Power efficient routing scheme for connecting of node by using distance vector algorithm

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ABSTRACT:-

In this paper, we are using a Distance Vector Algorithm (DVA), which is a distributed and asynchronous type of algorithm. Using this algorithm, we are trying to reach from source to destination using single-path routing and are the type of single path routing protocol that is effective when there is a small network and also saves storage space. As well as assured certain parameters such as shortest path, load, congestion, and effective power. The Big deal is to route the nodes from source to destination as per the Parameters.

KEYWORD: - Routing, Wireless, Data Dissemination, Networks Technology, Hope Path Routing.

INTRODUCTION:-

In network communication which is establish between pair of nodes and this communication is done through wired and wireless and compare than wired wireless is better for communication because of convenient for far away system and also effective communication we use routing protocols.

Router is an intelligent device which is help to deliver the data and packet using shortest distance and less time and it play the very important role in wireless communication and it is done our task through dynamically and statistically.

In static routing help to transfer the packet one node to another node but one of the inconvenient are there because static routing they can't automatically updated thus you must be manually manage and data inserted but In Dynamic Routing is communication done in different route and manage automatically and also share the information automatically.

Protocols is a set of rules that the help the router to communicate with each other and also updated the routing tables.

In this paper we are using Distance Vector Routing (DVR). A distance vector Routing (DVR) is an interadomain type of routing protocol and in interadomain which is help to the communication in same **autonomous system** (i.e. clusters of network authorize by same administration) and this protocol based on principle of Bellman-Fords algorithm. This is help the router to find the shortest path and each router are aware about other neighbour router and this is type of dynamic protocol that why its automatically updated its routing table of each node which is connected in a networks.
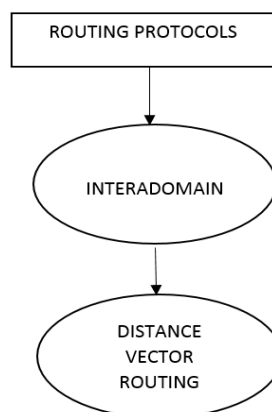
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│  ROUTING PROTOCOLS  │
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   ┌───────────────┐
   │   DISTANCE    │
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   │   ROUTING     │
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Fig1.1 ROUTING PROTOCOLS
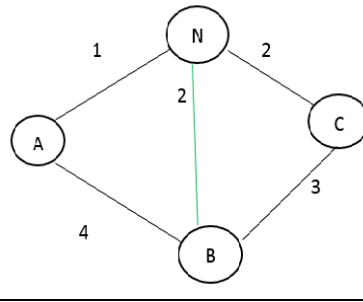
SHORTEST PATH ROUTING:-

Fig 1.2 SHORTEST PATH ROUTING

Fig 1.2 shows the Shortest path routing in this routing there are multiple nodes in the network with some of the cost like node N wants to communicate with node B and there are multiple path are there but in shortest path routing finding the path of the network that have minimum distance and lesser cost, so which select the path for sending the packets i.e node N to Node B because of minimum cost and lesser distance.
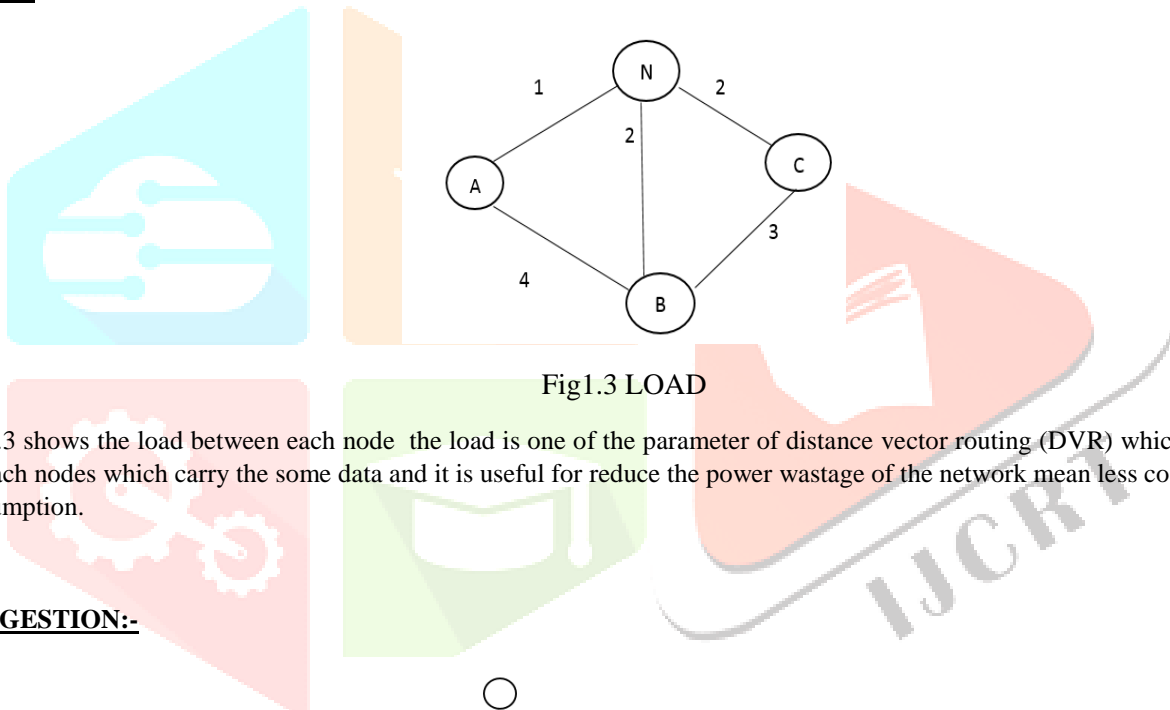
LOAD:-

Fig1.3 LOAD

Fig 1.3 shows the load between each node the load is one of the parameter of distance vector routing (DVR) which is between the each nodes which carry the some data and it is useful for reduce the power wastage of the network mean less cost less power consumption.
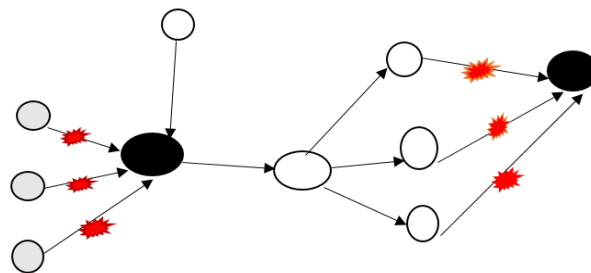
CONGESTION:-

Fig1.4 CONGESTION

Fig 1.4 shows the congestion in the network (sensing node)⬭   (congestion node⬤   (Non- sensing nodes) the⬭gestion is a network may occur if the load on the network is greater than capacity of the network.

Congestion control:-

Congestion control refers to the mechanism and technique that can either prevent congestion before it happens and remove congestion after it's happen.
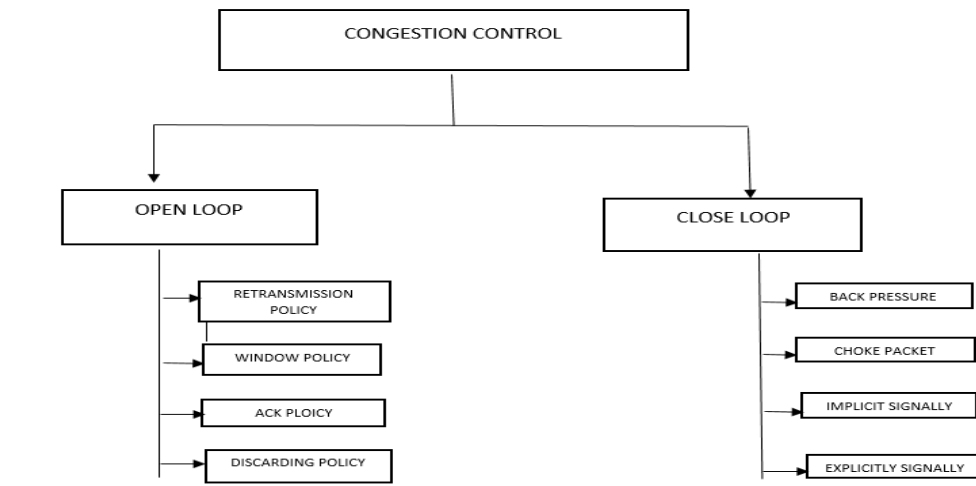

Fig.1.5 CONGESTION CONTROL

In fig1.5 is shows congestion control type it is basically divided into two categories first one is open loop and in open loop they can prevent the congestion before it happened and it also divided into four techniques.

- Retransmission Policy: - In this policy packet can be transmit again if the packet is lost and corrupt.
- Window Policy: - this policy used to select and reject window method for congestion control.
- ACK Policy: - In this policy used by the receiver when sending the Ack to the sender.
- Discarding policy: - In this policy router is discard less sensitive packet.

Second type of congestion control is closed loop. In this method congestion is removed after it happened. It is also divided into four techniques.

- Back Pressure: -The source sends the packets to the destination suddenly one of the node have congestion are occurred then that node will do back pressure for control the congestion to the network.
- Chock packet:- in this method source wants to send the packet to the destination then one of the node congestion are occurred and then those node send special packet i.e chock packet(to inform about the congestion so source is overcome this) to send directly to source node. It is not disturbing the upstream packet.
- Implicit signally:- in this method there is no communication between source node and congestion node means source guesses itself there is a congestion in network when does not receive any ack from the receiver whenever congestion is observed by the source then source become slow down.
- Explicitly signalling :- in this method sending direct signal to source or destination in form of congestion signal if congestion is occurred in intermediate node and this signal is done either **forward**(intermitting to the destination to slow down the ack to remove the congestion) and **backward**(it is intermitting to the source to slow down sending the packets) direction.

POWER EFFECTIVE:-

Power effectiveness is a very important parameter of the distance vector routing (DVR) which is based on the performance of the network, which means that is less load for reaching the source to destination.
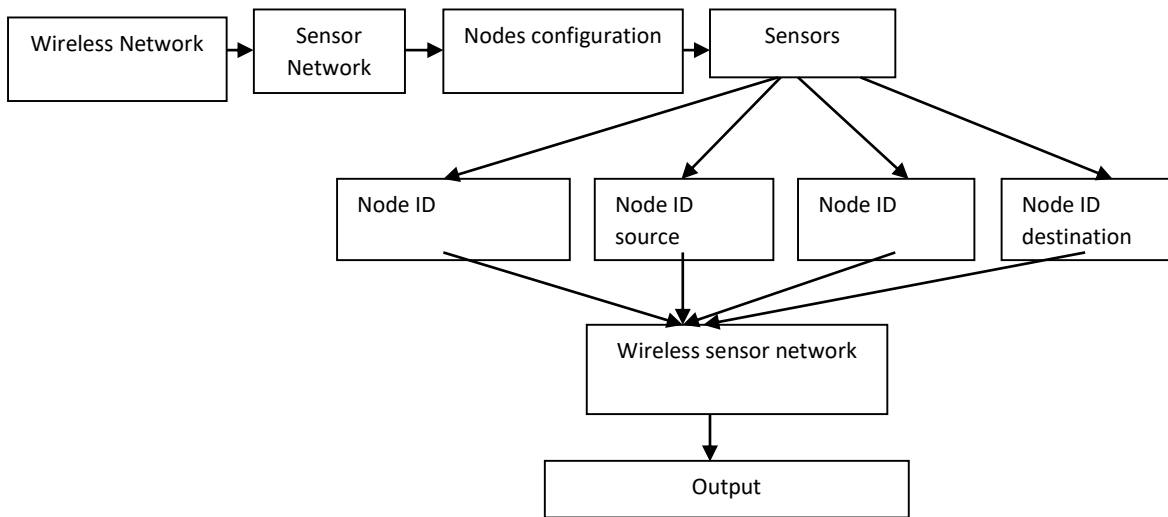
INTRODUCTION DIAGRAM:
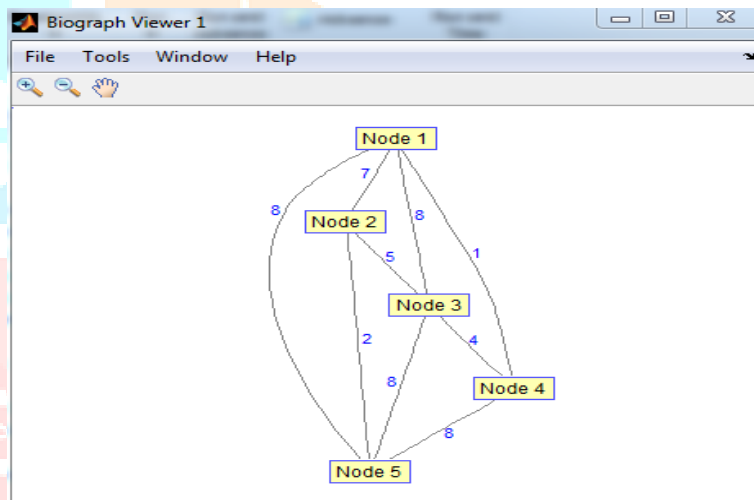

Fig 2.1

RESULT:-

Fig 2.2 OUTPUT OF NODES

Fig 2.2 shows there are 5 node i.e node 1 to node 5 and carry with some load and suppose node 1 want to reach node 5 for communication and share some packet and data for which there are many way but node1 consider those path which is taken less load because of less power consumption and also better performance. This Figure generally shows that we have created a 5 nodes (Nodes can be increase as per requirement) Source to destination depends upon the requirement
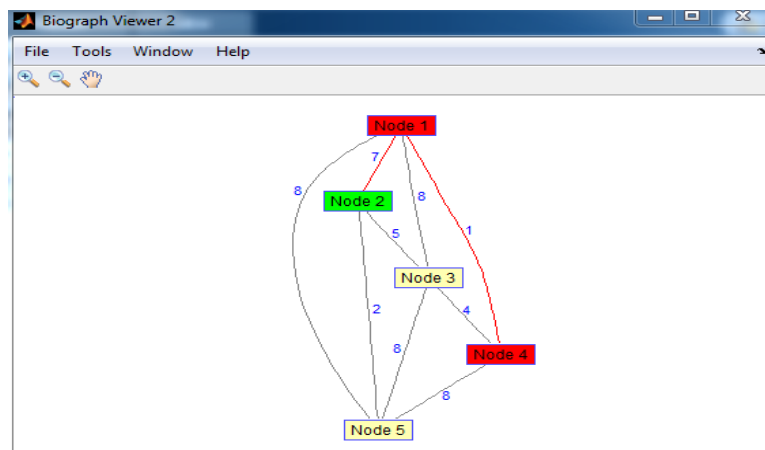

Fig 2.3 OUTPUT OF SOURCE TO DESTINATION NODE

Fig 2.3 show the five nodes that are connected to each other in network node 2 is considered as a source node and node 4 consider as a destination and there are different way to reach node 4(destination) but we select the path through node 1 to reach node 4 because if we select to reach node1 through to reach the node 4 total coast is 8 compare than other nodes is less cost which is a better for reducing power and time wastage that why which we select to travel the packet to node2 (source) travel through node 2 to node 4(destination). The load is auto created by the programming preference will be given to less load and less congestion

CONCLUSION:-

If we want to find the shortest path from the source node to the destination node so we are checked the edges that are connected to the source node and calculate the weight of each node and after that calculate the weight of all nodes that are connected to the source node to destination nodes after that we are analysis the weight is less among these weights and after that, we are choosing the smaller weight to reach destination node this process is very time-consuming. So that, the aim of this paper instated of checking each node and calculating the weight we can directly reach the destination node using this algorithm.

The Source and destination node can be connected with less power, less Load etc. as for better communication we have to use less power but routing will be efficient so for this techniques we can easily send the nodes and data to the destination without wasting the power and the data can be easily transmitted from source to destination.

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