions of the LEACH and DSC protocols are much more than that of the proposed ALWP protocol over a number of rounds Fig 3 demonstrates the network lifetime in terms of the remaining energy of the network over a number of rounds. Over research We discover that the energy debauchery in the LEACH and DSC protocol over rounds is much more than ALWP protocol and hence, the LEACH and DSC protocol have less network lifetime than that ALWP protocol.

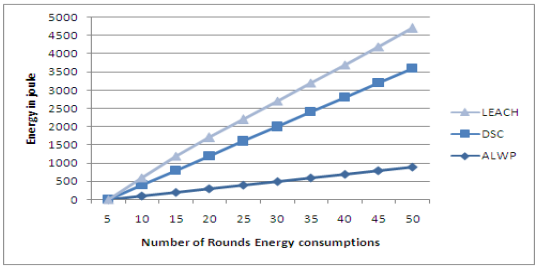

Figure : 3

V. CONCLUSION AND FUTURE WORKS

In this research we propose a new energy efficient routing algorithm which is related with distance factors and energy. Characteristic routing techniques have major purpose of boost the lifetime of the sensor network while not com promising data delivery. For the future work .we will propose sensor mediators going to use to sense, monitor and verification the concerned data. All of the cleverness mediators are going to be man-aged from a supervision center which is associated to descend by the satellite simulation.

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