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EFFECTIVE AUDIO STORING AND RETRIEVAL IN INFRASTRUCTURE LESS ENVIRONMENT OVER WSN

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Abstract-The emerging wireless sensor networks (WSN) have been revolutionizing the ways of collecting information from the physical world. In revolutionizing environment, Audio represents one of the most appealing yet least exploited modalities in wireless sensor networks, due to the potentially extremely large data volumes and limited wireless capacity. Implements how to effectively collect audio sensing information remains a challenging problem. In this paper, wireless sensor network propose a new paradigm of audio information collection based on the concept of audio-on demand. WSN provides high success rate without infrastructure supports.WSN implements novel replication algorithm that deploys optimal number of replicas across the sensor network.WSN also evaluates the performanance and efficiency. The experimental results show that the decision can provide satisfactory quality of audio-on-demand service with short latency and slight playback jitter.

Keywords: Audio-on-demand, Wireless Sensor Network.

I. INTRODUCTION

Wireless sensor network is used for collecting information from the physical environment. The environment has a laege variety of application such as environment research, structural health monitoring, scientific application. Audio represents one of the most appealing yet least exploited modalities in wireless sensor network due to potential extremely large data volume and limited wireless capture.

In this paper,we investigate a new paradigm of audio services namely effective audio storing and retrieving in wireless sensor network.we consider infrastructure free environment for earthquake disaster management where any base station could be damaged during the disaster. In Infrastructure oriented environment all the sensors are connected to Base station. The base station is control to the all the sensor. If the sensors sensing audios are stored in Base station. So ,if we need to retrieve the sensing audio chunks through the base station. In infrastructure less environment only investigate how to store an sensing audio chunks in wireless sensor networks. The drawback of infrastructure oriented environment is that the base station should be damaged all the sensing information are destroyed. The drawback of infrastructure less environment is effective retrieval mechanism is open issue of an previous investigation. The disaster area is often disconnected from the outside world. Most of the acoustic events are recorded before rescue could take place. In this paper we proposed Effective audio storing and retrieval in infrastructure less environment. We use the cooperative recording technique the chunks of an acoustic event file can naturally be collected by different sensor nodes and stored in a distributed way. Such a design greatly reduces the redundancy of sampling and storage. It also effectively achieves a better load balance. To find a network size to replicate a metadata. We use the Bloom filter to encode the metadata of the chunks and replicating the metadata and also replicate the audio chunks to the neighbors to greatly reduce the communication cost. During retrieval time query to the any sensor to particular time sensing audio. The sensor checks the Bloom filter. If that time any audio should be sensed the Bloom filter return to which nodes have the sensed audio. Then that node to return the sensed audio to user. In case of the sensor should be damaged or destroyed due to some problem the sensed audio should be retrieve from an alternative node.

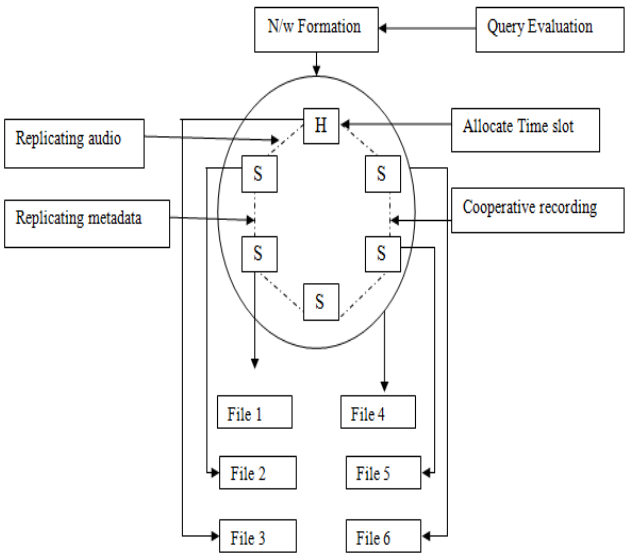
II. RELATED WORK

Most of the exisiting work on audio sensor network focuses on how to efficiently transfer the sensory data back to a base station(sink)[1] by either using online sream compression[2] or customizing high bandwidth sensor protype[3]. Soroush et al.[4] tackled the problem of online compression of data streams in a resource constrained network environment,where traditional compression technical are not applicable.particularly,they aimed at fast piecewise linear approximation methods with quality guarantees.they studied two version of the problem which explore quality guarantee in different forms.for the error bounded piecewise linear approximation problem,they designed a fast online algorithm running in linear time complexity and requiring a constant space cost.

Li et al.[5] designed and implemented a high band width system for quality-aware voice stream(QVS) in WSNs.QVS is built upon a new sensor hardware platform for high-rate audio communication.In their design they used the transceiver chipcon CC1100 which has a 64bytes fifo buffer and maximum data of 500kbps.They used dynamic voice compression and duplicate adaptation,and distributed stream administration control techniques.Their expression results shows the QVS delivers satisfactory voice streaming quality. The above existing work on audio services over WSNs assumes the error of a base station[6].The infrastructure true-based scheme however,may be problematic when applied to the effective audio application addressed in this paper,because a user may hopeto access only limited and events are recorded everywhere transfer all the sensory audio data to a single base station is costly and infeasible.Morever,a base station is a centralized point of failure.The failure of a base station in disaster will paralyze the whole system.

III. PROPOSED SOLUTIONS

There are two main reason to propose this concepts,the disaster area is often disconnected from the outside world. Most of the acoustic events are recorded before rescue could take place.In this paper we proposed Effective audio storing and retrieval in infrastructure less environment. We use the cooperative recording technique the chunks of an acoustic event file can naturally be collected by different sensor nodes and stored in a distributed way. Such a design greatly reduces the redundancy of sampling and storage. It also effectively achieves a better load balance. To find a network size to replicate a metadata.



We use the Bloom filter to encode the metadata of the chunks and replicating the metadata and also replicate the audio chunks to the neighbors to greatly reduce the communication cost. During retrieval time query to the any sensor to particular time sensing audio. The sensor checks the Bloom filter. If that time any audio should be sensed the Bloom filter return to which nodes have the sensed audio. Then that node to return the sensed audio to user. In case of the sensor should be damaged or destroyed due to some problem the sensed audio should be retrieve from an alternative node

Modules identified are as follows:

1. Cooperative recording
2. Query evaluation
3. Replicating metadata
4. Network formation.

IV. ALGORITHM USED

Mainly two algorithms are used metadata replication and query evaluation. The Metadata encoding and Replication is replicating the audio chunks. we use Bloom filter to encode the metadata of chunks residing on a node. By replicating the metadata in a space efficient way in greatly reduce the communication. During retrieval time query to the any sensor to particular time sensed audio. The sensor check that time audio is sensed to the current node or not. If the audio is here then return to the sensed audio to the user otherwise check the replicated Bloom filter. The Bloom filter will be return the alternative sensors and the sensors should be return the sensed audio to the user. Such that design achieves a search success rate of 98 percent while reducing the search energy consumption by an order of magnitude.

V.CONCLUSION

In this project, we propose an Effective Audio Storing and Retrieval in Infrastructure Less Environment over WSN. Replicating Audio chunks,If the sensor is damage or destroy the audio chunks are retrieved from an alternative sensors.we use Bloom filters to compress the metadata of chunks.we implement a real system based as well as conduct comprehensive simulation to evaluate this design.Bloom filter reduces the energy cost for replication

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