Energy Aware Resource Allocation for Throughput Maximized IOT Network

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Abstract

The main objective of the project was to allocate the available resources to the large number of IOT users effectively without any energy failure and to increase the overall throughput of the IOT system. To provide seamless services in networks with multiple wireless technologies have been proposed by the Third-Generation Partnership Project (3GPP) and Unlicensed Mobile Access (UMA) .To reduce the bandwidth cost of the IOT tree. The bandwidth cost is reduced by finding the shortest path using Lagrangean Algorithm applying the resource allocation on the IOT sensor system which is having unbalanced energy conditions. It deriving the energy equilibrium formula it will allocate the essential power to the IOT devices.

Keyword: Chime (Check pointing long computational intermittently energized IoT devices), QoS (Quality of service), Generation Partnership Project (3GPP), Unlicensed Mobile Access (UMA), Lagrangean Algorithm.

I. INTRODUCTION

In the 21st century, the wireless and mobile communication success is too high. The technologies such as second and third-generation cellular, satellite, Wi-Fi, and Bluetooth. The heterogeneous wireless networks combine various wireless networks and provide universal wireless access Change and achieve a dynamic scheduling algorithm to solve the throughput problem. For real time operation, Chime easily adjusts the check pointing rate based on the available energy level in the sensor system. It has long running computation scarce and low power IoT devices intermittent energy source. Prominent and highly in-demand examples of devices that benefit from autonomous energy supplies are Internet of Things (IoT) entities including medical implants and sensors used in military, telemetry, smart building, and remote sensing applications. Check pointing ranking is to determine maximum and minimum energy calculating the residual energy resource allocation.

II. EXISTING SYSTEM AND PROPOSED SYSTEM

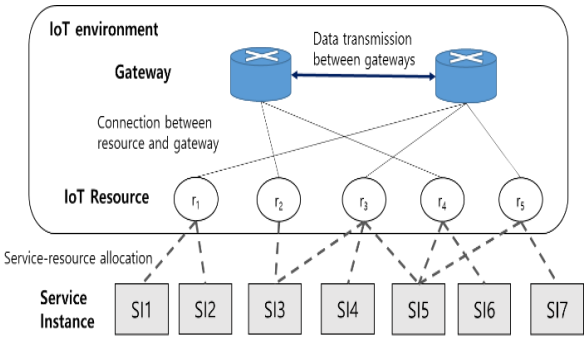
a) Existing system

In the existing system, there are no proper allocations between the IOT devices. This will leads to the improper utilization of the energy allocations. So the overall energy utilization of the system will be high. After the working period some sensor will goes to off mode due to the low energy profile. The major disadvantage was it will leads to zero available nodes at the end of communication and also the overall throughput of the system was too low. It has the less security factor.

b) Proposed system

There is a disadvantage in the existing system (i.e.) if all the nodes are access the same intermediate node, then the intermediate node will be death or it will not reach the destination. Energy can be allocated in each sensor node based on connection. There is a maximum connection, and then it takes maximum energy as well as minimum connection takes minimum energy. We are applying the time based scheduling for the purpose of improving the QoS of the network and taking consideration at overall working period of nodes, based on that we are deriving the energy equilibrium formula then it will allocate the essential power to the IOT devices.

SYSTEM ARCHITECTURE



III. WORKING PROCESS

- Network Formation
- Routing Protocol Implementation
- Resource Allocation
- Clustering
- Energy Reassigned

a) NETWORK FORMATION

- In that module to concentrate about how much node are taking and their location based on X, Y axis
- Next it making backbone nodes i.e. how much intermediate node are connecting here and assigning power all the nodes

b) ROUTING PROTOCOL IMPLEMENTATION

- Applying AODV protocol for the purpose of transferring packet from each IOT sensor to the base station(BS)
- The intermediate backbone nodes are helped to gather packet from sensor and then it forward to BS

c) RESOURCE ALLOCATION

- They are calculating energy for communication after some rounds each sensor may consume some power with respect their number of transmission
- So that the energy totally depends on intermediate nodes and the backbone node loosed enormous energy
- Here calculating number of connectivity nodes for all intermediate nodes
- This technique is used to share and distribute the necessary energy to all nodes to prove the effective resource allocation. They are as follows.
    - Add nodes
    - Checkpoint ranging
    - Resource allocation
    - Source and Destination
    - Lagrangean path

(i) Add nodes

It provides numbers of nodes are required in the network. Once the requirement is provided group of nodes get arranged in each cell randomly. Each cell accesses the nodes according to its capability.

(ii) Checkpoint ranging

Intermediate are connected with a mobile station (or) tower based on the number of connections are making ranging maximum connection to make maximum energy and minimum connection having less amount of energy.

(iii) Energy allocation

The resource allocation will find the nearest tower to the mobile. Then we will find the nearest tower to that. The main advantage is to use the available bandwidth and this way we will connect the mobile to the nearest tower. And by this way we will maintain good band width usage.

(iv) Source and Destination

They are going to choose the source and destination nodes. Once the source node is entered, its position and the cell which contains the node are stored. Similarly the position of destination node is found in order to find the shortest path.

(v) Lagrangean path

It divides the problem into two sub problems. With the help of first sub problem and find the method of accessing the nearest cell. With the help of second sub problem the consumption of bandwidth is found. Finally the Lagrangean iteration process provides the shortest path to access the mobile.

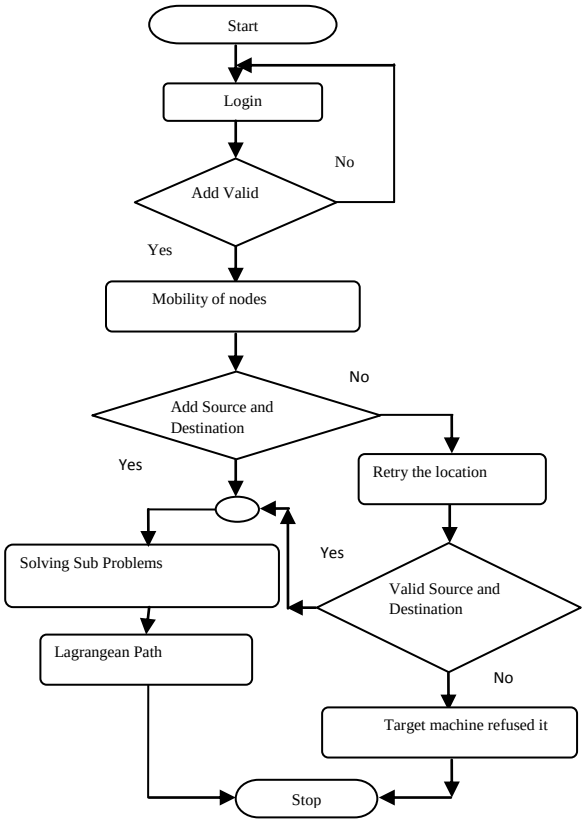
d) CLUSTERING

Clustering is used to merge or group the sub problems. In other words, the lagrangean iteration process contains step as divide the sub problem for a node After finding the shortest path, clustering can be used (i.e.,) merge the sub problems.

e) ENERGY REASSIGNED

- Based on the node weight calculated from the previous module
- It reassigning connectivity probability for all nodes
- Finally its calculating overall energy data throughput packet data ratio ,delay with respect to the proposed system and comparing this result to the existing system

IV. DATA FLOW DIAGRAM



Step1: In this step for each node data packet can be sent to server

Step2: It having routing table information about each sensor node there is many node data's are stored if any same data it easily avoided the data checked and return to step1

Step3: packet are sent from node to intermediate .In number of neighbors to calculate checkpoint based select intermediate

Step4: Energy can be scheduling based on residual energy calculation it has maximum connections of node have maximum energy and minimum connections of node have minimum energy

Step5: Finally a packet forward from source to destination without any problem such as packet loss and delay because it using residual energy resource allocation

V. CONCLUSION

In the proposed system, packet does not loss and delay also is too less. To investigate more schemes based on the algorithm framework by considering different optimization objectives and to find out the most appropriate scheme in different environments. We also plan to enhance our algorithm framework by considering the adaptive QoS to the time-varying network conditions and resource availability. Address the problem of signaling overhead due to IOT. The throughput will be increased in the IOT.

VI. REFERENCES

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