



An Adaptive Approach (Optimized ABC) Algorithm using Square Odd Routing for Minimized Energy Consumption

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ABSTRACT: The ABC has several applications for choosing the optimal neighboring solution based on swarm intelligence. Our work is primarily based on Adaptive approach of ABC algorithm with contemplated square odd theory in order to select optimal path for efficient transmission. Our work has altered the conventional approach of Bee colony to proceed sequentially without having any dynamic dimensions. We have proposed an efficient Router based protocol in WSN. We have proposed square odd technique to improve the conventional approach in more dynamic manner. The contemplated algorithm is supposed to provide rest to alternate nodes at the same time other node is active. Our proposed method will certainly reduce the energy consumptions and at the same time will result in searching the pertinent optimal path to enhance the experimental results comparatively.

ABC algorithm has been previously proposed also with some commuted concepts, but the dimension of the work parameter has been revolving around sensing the nodes in static or dynamic manner without any emphasis on the energy consumption parameter right from the traversing nodes energy to heat dissipation energy or the total cost for traversing or sensing all the nodes or the time consumption for the node information to get transmitted from one node to another. Our proposed work is primarily based on the deployment of the network but not randomly but partially based on parameters. Our work proposed a novel and optimum approach of ABC algorithm for efficient sensing of data in context of energy conserving technology. The proposed algorithm ensures the detection of meant target but with optimum approach with reduced energy consumptions.

KEYWORDS: Energy efficient algorithm; ABC, WSN, bee colony.

I. INTRODUCTION

Wireless sensor networks are a unique kind of advert hoc networks that became one of the most interesting areas for researchers. Typically, a wi-fi sensor network incorporates of hundreds or heaps of low fee sensor nodes. A sensor node consists of small sensors capable of stumble on light, sound, temperature and movement, an wise computing device that permits the processing of raw records accumulated from the sensors, and communication competencies with different nodes via wi-fi networks. There are many realistic packages of wi-fi sensor networks. A number of the most promising application regions are environmental monitoring, battlefield monitoring and catastrophe recovery operation, constructing control structures, and clever amusement gadgets that modify audio and video alerts based on their environment [1].

Statistics aggregation is a technique of aggregating the sensor records the usage of aggregation techniques. The set of rules makes use of the sensor facts from the sensor node and then aggregates the information through the usage of some aggregation algorithms which includes centralized technique, leach(low power adaptive clustering hierarchy),tag(tiny aggregation) etc. This aggregated information is switch to the sink node with the aid of choosing the green direction. The cause of the aggregating the statistics is to minimize the electricity consumption by decreasing the number of records transmissions. Records aggregation is described as the technique of aggregating the data from a couple of sensors to eliminate redundant transmission and offer fused information to bs (base station). All the aggregation nodes



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collect facts from the leaf nodes and calculate the value of aggregation. Then best the calculated aggregated values are forwarded to the statistics sink. The mixture fee can be average, most (minimal), summation, and so on. It's miles calculated as in keeping with requirements of the utility. Information generated from neighboring sensors is usually redundant and exceptionally correlated. The quantity of statistics generated in huge sensor networks is typically big for the sink to procedure. The facts aggregation frequently entails the fusion of information from more than one numbers of sensors at intermediate nodes and the transmission of the aggregated facts to the bottom station..

II. RELATED WORK

Bee Colony Optimization is a metaheuristic based on the natural foraging behaviours of bees. When a bee successfully finds food, it returns to the hive and communicates the position and distance to the food source to hivemates via a waggle dance, which was not understood until decoded by Karl von Frisch in 1974. The waggle dance is a figure of eight dance, and communicates direction as the dance's angle to the sun and the length of the central section of the dance is directly proportional to the distance to the food. Other hivemates then have a choice, they can choose to follow another bees' dance and fly to the same food source, where they may find more food sources, or to explore randomly (which in nature is very rare). Once the dancer has completed its dance it can either observe another bees dance, or return to the food source it advertised.

Bee System was first introduced in [LT01], which led to the development of Bee Colony Optimization and its application to the Travelling Salesman Problem (TSP) in [WLC08a]. The met heuristic is a swarm intelligence approach, meaning it is characterized by individuals doing repetitive actions and a simple communication method between individuals, resulting in iterative improvement of solution quality

III. PROPOSED ALGORITHM

ABC algorithm has been previously proposed also with some commuted concepts, but the dimension of the work parameter has been revolving around sensing the nodes in static or dynamic manner without any emphasis on the energy consumption parameter right from the traversing nodes energy to heat dissipation energy or the total cost for traversing or sensing all the nodes or the time consumption for the node information to get transmitted from one node to another. Our proposed work is primarily based on the deployment of the network but not randomly but partially based on parameters. Those parameters are as follows -:

The Algo should provide an optimized result for routing in dynamic way and sense the nodes in more dynamic way.

The Algorithm should be reliable for large number of nodes sensed altogether with less energy consumptions.

The proposed algorithm should less time consuming as discard the non responding network.

CASE 1: The proposed work has not blindly considered all the nodes coming in the sequence unlike the conventional approach of (ABC) algorithm .The proposed algorithm has considered only the alternate nodes coming in the way of routing communications.

Case2:The proposed work has produced energy efficient results the dimension which was not considered in the existing approach .We have merged the concept of convention (ABC) algorithm by checking sensors in square and odd mode to evaluate the energy efficient result.

CASE 3: The contemplated approach has proposed a new concept for (ABC) algorithm with slight change in conventional approach for Evaluating and update energy consumption. The proposed algorithm called optimized ABC (OABC) algorithm, which is different in its approach from existing network in all the parameters we have discussed above

eq. (3)



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IV. PSEUDO CODE

The design and flow of implementation and step by step description of the proposed algorithm is detailed as follows. The proposed algorithm is altered with routing and energy efficient optimization protocol using Artificial Bee Colony (ABC) Algorithm,

Step 1: The network has been initialized first to get the nodes activated in order to implement (ABC) Algorithm

Step 2: The network will be deployed first in order to sense the optimum path in order to conserve energy.

Step 3: The next step is to check sensors in square and odd mode to evaluate the energy efficient result.

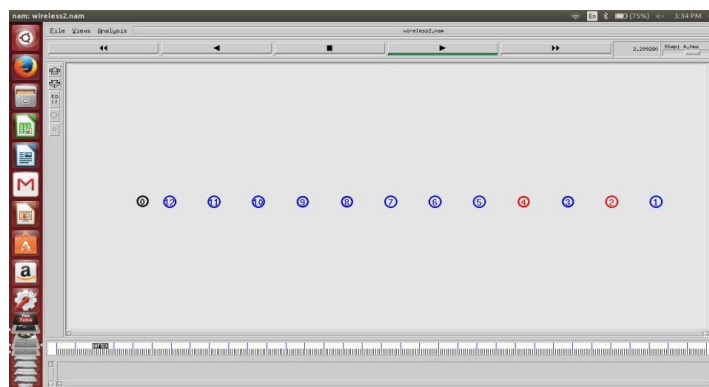
Step 5: Apply artificial bee colony ABC –SO on clusters to find the optimizing route among nodes to final destinations.

Step 6: The contemplated approach has proposed a new concept for (ABC) algorithm with slight change in conventional approach for Evaluating and update energy consumption.

STEP 7: CHECK WHETHER ALL NODES BECOME SENSED, IF YES THEN SHOW NETWORK LIFE TIME AND RETURN ELSE CONTINUE TO STEP 3

V. SIMULATION RESULTS

Simulation is a totally important present day era. It will be implemented to completely specific technology, engineering, or opportunity software fields for diverse features. Pc motor-assisted simulation will model hypothetical and actual-existence objects or sports on a computer in order that it will be studied to check however the device operates. The ns-2 simulation environment gives exceptional flexibility in research the traits of sensor networks due to it already includes flexible fashions for power-limited wireless surprising networks. Inside the ns-2 environment, a sensor community could be engineered with numerous of same units of protocols and characteristics as those obtainable in the global.



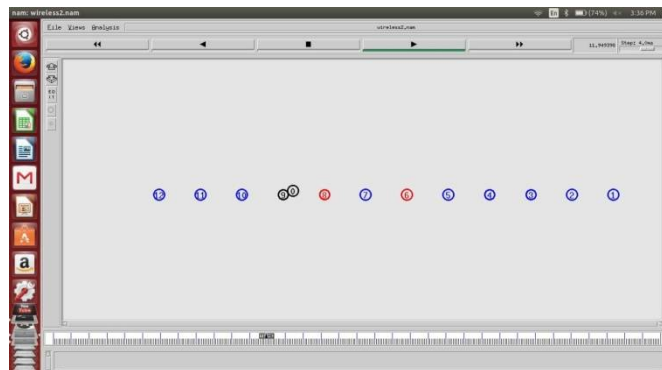


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VI. CONCLUSION AND FUTURE WORK

Our work proposed a novel and optimum approach of ABC algorithm for efficient sensing of data in context of energy conserving technology. The proposed algorithm ensures the detection of meant target but with optimum approach with reduced energy consumptions. The work is concluded with the implementation results of proposed Algo for ABC for Square odd sensing the different nodes dynamically. The dynamic approach of ABC algorithm makes it suitable for other routing protocol to get associated with for future applications. The proposed algorithm has not a single dimension working as it is applicable with other routing protocol algorithms and it is very much applicable in different domain like surveillance system, Road network, and intrusion detections

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