Information processing in the VANET network when used on highways

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Abstract

Vehicles while on the move request different information in VANET, by enabling communications between vehicle-to-vehicle (V2V), and vehicle-to-infrastructure (V2I) by using a pervasive deployment of vehicular networking technologies.

This would have an unprecedented impact on mass road transportation and on huge services for the VANETs applications.

In this article, a review study was made to find out the procedures which can be used to insure the transfer of information via VANET networks over high ways traveling vehicles and to clarify the challenges appear when information processed. Flowcharts were put for transferring requests and for applying queries especially when p2p is applied for connection between networks.

The article presented also a study of the protocols which are used for transfer queries between similar nodes by using different methods and techniques. Results and conclusion were put.

About scientific research.

AD-HOC (MANET) networks are the most suitable for wireless routing applications within dynamic topology. This type of communication does not require any infrastructure. In order for messages to be routed in these networks, each node is called to share forwarding messages.

The processing of information in the VANET network is of great importance in the area of data transmission and processing to obtain important information for mobile vehicles, prompting researchers to propose different ways of disseminating and retrieving the contents of this information, without forgetting the features of the VANET network, which is the contract of very high speed and models Restricted movement as shown in figure (1).

In this paper, we present a description of the main proposals that address the development of network applications and protocols for data exchange in the network of vehicles in the case of traffic, and then describe the solution that provides information processing in the network of vehicles where each node can work either as a server or as a customer and provide or The contents of the information are requested in a peer-to-peer manner. The research highlighted key challenges and identified techniques that could be applied to solve key issues such as query dissemination and information storage.

In order to publish the query, some effective mechanisms have been described, such as dilute flooding, dissemination of the helper query by locating, and the scheme based on the preferred mass broadcast. These solutions addressed in particular the challenges raised in the vehicle environment such as bandwidth reduction and high dynamic network topology in order to reach a higher number of queries and less response times for the query.

Figure (1) Information processing techniques within a VANET network

The process of processing information from small applications that require processing of different information is small and dynamic time is fast shared between all the vehicles along the way.

The general behavior of an information processing application is the following: A set of different news N is available for sharing and each type of information is identified with a unique identity. One of the wagons inquires of the other vehicles about the news they do not have. Queries are transmitted from the source vehicles and dependent on the receiving contract. Therefore, the request is propagated in a multi-hop manner until we reach the vehicle carrying the desired data, as shown in figure (2) which includes a flowchart separating those operations. Once the information is found, it is returned to the source of the inquiry by applying a single-channel vector and path. When receiving a message containing the required data, the source of the query for the vehicle conceals the information for a certain period of time, after which the data is dropped. Figure 3 shows the processes that follow to receive the information message in a vehicle (either a source or a node).
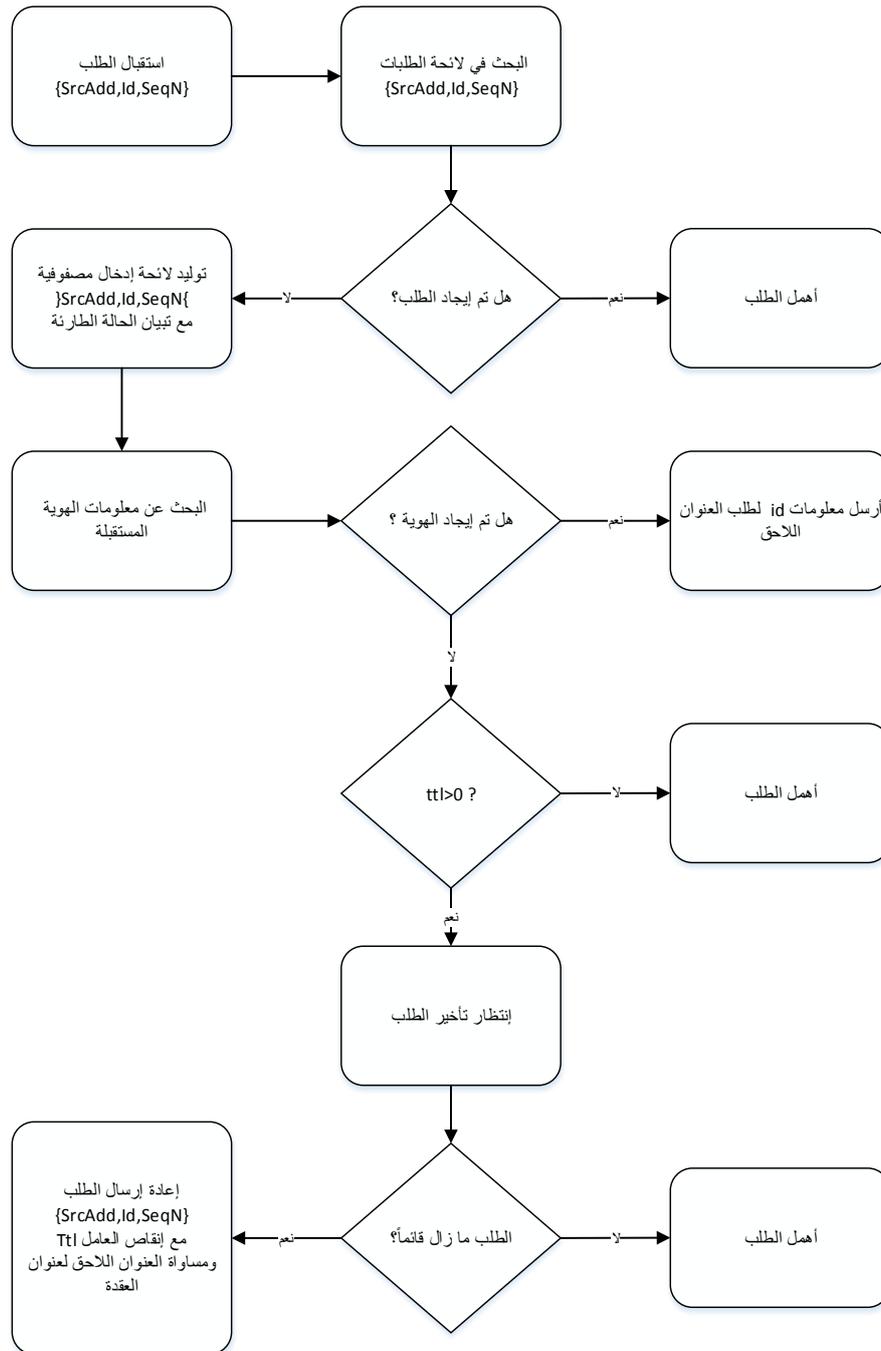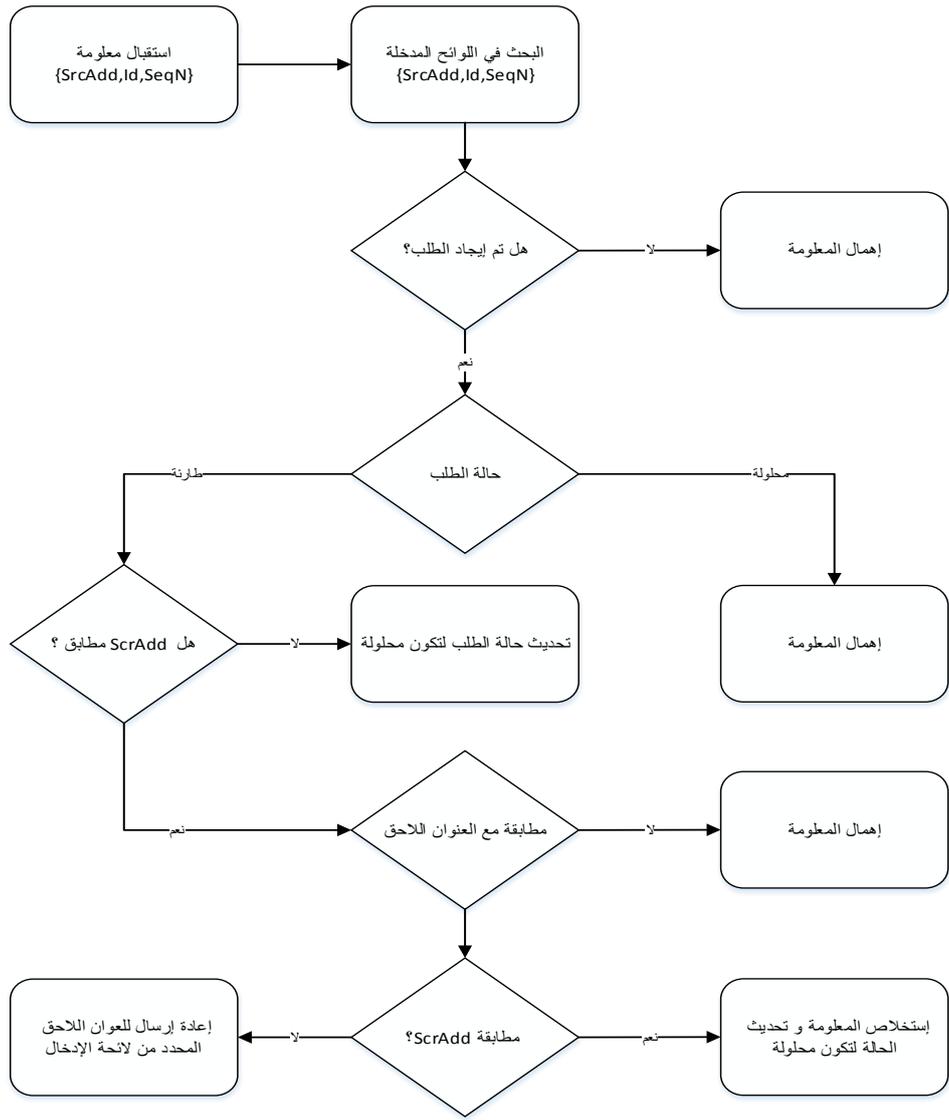
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Figure (2)

Figure (3)