

ABSTRACT

Information extraction (IE) is research topic in Wireless Sensor Networks (WSN) that has been applied in several ways. The problem of IE is a challenging task in WSNs for various reasons including: Limited resources on sensor nodes such as power consumption, computational capability, and maximum memory storage.

A central problem in Wireless Sensor Networks (WSNs) Information Extraction (IE) techniques is the lack of standard query-based IE technique that can be applied to various applications. Techniques for IE can be grouped into several categories: On Event Occurrence, interval based, on demand based, and hybrid based.

In this study, the research is concerned with the development of a query based IE technique to allow the query to scope a region of the network to decrease the amount and quality of the information that will be received, while keeping resources utilization to the minimum.

This research started by viewing existing techniques to IE focusing on their advantages and disadvantages. Then, techniques were described according to the categorization above so sub-techniques are discussed in details. This literature review described the problems and the limitations of IE techniques.

The first identified challenge was how to define a suitable way to specify a subset of nodes that have an important effect to require information. Subsequently, Macro-programming has been identified as a possible solution to address this challenge. An image

segmentation algorithm called, Watershed segmentation algorithm, has been used as a scoping mechanism. Experimental results proved that the proposed algorithm is able to significantly decrease the query processing cost, improve the quality of the information that will be received back, and improve the accuracy of responses.