A SURVEY ON ARCHITECTURAL BEHAVIOUR OF WSN RECONFIGURATION

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Abstract: Reconfiguration is having the significance to generate effective data segments based on feature and dimension evaluation. In this paper, a study on the network reconfiguration is defined with architectural specification. The network reconfiguration challenges and issues were explored by the author. The process of reconfiguration is also explored in this paper.

Keywords: WSN, Reconfiguration, Zone, Dimensions, parameter Specific

I. INTRODUCTION

Sensor network is one of the challenging networks applied under the application and domain specification. The network is composed of smaller sensor devices which are having the capability to sense some object, material or the environment constraint. The network is generally defined in real time environment and with specification various associated constraints, features and limitations. The sensor network is the specialized network that can be defined in a particular region with constraint specification. It can be indoor network, outdoor network, underwater network or the underground network. The sensor network is restricted at each level of network formulation including the network region, node capabilities, communication capabilities etc. These restrictions or the constraints relative to the sensor network are shown here in figure 1.

The first and foremost issue is the the infrastructure driven network. Even the network is wireless adhoc but because of the restricted node capabilities and communication range, the application specific controller is required that can control the work behavior of the network. The infrastructure is here defined in terms of base station. The placement of base station with intelligent control system which is having a larger memory, high processing power and the security system integration. Another criticality associated to this network is the region or the domain in which it is applied. For each application, the configuraton of network, selection of sensor device and constrint setup is required. The sensor network or the constraints of one domain, application cannbe applied to other domain or application. Such as the sensor which are observing the chemical leakage in a plant cannot used in agriculture field to analyze the soil quality.
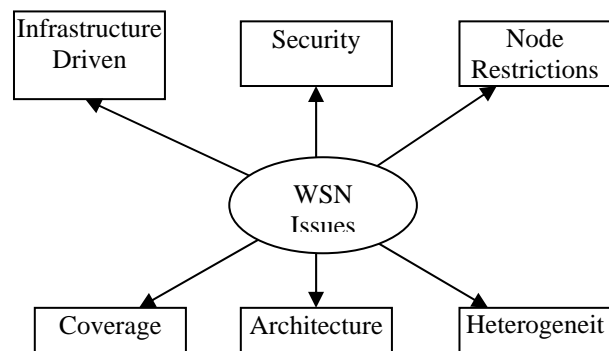

Figure 1: WSN Restrictions and Issues

The WSN issue includes the various restrictions defined for each sensor devices. The sensor devices are specialized and associated to the particular activity. The energy of node, memory, processing power are the some required constraints. These constraints defines the strength of the nodes based on which the energy adaptive algorithmic implementation can be applied for the network. Another challenge to WSN issues is coverage. The coverage of a node is defined as the maximum communicatin distance of a node. Based on this, the density and coverage estimation is required. To resolve this, the target coverage and area coverage aspects are defined sensor network. As defined earlier, the sensor nodes are defined specifically for the device or the object or the component. Because of this each sensor node having own battery backup and the processing capabilities. Because of this, the network is considered as heterogeneous network.

Another concer to sensor network is the architectural specification. One of the common sensor network architecture is Zoned architecture. According to this architecture, the network is divided in smaller segments and each segment is controlled by the Zone head. This architecture is able to provide the effective communication while considering the associated network issues. The security is the another critical issues of sensor network because of its real time support. The sensitive information is captured by the sensor devices and communicated to the base station or the cotroller device. This controller pass the information to the main server. But this two level communication suffers from various internal and external

attack. Because of this, there is the requirement of security measures to provide the reliable and safe communicaton.

A) Reconfiguration

As the sensor network is defined with various restrictions and the constraints, the Reconfiguration architecture is able to observe these all constraints and restriction and able to provide the effective communication. The Zone sensor network architecture is shown here in figure 2.
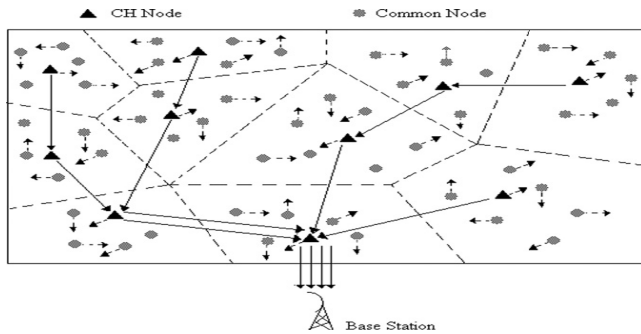

Figure 2 : Reconfiguration Architecture

Here figure 2 is showing the Reconfiguration architecture with specification of multiple Zones. Th e tower shown outside the rectangular region is the main controller called base stations. All the interaction of this sensor network to the outer world is performed via this base stations. It passes the instructurion to the network and collect the captured data. The irregular partitions shown in the figure are the Zone regions. It shows that the Zones can be formed in any shape based on the requirement and observations. Here the round circles defined in gray color are the sensor devices. The triangle shaped devices shown in dark gray are the Zone heads. The nodes in a Zone communicate with its Zone head and deliver the data to the Zone head. The Zone heads genrats the hierarchical aggregative path to deliver the complete information to the base station. Here the larger arrows are showing the generated path from each CH to base station.

In this paper, an ABC improved Reconfiguration method is defined to generate the data segments. The proposed dynamic method used the agent specific approach for generating the effective Zones. In section I, the basic requirement and characterization of Reconfiguration is presented. In section II, the work defined by earlier researchers for Zone optimization is presented. In section III, the proposed research methodology is presented. In section IV, the results obtained from the work are presented. In section V, the conclusion of the work is presented.

II. RELATED WORK

Data Reconfiguration is the essential data processing activity used to filter the available data pool and to generate the required data patterns. Many researchers already submitted Reconfiguration work on organized, semi-organized, unorganized and incomplete datasets. In this section, some of the work provided by earlier researchers is presented and discussed. Author[1] has defined self orgnaized analysis method to provide Reconfiguration on incomplete data. Author examined the data under different parameters to handle the features of incomplete data and provided the dimension specific clsutering. The method is defined to generate the effective Reconfiguration solution under practical approach.

This defined dataset is processed under iterative manner and to provide the Zone formation to improve the Zone quality. Author[2] defined a study specific work on Reconfiguration for different datasets and for different applications. The streamed data analysis and task specific mining method is provided for evolution of data elements. The mining method is here applied under feature anlaysis to process the Reconfiguration data and to provide the effective Zone formation. Author[3] has improved the purity of Reconfiguration method under entropy specific data categorization. Author provided the distance specific analysis on data points and distance specific under different parameters. Author used the Shannnon concept with Reconfiguration method to provide integration to Zone formation. Author also identified the outlier to improve the efficiency of Reconfiguration algorithm. Author[4] has used the hybrid Reconfiguration method using KMeans Reconfiguration and Neural network approach. Author generated the data Reconfiguration based on the automated mask generation method to discover the hidden patterns and to provide the boundaries specific membership analysis. This visualization specific method provided the integration in an emergent method. The data mining method and relative feature analysis was provided to discover the hidden similarities so that the membership characterization will be achieved. Author[5] has used the shift specific Reconfiguration method for educational data and provided the aspect driven mining method integration for improving the Reconfiguration results. Author processed the educational data to generate the pattern prototype for resolving the associated difficulties and to provide the Zone quality enhancement using Reconfiguration approach. Author defined a feature trained method for improving the quality of Reconfiguration methods.

A work on microarray[6] data processing and decompostion using clusteirng method was provided by Wang. The work combined the FCM method with empirical decomposition method to reduce the noise effect and to generate the effective Reconfiguration structure. Author processed the structural information of dataset under fuzzy operation to generate more resonable results. Another work on temporal[7] clsutering was provided by Yang by using the concept of weight assignment. A feature cut specific information organization and reduction was provided by the author along with time series specification. Author processed the benchmark datasets to generate effective Zones under weight processing method. The proposed ensemble algorithm used the partitioned method to improve the quality of formed Zones. An optimization to Reconfiguration method was provided using PSO[8] approach for Web usage data. Author processed the heterogenous data by combining the hierarchical clsutering and PSO approach. The similarity measure based Reconfiguration effect was verified by the author to improve the degree of applicability. A work on Affinity Propagation based Reconfiguration method was provided on large scale datasets. The complexity driven analysis along with Zone formation in global environment was provided by the author. The data point specific similarity analysis along with adaptive hybrid algorithm was provided by the author. A work on stock[10] data analysis using Reconfiguration approach based on featured SVD method. The proposed hybrid method used the singular decomposition method to generate the features using Canopy and KMeans algorithm and implement them in Hadoop environmnent. The

proposed massive method is defined for timeseries data and able to provide the effective conclusion for data Reconfiguration. Another work on fuzzy[11] adpative Reconfiguration method was provided for relational data. Author used the eucludian distance based similarity analysis to identify the degree of membership and to generate the effective Reconfiguration results. The oulier identification and interpretation under noise class estimation was provided by the author.

A comparative study on distance and similarity measures for mix attributes based Reconfiguration method was provided by Prasetyo et. al.[12] Author provided the prototype and feature driven analysis on multiple datasets. The ratio specific mismatch analysis was provided to generate the similarity specific Reconfiguration results. Reddy[13] used the labeling specific categorical dta processing under entropy method for generating the Zones. A fature specific similarity analysis was provided to generate the Zones and to identify the outlier. The label specific method has improved the quality of generated Zones. A work on data Reconfiguration on incomplete data using fill method and tolerance set specific dissimilarity analysis was provided by Hua ai[14]. The method applied the probability hypothesis for generating the Zones and verified it under constraint tolerance method. This data object based constraint processing has generated the effective Zones. Tsai et. al.[15] has used the grid based Reconfiguration method for intutive neighbor generation under relationship analysis. A neighbor checkpoint based analysis and evalution under noise and correctness parameter was provided to improve the quality of Reconfiguration method. A feature driven measure relative to Zone framing was provided to improve the quality of Zone formation. Wang[16] also used the fuzzy Reconfiguration method to process multiple medoid for processing the large dataset. Author applied the incremental Reconfiguration under complex pattern formation so that the pattern specific Zones will be formed and effective segmented data will be achieved. Another work on customized KMeans method for uncertain features and measurement form was provided by the author and relatively constraint specific functionality observation was provided. A probabiity distribution based uncertain data processing with real means and standard devision processing was provided by the author. Author used the realistic measure for Zone generation and distance computation in muti-dimension data environment.

III. COMMUNICATION SETUP IN SENSOR NETWORK

The Reconfiguration architecture is able to utlize the limitations of sensor network and provides the effective and realiable communication. In sensor network, this communication is controlled by the specific protocol. One such protocol is LEACH protocol. The working of the protocol for Zone formation is divided basically in two main process stages called Setup Stage and Steady Stage. The complete working or the functional behavior of Reconfiguration is shown here in figure 3.
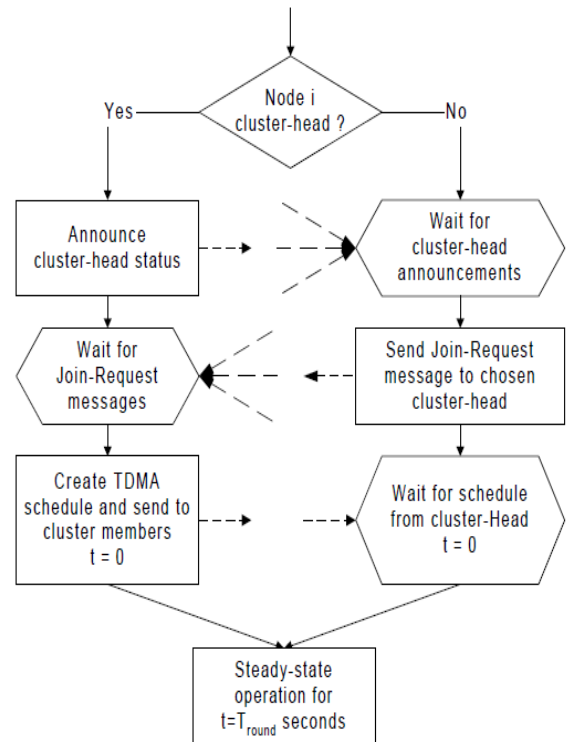

Figure 3 : Zone Formation Process

The process includes the selection of the feasible effective nodes from the node pool and apply the condition for identifying the clsuter head. Once the clsuter head is identified, a request to communication map is defined to perform the communication between the node and the Zone head. To control the work behaviour of this architecture, a access time limit is also applied. This limit also insures the secuirty and integrity against different attacks. If the node is not responding normally, the time stamp can vary, in such case the attacker can be identified and the safe communication can be performed. The working of this architecture with defiend stages is explained hereunder

A) Setup Stage

In this stage, the advertisement setup and the constraint setup for Zone formation is defined. In this stage, the Zone head node informs all the neighbor nodes by submitting an advertisement packet. In this phase, the Zone head and non-Zone head evaluation is done based on the parmeter specification. The advertisement pick based packet communication is here observed under the signal strength analysis.

The memshipship to the particular Zonehead is observed under the time stamp specific analysis. The encoded communication can be performed to provide the safe and reliable communication in the network. The TDMA based schedule is here defined to provide the control communication with specification of the Zone head and the Zone members. The broadcast communication to the environment is here defined while generating the Zone head.

B) Steady Phase

In this stage, the transmission over the network is regulated by nod level estimation. The TDMA slot setup is defined to

provide the node to Zone head communication. As the communication is defined some amount of energy is lost. The strength specific communication is here defined to provide the reliable communication under time slot specification. The node pair communicatin is here defined to identify the energy consumption, energy limit and the probabilistic estimation. The Zone head collects the aggregative communication from all the nodes. Once the aggregative packets are obtained, the aggregative path is composed to generate the effective communication to the base station.

C) Protocol Working

The Reconfiguration can be defined in fixed network with specification of protocol specification. The protocol itself controls the communication with position, probability and energy limit analysis. The serarch is applied in the network to identify the number of Zone heads and to provide the effective Zone specific communication. The LEACH is one such protocol that provides the Zone formation with each communication. The maximum energy, round specific probalistic estimation can be applied to generate the Zones. The centralized Zone based responsible Zone head selection can be defined. The restriction can be applied to generate the architecture of Zone head identification. The mapping of the Zone head to the environment is defined to provide the effective Zone formation.

IV. CONCLUSION

To overcome the restrictions or the limits of sensor network, some architectural communication is required. One such architecture is Zone architecture. In this present work, the restriction of sensor network are explored at multiple levels. To improve the communication effectiveness, the process model for Zone generation is defined. The paper has defined the complete process model of Zone formation.

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