

Load Balancing Optimal Network through Random Assessment Delay Based CBLB

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Abstract

In Cluster based Load Balancing Routing Protocol, this proposed routing protocol is utilized to reduce the energy consumption and enhance the performance of routing. In the decentralized network, the proposed CBLB routing protocol make a cluster head and in defined networks, the cluster head can be employed to distribute the workload evenly to the cluster members for decreasing the utilization of energy. With the various existing protocols results of experimental examine the proposed protocol presentation. This protocol accomplishes high delivery rate, throughput and decrease the energy utilization, routing overhead and delay. In an hybrid switching Scheme, to diminish the issue of communicate storm, in the writing probabilistic system have been displayed to create a decision of rebroadcast in DTN. On the other hand, the irregular evaluation delay (RAD) in strategies for probabilistic circulation results in poor achieve capacity and enhanced end to end delay in the stick stuffed systems. The strategy for probabilistic modifies its RAD in view of level of system clog in this exploration. The consequences of reproduction reveal that the new plan outflanks the current techniques in term of spared rebroadcast, directing overhead and bundle conveyance in DTN.

Keywords: Cluster Based Load Balancing Routing Protocol, Random Assessment Delay, Hybrid Switching, Packet Delivery.

I. INTRODUCTION

Wireless Sensor Networks is an accumulation of spatially conveyed wireless sensors to screen a hardly any progressions of characteristic conditions, for instance, air sullyng obsession, forest fire, and question moving for network path without relying upon any fundamental system reinforce. Starting late, different research attempts have been made to improve sensor gear and framework outlines remembering the true objective to capably mastermind WSNs for a combination of employments.

Remote Sensor Networks (WSNs) is the multi-hop correspondence remote frameworks. As a result of a wide respectable assortment of WSN application essentials, notwithstanding the way that an all around valuable WSN arrangement can't fulfill the necessities everything considered.

According to some specific applications, a couple of framework parameters, for instance, center point thickness, recognizing compass, and transmission run must be carefully considered at the framework setup organize. To achieve this, it is fundamental to get the effects of framework parameters on the framework execution concerning application necessities.

Wireless sensor systems are put to screen the detecting field and gather information from it. Generally, two methodologies can be executed to achieve the information accumulation assignments: through direct correspondence, and multi-jump sending. In the main stage, sensor hubs transfer the information straightforwardly to sink through one-jump wireless correspondence; this may result in long correspondence separates and annihilate the vitality proficiency of sensor hubs. Then again, by multi-bounce sending, information are educated to the sink over various transfers, and the correspondence remove is limited. Nonetheless, since hubs close to the sink ordinarily have a substantially denser sending load, their vitality might be depleted quick, which lessens the system execution. The objective of the sensor hub is to assemble the information at settled interims at that point move the information into computerized flag and in the end send the flag to the sink or the base hub. Prior to observing the area, the sensor hubs must structures a system and distinguish their neighbor hubs. Vitality utilization can happens while transferring the information and detecting the field to Mobile Collector.

II. LITERATURE REVIEW

In this chapter, a brief description of different papers about geographic routing, cluster formation, data collection, data forwarding, energy consumption and transmission of node to sink is carried out. In modern years, a number of studies have discussed the problems of data collection techniques to discover the efficient path.

E. Lee, S. Stop, F. Yu, and S.- H. Kim et al., indicated the geographic steering conventions on sensor systems centers around finding approaches to ensure information sending from the source to goal, and numerous conventions have not been done on get-together and collecting information of sources in adjoining and a nearby area. Be that as it may, information created from the sources in the area are frequently

exceptionally corresponded and repetitive. Thusly, assembling and accumulating information from the district in the sensor systems is critical and important to spare remote assets and the vitality of sensor hubs. To address this issue, the idea of a nearby sink and Single Local Sink Model in geographic steering is presented. In Local sink, an element that accumulates locally information in a neighborhood and adjoining district, at that point conveys the totaled information to a worldwide sink. A Global Sink situates in a particular position of the system. It is a base station (or sink) which assembles information from the whole sensor fields and gives them to clients in remote sensor systems. Single nearby sink is proficient of doing a few sources in a huge scale neighborhood and contiguous locale. This Model is utilized for characterizing the ideal area of single neighborhood sink in light of the fact that the due date of information is obliged and the cradle size of a nearby sink is restricted. At that point, they additionally drag out the Single Local Sink Model to a Multiple Local Sinks Model. Henceforth these are more compelling as far as the information conveyance proportion, due date miss proportion, and the vitality utilization.

Miao Zhao and Yuanyuan Yang et al., proposed a three-layer structure (sensor layer, bunch head layer and portable gatherer) called LBC-MU. It works disseminated stack adjusted grouping and different info and various yield (MIMO) uploading strategies countless and a predetermined number of versatile information authorities in a remote sensor arrange. Versatile authorities can assume control over the weight of steering from sensors, peripatetic over the detecting region and social occasion the information from close-by sensors through short-go remote correspondences. This methodology planned a progression of productive portable information gathering plans, which intends to abbreviate information gathering dormancy and drag out system lifetime. Moving direction arranging with multi-bounce transfers. Moving direction arranging calculation is received by separate and overcome technique that recursively decides a defining moment on the way. In portable authority, the moving way of is progressively founded on the heap adjusting among sensors, and circulation of sensors is performed alongside the moving direction intending to draw out the lifetime of system. The target of this paper is to accomplish low information accumulation inertness, long system lifetime and adaptability.

X. Tang and J. Xu et al., centers around the information accumulation plans for lifetime obliged in remote sensor organize. The point is to expand the exactness of information gathering over the system lifetime by the base station. It is utilized to create versatile refresh procedure and ideal refresh technique for both total and individual information accumulation. Different sensor systems are sent to work for a chose era is known as system lifetime. Disconnected calculation, a calculation to dispense the quantities of updates is built up to register the ideal information refresh technique. At that point figure the lifetime compelled information gathering issue in sensor systems demonstrate that, contrasted and the occasional procedure, versatile techniques altogether increment the exactness of information gathered by the base station.

L. Melody and D. Hatzinakos et al., booking issues in hub to

sink transmission. In particular, the trade between the likelihood of fruitful hub vitality utilization cost and information recovery, is examined. The advancement in the system of dynamic writing computer programs is defined. They concentrated on inadequately conveyed systems, wherever the fundamental model of single hub to sink transmission is considered. This streamlined model encourages us to comprehend the key principles and encourages the examination behind the previously mentioned tradeoff. This model has handy worth, however it may not generally be valid that one sensor is inside the correspondence range to the sink, it tends to be expected that just a single sensor in the range has parcels of thoughtfulness regarding the sink or assuming there are numerous remote channels accessible and just a single hub will transmit in a particular channel in the paper fills in as the reason for the investigation of more modern various hubs to sink transmission planning issues that ascent in thickly sent systems.

A.A. Somasundara, A. Ramamoorthy, and M.B. Srivastava et al., centers around the use of sensor systems to gauge and sense the earth. This prompts a wide assorted variety of useful and hypothetical issues on reasonable conventions for exchange and information detecting. Much of the time, the sensors are battery obliged that makes the issue of vitality proficiency of most extreme significance. Both these organizations center around the issue of condition checking and natural surroundings. One can likewise imagine situations where a sensor organize is used to detect contamination levels at arranged areas in a huge city. Unquestionably, there will be regions in which difference in contamination level will be all the more, for example, fabricating zones when contrasted with neighborhoods. By catching these practices, the detecting rates of sensors at different positions will regularly should be disparate. The sensor hubs in zones with more noteworthy variety in the wonder need to test all the more frequently. Remote systems have verifiably thought about help for Mobile Elements (ME) as an additional overhead. Be that as it may, late investigation has given by which system can exploit Mobile Elements (ME). In the event of remote sensor systems, especially the versatile components are purposely developed into the framework to enhance the system lifetime, and execution as mechanical bearer of data's. The Mobile Element (ME), which is controlled, visits the hubs to accumulate their information before their cushions are full. It might happen which the sensor hubs are inspecting at various rates, all things considered couple of hubs should be visited more as often as possible than others. At that point, present the issue of planning Mobile Element (ME), so that there is no information misfortune because of cushion flood in the system.

III. EXISTING SYSTEM

In information gathering sensor arrange applications, sensors are regularly arbitrarily scattered and thickly sent over a detecting field and left unattended in the wake of being composed, which makes it hard to supplant or revive their batteries. Later sensors frame into independent gatherings; those sensors close to the information sink regularly deplete

their batteries quicker than others attributable to all the more transferring movement. While sensors around the information sink exhaust their vitality, inclusion and system availability may not be ensured. Inferable from these confinements, it is basic to plan a vitality productive information gathering plan that devours vitality similarly over the detecting field to accomplish long system lifetime. Also, detecting information in a few necessities are time-delicate, and information gathering might be required to be performed inside a predetermined time period. Subsequently, an effective, huge scale information gathering plan should go for low information dormancy, long system lifetime and great adaptability.

In this existing work, considered a three-layer mobile data collection framework and investigated the following layers:

- 1- Sensor layer
- 2- Cluster Head layer
- 3- SenCar layer

1-Sensor Layer

The sensor layer is the base and major layer. Each sensor is thought to have the ability to talk about just with its neighbors, i.e., the centers inside its transmission go. In the midst of presentation, sensors are self-dealt with into groups. Each sensor is either a pack head or a group part in a passed on way. At long last, sensors with higher exceptional centrality would progress toward getting the opportunity to be gather heads and each pack has at most M cluster heads, where M is a framework parameter. The upside of such connection is that the intra-amass mean is kept to a solitary sway. For the condition that a sensor might be tied down by different gathering heads in a CHG, it may be then again reinforcement with one package set out toward stack adjusting.

2-Cluster Head Layer

The Cluser head layer contains all the social affair heads. As a fore communicated, between pack sending is basically used to send the CHG information of each package to SenCar, which contains an obvious affirmation rundown of various social occasion heads in a CHG. Such information must be sent before SenCar pulls back for its data gathering visit. In the wake of bearing this information, SenCar utilizes it to comprehend where to stop inside each package to accumulate data from its CHG. To guarantee the structure for between pack correspondence, the social occasion heads in a CHG can pleasantly pass on reproduced information to achieve spatial planned gathering, which gives strong transmissions and imperativeness saving.

3-SenCar Layer

The best layer is the SenCar layer, which in a general sense controls flexibility of SenCar. There are two issues to be

tended to at this layer. In any case, we need to pick the positions where SenCar would stop to visit with accumulate heads when it lands at a bundle. In LBC-DDU, SenCar talks with bunch heads by procedures for single-sway transmissions. It is equipped with two radio wires while each sensor has a lone social illicit relationship device and is kept as major as could be commonplace reasoning about the present situation. The headway occurrence of data moving in a pack is many-to-one, where data from different get-together scrambles toward SenCar. Furnished with two persisting get-together mechanical assemblages, each time SenCar makes twofold data exchanging at whatever point possible, in which two social affair heads can exchange data in the meantime. To quiet the effect from dynamic channel conditions, SenCar checks channel state data before every datum gathering visit to pick contender zones for information storing up. We call these conceivable domains SenCar can stop to perform synchronous information social occasions investigating center premiums. Truly, SenCar does not need to visit all the investigating center premiums. Or then again perhaps, it discovers some investigating focuses which are open and we call them picked contemplating focuses. Since SenCar has pre-getting some answers concerning the regions of examining focuses, it can locate a superior than normal heading via hunting down the most compelled course that visits each picked investigating point precisely once and after that advantages to the information sink.

The fundamental reason for this is to mishandle Multi-User Multiple-Input and Multiple-Output (MU-MIMO) technique for synchronous information trading to abbreviate inaction and to use scattered gathering for adaptability, to utilize portability for uniform vitality utilization and centrality sparing.

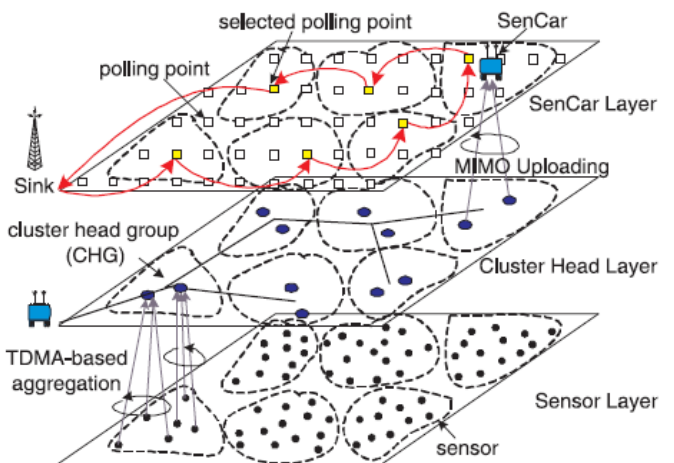


Fig 3.1.1

III. PROPOSED SYSTEM

A. This proposed system breaks down a plan in perspective of flexibility to talk the issue of imperativeness compelling data assembling in a sensor orchestrate. The issue of data gathering in sensor frameworks is knowledgeable about various circumstances, for instance, following animal

development in remote regions, checking physical circumstances, atmosphere conditions in national parks, common surroundings seeing on evacuated islands, action checking et cetera. The objective is to accumulate data from sensors and pass on it to a passage region point in the establishment. Such systems are depended upon to run unattended for broad stretches of time (demand of months). The crucial impediment is the essentialness spending plan of the center points which is limited as a result of their size and cost.

B. Late look into shows that genuine imperativeness saving can be expert in center point flexibility engaged remote sensor orchestrates that visit sensor center points and amass data from them through short-go remote trades. On the other hand, an imperative execution bottleneck of such WSN is the extensively extended end to end delay in data gathering as a result of the low conveyability of flexible base stations/sink. In generous scale Wireless Sensor Networks, using sinks' conveyability for data gathering has pulled in significant interests late years. Present examines either revolve around orchestrating a flexible sink propelling bearing of time to get upgraded framework QoS execution, or target at social occasion a tad of identified data in the framework. Colossal classes of WSN applications incorporate a game plan of pitiful urban zones (e.g urban stops or building squares) anchored by sensor centers checking characteristic components. Convenient sink (MS) mounted upon urban vehicles with settled bearings (e.g transports or diverse vehicles) give the ideal establishment to effectively recover material data from such isolates WSN fields. Past procedures incorporate it is conceivable that one hop trade of data from SN that exist in the MS go or significant commitment of framework periphery center points in data recuperation, data taking care of, data buffering, and data passing on errands. These centers chance lively imperativeness exhaustion realizing loss of QoS, orchestrate accessibility and reduced framework lifetime.

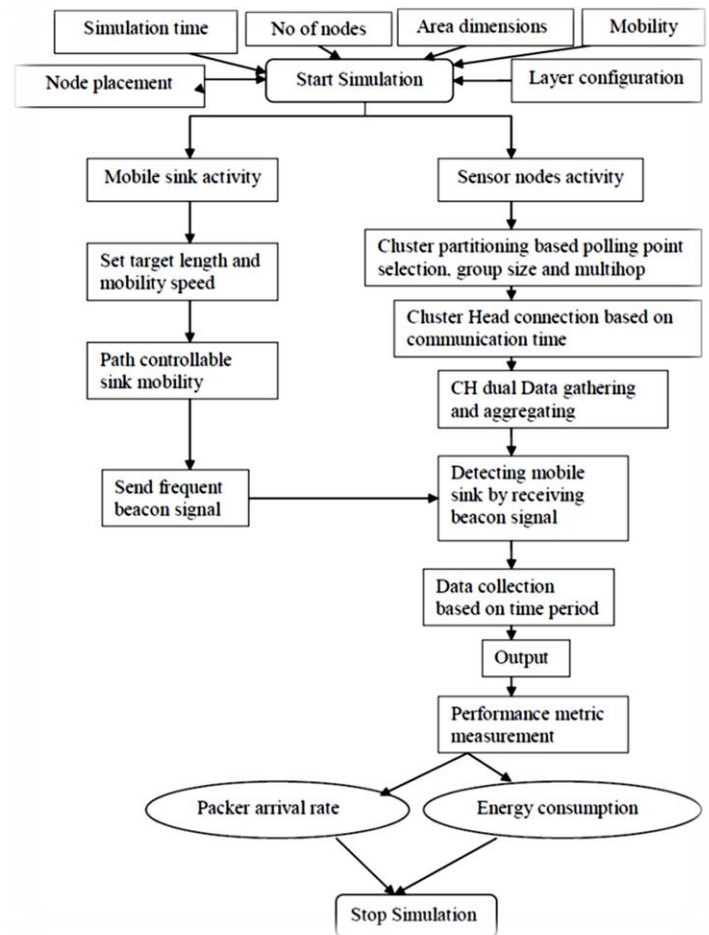
C. Delay Aware Adaptive Multi Hop Routing Protocol

Postpone Aware Adaptive Multi Hop Routing Protocol (DAMHR) is recommended that at the same time decrease the, vitality usage and increment the aggregate sum of information.

Every part picks the nearest Polling Point (PP) as far as bob evacuate as its objective and after that sends its own data or frontwards data from downstream centers to upstream centers along most concise way trees. Regardless of the way that, the amount of people related with each Polling point is free of its correspondence time that may cause unevenness in the undertaking of people among the Polling point. It is possible that some Polling point have less people with longer correspondence time, exhibiting that the adaptable sink may gather less data than the typical data. Of course, some Polling point with short correspondence time may have such countless. Hence, the excess data development may result in oversaturated Polling point's which are not prepared to transmit all data to the versatile sink in the confined

correspondence range. A correspondence tradition and a speed control computation of the compact sink are prescribed to improve the imperativeness execution and the proportion of data accumulated by the sink.

This proposed tradition called DAMHR goes for diminishing the general framework overhead and imperativeness utilize related with the data recuperation process while moreover ensuring deferred framework lifetime and balanced essentialness use among sensor center points . This is proficient through building bunch structures contained of part center points that course their consider data to their apportioned bundle head (CH). By then, the CHs perform data sifting upon the unrefined data mishandling potential spatial-common data reiteration and forward the isolated information to their relegated Polling centers, consistently arranged in region to the Mobile Sink's (MS) way. **B. Architecture Diagram**



A. System Models

1. Dual data clustering mechanisms
2. Polling Points (PP) Selection
3. Data aggregation and forwarding to the PP
4. Communication between PP and Mobile Sink
5. Performance measurements

1. Dual data clustering mechanisms

In group based frameworks, Cluster Heads (CHs) will definitely devour considerably more vitality than different sensors because of dealing with between bunch information sending and intra-group total. Every sensor is thought to have the capacity to discuss just with its neighbors, i.e., the hubs inside its transmission extend. Amid instatement, sensors are self-sorted out into bunches.

To begin with, organizes the sensors into bunches, wherever each group has different bunch heads. This system permits double information transferring between the portable gatherer and various group heads, and furthermore adjusts the heap of intra-bunch total. Second, numerous bunch heads inside a group can team up with one another to play out the vitality proficient between group transmissions.

For comfort, the different bunch heads inside a group are known as a bunch head bunch (CHG), with each bunch head being the associate of others. The advantage of such association is that the intra-group collection is constrained to a solitary jump. For the situation that a sensor might be secured by different bunch heads in a CHG, it very well may be alternatively subsidiary with one group set out toward stack adjusting.

2. Polling Points (PP) Selection

Polling Points (PP) Selection is versatile, it has the opportunity to pick any favored position. In any case, this is infeasible by and by, on the grounds that it is difficult to evaluate channel conditions for every single conceivable position. Along these lines, we just consider a limited arrangement of areas called PP's (Polling Point). PP's assurance availability of sensor islands with MS consequently, their choice to a great extent decides organize lifetime. PP's exist in the scope of voyaging sinks and furthermore their area relies upon the situation of the CH and sensor field as for the sinks way. Reasonable PP's are those that stay inside the MS run for similarly expanded time in generally short separation from the sink's way and have adequate vitality supplies.

3. Data aggregation and forwarding to the PP

Proficient information social event and conglomeration calculations for sensor systems (SNs) use the reality which a sensor hub eats up less vitality for data (information) handling than for correspondence. Gathering data at the group head hub level, for example, processing the total or normal of sensor readings decreases the basic for correspondence, rather than exchanging the bundles of every hub separately. A hub first totals the got parcels of the hubs in correspondence go, at that point interconnects the accumulated data to the PP hub in the gathering way.

To maintain a strategic distance from crashes amid information collection, the CHG receives time-division-numerous entrance (TDMA) based procedure to organize interchanges between sensor hubs. As previously mentioned, the different bunch heads in a CHG arrange among group

individuals and team up to speak with different CHGs. bunch heads in a CHG as numerous receiving wires both in the transmitting and accepting sides with the end goal that an identical MIMO framework can be developed. The self-propelled bunch head in a CHG can either arrange the neighborhood data sharing at the transmitting side or go about as the goal for the helpful gathering at the getting side. The between group transmissions are just used to forward the data of each CHG to PP's.

4. Communication between PP and Mobile Sink

The last period of this proposed convention includes the conveyance of information supported to PPs to MS (SenCar). Information conveyance occurs along an irregularly accessible connection thusly, a key prerequisite is to decide while the network between a PP and the MS (SenCar) is reachable. To gather information as quick as could be expected under the circumstances, SenCar should stop at positions inside a bunch that can accomplish most extreme limit. Correspondence should begin when the association is accessible and end when the association never again exists, with the goal that the PP does not keep on transmitting information when the MS is never again getting it.

Indeed, SenCar does not need to visit all the surveying focuses. Rather, it ascertains some surveying focuses which are available and we call them chose surveying focuses. Likewise, we have to decide the succession for SenCar to visit these chose surveying focuses to such an extent that information gathering inertness is limited. Since SenCar has pre-information about the areas of surveying focuses, it can locate a decent direction by looking for the most brief course that visits each chosen surveying point precisely once and after that profits to the information sink.

5. Performance Measurements

First, the necessary input parameters are needed to stipulate the Config.in file as said above. For simulation process, certain parameters are specified as mentioned below to enable hassle free simulation.

Terrain range – (500,500)

Number of nodes – 20 (This is a scalable simulator. Henceforth, the number of nodes can be increased at will.)

These parameters were followed to for the entire process of experimentation with the new protocol.

The performance of the proposed algorithm is calculated through GloMoSim simulator and the Performance metrics are used in the simulations for performance comparison:

- i) Packet arrival rate-The ratio of the number of collected data packets to the number of total data packets sent by the source.
- ii) Average end-to-end delay-The average time passed for delivering a data packet within a successful transmission.

- iii) Communication overhead-The average number of transmitted control bytes per second with both the control packets and the data packet header.
- iv) Energy consumption-The energy consumption for the entire network with transmission energy consumption for both the control and data packets.

IV. CONCLUSION

In this paper, DAMHR convention have exhibited for versatile information accumulation in a WSN. It goes for limiting the general vitality utilization and system overhead while additionally guaranteeing the adjusted vitality utilization among sensor hubs and drag out system lifetime related with the information recovery process. This execution contemplate exhibits the viability of the proposed convention. The outcomes demonstrates that DAMHR convention can intentionally lessen vitality utilizations by enhancing steering issues on hubs and adjusting remaining task at hand among cluster heads, which accomplishes less information accumulation time contrasted with MU-MIMO portable information social occasion and vitality saving money on bunch heads. In this paper, the vitality overhead additionally supported and investigated the outcomes with various quantities of bunch heads in the framework. In this paper, DAMHR convention have exhibited for versatile information gathering in a WSN. It goes for limiting the general vitality utilization and system overhead while additionally guaranteeing the adjusted vitality utilization among sensor hubs and drag out system lifetime related with the information recovery process. This execution think about shows the viability of the proposed convention. The outcomes demonstrates that DAMHR convention can intentionally diminish vitality utilizations by enhancing steering issues on hubs and adjusting outstanding task at hand among bunch heads, which accomplishes less information accumulation time contrasted with MU-MIMO versatile information social occasion and vitality saving money on cluster heads. In this paper, the vitality overhead additionally defended and investigated the outcomes with various quantities of cluster heads in the system.

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