# Mobile Data Gathering with Bounded Relay in Wireless Sensor Networks

#### Abstract

- Sensing data gathering is an important and fundamental issue in the Internet of Things (IoT). However, for battery-powered sensors, energy depletion is unavoidable. Using mobile sinks to collect sensing data by one-hop transmission is an effective way to prolong the lifetime of wireless sensor networks but will inevitably cause an excessive long delay time of data gathering.
- In order to reduce the delay time of mobile data gathering, it is necessary to incorporate multi-hop transmission into mobile data gathering.
- In this paper, a new mobile data gathering algorithm with multi-hop transmission is proposed to reduce the delay time of data gathering. The proposed algorithm is called the Bounded Relay Combine-TSP-Reduce (BR-CTR).
- The BR-OFR algorithm visits the convergence area of sensors' communication ranges to reduce the number of visiting points. The BR-CTR algorithm is integrated with a path adjustment mechanism, which can further shorten the planned ceveling path effectively.

## **Existing system**

As Data Mining is the main key step in Knowledge Discovery process in Databases (KDD), it is necessary to find a new methodology that combines web data extraction playing the role of data collection from the web and data mining techniques on the extracted categorical data in order to discover knowledge.

- In labor market, these obscurities are becoming more and more challenging for job searchers, employers and recruiting agencies, aiming all together to take advantage of new ways of recruitment.
- Job searchers are navigating the large number of job postings advertised on multiple job board websites.
- There is an extensive need to provide job searchers with an interface that integrates and analyzes job postings based on given attributes such as job sector, salary range and required experience.

## Disadvantages

- Distributed data over millions of different web servers.
- Volatile data: Many web documents disappear rapidly.
- Large volume: Billions of separate documents exist on the web
- Unstructured data: No uniform structure for web documents
- Redundant data: A lot of duplicate documents exist on the web.
- Data quality: As there is no editorial control for web documents, the quality of writing is poor.
- Heterogeneous datapresented as structured tables, texts, images, multiple media types and other types.
- Hidden patterns: Patterns used to understand existing data and to predict how new instances will behave are missing.
- Segmentation problems: There is a need to assign large volume of data into a relatively small set of groups.

## **Proposed system**

- main contribution of our proposed approach consists of a methodology that combines web data extraction and data mining techniques in order to discover knowledge. The main goals associated with the recruitment needs are enumerated as follows:
- 1) Applying a suitable embedded tool for web data extraction to extract data (job postings) from several recruitment web sites.
- 2) Developing an intelligent tool "Jobs Mining" that aids in processing and consolidating extracted job postings from several sourcessin order to end up with the dataset 1, clustering the categorical data in dataset 1 into a relatively small set of groups, classifying another dataset 2 (job searchers) in such a way to achieve predicting how new instances will behave, and assigning right job postings to right job searchers based on the results of the clustering and the classification.
- 3) Experimenting the results based on accuracy, precision and recall for the Clustering technique and error of classification for the Classification technique.
- 4) Deploying the discovered knowledge and results by sending automatic emails to job searchers informing them about job opportunities that fit their needs.

## Advantages

- The results show that our proposed approach of combination ends up with good results in Knowledge Discovery from the web
- identified characteristics of the most useful data mining techniques and developed two algorithms, kmode clustering and Naïve Bayesian classification, that can be used to predict useful Fields
- The experimental results show that the accuracy of the clustering algorithm is 92.53%

## HARDWARE REQUIREMENTS

- Processor
- Speed
- RAM
- Hard Disk
- Floppy Drive
- Mouse

Monitor

- Pentium -III
- 1.1 Ghz
- 256 MB(min)
  - 20 GB
  - Standard Windows Keyboard
  - Two or Three Button Mouse
- **SVGA**

## SOFTWARE REQUIREMENTS

- Operating System
- Front End
- Database

- Java / DOTNET : Mysql/HEIDISOL

## Conclusion

- In this paper, we propose the BR-CTR algorithm to solve the mobile data gathering problem with bounded relay consideration.
- The BR-CTR incorporates multi-hop transmission into mobile data gathering to reduce the delay time of data gathering. In the choice of visiting areas, the BR-CTR algorithm visits the overlap areas of communication ranges of "more sensors" first.
- In local data gathering, the BR-CTR algorithm sets a limit on the number of sensors to assist for sensors within each visiting area (i.e. the maximum number of sensors for which each sensor within the visiting area can help relay the sensing data).
  - Besides, it also constrains the number of relay hop counts of multi -hop transmission for sensors outside the visiting areas.

#### Future work

- As this case study contributes in promoting employability, concerned parties could take advantage of such tools to support people to find jobs with the collaboration of recruitment agencies.
- In addition to providing a recommended tool for job searchers, our approach could be developed in the future to contribute for gaining insights on the required skills and the distribution of jobs across the sectors and countries in the region.
- Furthermore, with the absence of a valid occupations list at the national level, such methodologies could be adopted to conduct studies on the labor market needs and take proper actions for preparing future employees to fulfill these needs

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