Animal Health Observation by Using Query Processing Based On Fuzzy Logic in Wireless Sensor Network

SHAIK TANKASALA ZAREENA BEGUM
M.Tech 2nd Year PG Student (cse)
Madina Engineering College
Kadapa, A.P, India
zareenasweety@gmail.com

Abstract— Wireless Sensor Networks (WSNs) query processing based on fuzzy logic provides specifications of the desired data of common natural language, eliminate the custom of threshold values the same as predicates. The query of fuzzy results were associates through a degree of quantity so as to indicate how personally each one return data value match the semantic goal of the query based on fuzzy, provide application through other information so as to be used to cause on the query result. Fuzzy queries are valid used for applications to demands solo query to calculate values for spatial objects by different threshold values hence reduced message broadcast on the sensor network also the post-hoc analysis on the external server.

The proposed system is able to handle different types of fuzzy queries used for different scenario of animal observing application .The efficient query processing depending on routing algorithm used. This effort utilizes Minimum Bounding Rectangle (MBR) based routing by static nodes like cluster head and mobile nodes as cluster member toward efficiently and consistently disseminate query and recover the query results.

Keywords-component: Set Up Assigning ID'S And Thresholds, Member Function By Computation, Fuzzy Queries In Formulation, Query Result Transmission And Query Dissemination .

I. INTRODUCTION

The Wireless Sensor Networks (WSNs), we can also sense the objects through query the sensor nodes. The results used for the query be obtain while the sensed value of the sensor node match the predicates during the query. Existing query processing approach recover the sensed data values starting the sensor with allowing for correct threshold values (e.g., temperature Value >30) specified via the user. This type of query mechanism is able to let pass the values that be nearer to the specified threshold values. To defeat this problem, we propose to apply fuzzy query which know how to recover and grade the query end result based going on how fit the information relates toward the semantics of the query. Every sensed data values going on sensor are linked among a linguistic word and the related membership function indicates the degree of nearness of the data value near a exacting linguistic term. Sensors correspond by each other or to an external Base Station(BS)by means of any routing mechanism. We proposed a heterogeneous routing strategy by route queries connecting both static and dynamic sensors. Ground Based Sensors (Static Sensors) are deploying in excess of the broad geological region which is separated into many rectangular grids. Each grid have a single static node called cluster head. It acts like an midway to pass on the query results among the Mobile Sensors (Dynamic Sensors) with the Sink node.

- To build up a query processing system based on fuzzy logic for an Animal Health observation Application to facilitate process fuzzy queries toward review the health situation of the animals based on body temperature value.
- To propose a heterogeneous routing strategy with the purpose of route the queries capably connecting static and dynamic sensor nodes.
- To evaluate the presentation of the proposed query processing system based on fuzzy logic by the classical sensor query processing system.

To initiate the existing system, query processing approach recover the sensed data values starting the sensor with allowing for correct threshold values (e.g., temperature Value >30) specified via the user. This type of query mechanism is able to let pass the values that be nearer to the specified threshold values.

II. PROPOSED SYSTEM

We propose to apply fuzzy query which know how to recover and grade the query end result based on how fit the information relates toward the semantics of the query.

A. Set Up Assigning ID'S And Thresholds

Animals be categorize or else separated based going on their species. Every species were assigned a unique id. Unhealthy animals can also be identified based going on the subsequent factors such the same as manifestation of animal, Eyes, Movement, Ears, Muzzle and Nose, Mouth and body temperature modify. In animals, the body be able to simply effort correctly by certain temperature. The animal's body maintain themselves by a stable temperature, surrounded by a tiny range, in categorize intended for the systems to work properly. A modify in the temperature of the body is an indication of ill health. The temperature values are initialized used for each species in sensors.

The usual body temperature is also different into different types of animals. In our proposed effort the body temperature was taken used for observing the animals slightly than its exterior. Therefore sensors were attached toward to the animal body to sensed the body temperature & also to react the fuzzy query send by the base station. Sensors were initialized by a usual body temperature of animal in the direction of which it is attach that serve as a mention value and help out to verify the health of the animal with compared the threshold by its present value.

S.No	**Body Temperature of Animals**	
	Animal	***Temparature***
1	Camel	33.6-43.0
2	Goat	39.0-46.5
3	Sheep	38.5-45.0
4	Cow	38.2-43.5
5	Buffalo	39.0-44.7
6	Pig	38.0-47.3
7	Donkey	37.5-43.5
8	Calf	39.5-45.5

B. Member Function By Computation

Computation of Member Function are done in computeMF() system of consequent MS.cc file. Sensed temperature value be obtains commencing the randTemp() method. Based going on the computes values the temperature of the animals were categorizes in the fuzzy linguistic conditions.

C. Fuzzy Queries in Formulation

Queries based on Fuzzy were first transmitted since sink node to CHnodes. In the case Sink.cc file is also uses keen on build fuzzy queries plus to transmit them toward their kids in the transmission series. Fuzzy queries on the way to be present transmits starting CH to MS and to other neighboring CH by means of inside its diffusion series are construct in CH.cc files.

D. Query Result Transmission And Query Dissemination

The fuzzy system employ heterogeneous sensor nodes such the same as mobile and static sensors. This type of Sink node, CH's transmission range was assigns in Area.ned file. Both of the dynamic and static sensors were be placed spatially.

III. REESULT ANALYSIS

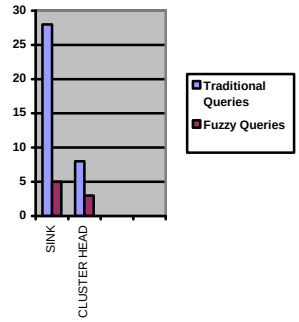

Figure 1: Transmission Rate of Queries

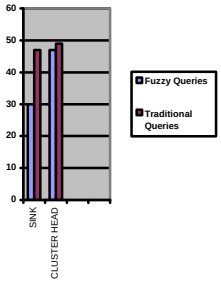

Figure 2:Level Of Energy

IV. CONCLUSION

This work present animal health observation by using query processing based on fuzzy logic in wireless sensor network. The key in benefit of our move toward be the utilize linguistic terms which allow the understanding of data on the method to be consider by every node using less queries as well as it filters results nearby contained by the network, fairly than requires the request user to achieve post-hoc analysis in excess of the query results. The future routing approach that involves heterogeneous nodes enable to propagate the queries and gather the query results in a dependable method in a mobile phone environment.

In This effort, solo very important parameter (body temperature) also is takes into report for observing the health of the animal. In the future another vital parameter such as a pulse rate and also respiration rate is able to also include verifying the health situation of the animals.

FUTURE ENHANCEMENT

In future work, used for mission vital applications ,wireless by sensor level can also be deploy to decrease the communication latency a heterogeneous structural design to comprise of wired network at CH level. Additional, Queries based on fuzzy logic can also be applied used for further complex queries similar to join queries and Nearest Neighborhood queries.

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