BROADCASTING EMERGENCY MESSAGE IN VANET AFTER AN EMERGENCY EVENT

Indira N[1], Buvaneswari S.R[2], Bragadeeswari K[3], Iswarya S[4]

Faculty Member, Department of CSE, Panimalar Engineering College, Chennai, India
UG, Computer science and Engineering, Panimalar Engineering College, Chennai, India
UG, Computer science and Engineering, Panimalar Engineering College, Chennai, India
UG, Computer science and Engineering, Panimalar Engineering College, Chennai, India

Abstract

A Vehicular Ad-hoc network can be used to broadcast the emergency messages in VANET environment. By broadcasting the messages in advance helps to avoid accidents. In existing system, it broadcast the messages to the vehicles with increased delivery latency. In VANET environment many emergency event can occur like Emergency brake, overtaking etc. when an emergency event occurs it creates chaos in the environment. Based on that event emergency message will be created.This proposed system actively transmits the messages to the right vehicles at right time with decreased delivery latency in the point of messages.

Keywords :*node creation ,neighbour calculation, emergency event, dashing sensor kit ,VANET.*

I. INTRODUCTION

The main aim of this project is to broadcast emergency messages to vehicles in advance in VANET environment and reduce traffic accidents. Vehicular Ad-Hoc Networks can help reduce traffic accidents by broadcasting emergency messages to vehicles in advance so that vehicles can take necessary precaution to avoid accidents. In VANET environment it is a great challenge to deliver messages to right vehicles without delivery latency. Although various protocols proposed to broadcast emergency message in VANET Environment they suffer from one or more problems, like some protocols required collecting nearby information to broadcast message which again increases delivery latency. We propose a new protocol which decreases delivery latency while broadcasting emergency messages Most of the existing schemes adopt the well-known "store carry-forward" strategy due to the intermittent connectivity of VANETs. Flooding may be the simplest scheme among the existing broadcasting methods. However, in this scheme, it is easy to cause some problems such as high collisions and high data redundancy and even the storm problem, because each vehicle rebroadcasts the message to all of its neighbours after it receives a message, which results in increasing the delay and decreasing the reliability of message delivery. Besides, it is inefficiency in terms of radio resource usage.

This system proposed a position-based broadcast protocol for emergency messages propagation in VANETs environment. Unlike most of the existing protocols, the proposed protocol does not require vehicles to collect the real-time information of their one-hop neighbours before they broadcast a message. In other words, vehicles just depend on the information including in a received message to judge whether to rebroadcast the message, which can reduce the deliver latency and drivers will have more time to take actions to avoid accident.

II. LITERATURE SURVEY

[1]Vehicular ad hoc networks (VANETs) can help reduce traffic accidents through broadcasting emergency messages among vehicles in advance. However, it is a great challenge to timely deliver the emergency messages to the right vehicles which are interested in them. Some protocols require to collect nearby real-time information before broadcasting a message, which may result in an increased delivery latency. In this paper, proposed an improved position-based protocol to disseminate emergency messages among a large scale vehicle networks. Specifically, defined by the proposed protocol, messages are only broadcasted along their regions of interest, and a rebroadcast of a message depends on the information including in the message it has received. The

simulation results demonstrate that the proposed protocol can reduce unnecessary rebroadcasts considerably, and the collisions of broadcast can be effectively mitigated.

[2]In traffic safety applications for VANETs, some warning messages have to be disseminated in order to increase the number of vehicles receiving the traffic warning information. In those cases, redundancy, contention and packet collisions due to simultaneous forwarding (usually known as "Broadcast storm problem") are prone to occur. So to avoid this, the data should be disseminated efficiently without any loss. This paper focuses on survey of various broadcast storm mitigation techniques developed for efficient data dissemina-tion.

III.PROPOSED METHODOLOGY

EXISTING SYSTEM

In VANET environment various protocols have been proposed to broadcast emergency messages to vehicles so that traffic accidents can be decreased. However existing protocols suffer from one or more problems which minimize the effect of existing systems. Some system suffers from delivery latency which effectively delays the message broadcasting to right vehicles at right time. Also existing schemes can be classified into categories for example in probability-based schemes vehicle rebroadcast depends on a predefined probability.

DISADVANTAGES

- In the probability-based schemes: the vehicle rebroadcast depends on a predefined probability.
- The primary challenge of this type of schemes is to assign an optimal (or reasonable) probability of rebroadcasting for each vehicle.

3.2 PROPOSED SYSTEM

This system is proposed by a new position based protocol to broadcast emergency message in VANET environment. In this system messages are broadcasted only in their region of interest so that delivery latency will be decreased. In Proposed system if a vehicle in the environment detects a dangerous event, it immediately generates and broadcasts emergency message to vehicles in region of interest, so that the vehicles can take preventive measures to avoid accident. Emergency Messages will be broadcast to vehicles which are needed to take action to avoid accident.

This system proposed a position-based broadcast protocol for emergency messages propagation in VANETs environment. Unlike most of the existing protocols, the proposed protocol does not require vehicles to collect the real-time information of their one-hop neighbours before they broadcast a message.

In other words, vehicles just depend on the information including in a received message to judge whether to rebroadcast the message, which can reduce the deliver latency and drivers will have more time to take actions to avoid accident happening. Since messages are just broadcasted along their regions of interest, the proposed protocol can efficiently reduce unnecessary rebroadcasts and collisions, which helps to improve the utilization ratio of wireless channel.

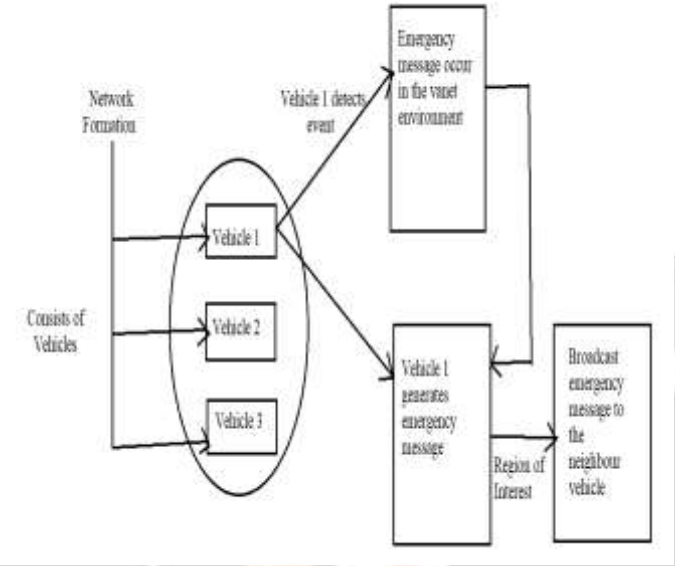
Additionally, the proposed protocol can deliver messages with low delay and few collisions by changing the parameter *r* to adapt to the transmission conditions. Last but not the least, the proposed protocol is suitable for both urban and highway environment, because it is a distributed protocol and more than one vehicle can be chosen as the next forwarders. This system divided emergency messages into three types according to their regions of interest. In this section, we presented a protocol to adaptively broadcast emergency messages in their target regions. The purpose of this protocol is to make sure that the vehicles which are interested in a message can receive the message as soon as possible, meanwhile, redundant transmissions are effectively suppressed.

The proposed protocol is not only available for highway scenarios, but also applicable to urban environment, without need of infrastructure support. Besides, the proposed protocol is completely distributed, that is to say, a vehicle independently decides whether to broadcast a received message.

Since not all the emergency messages' regions of interest overlay the whole roads or streets, in order to reduce unnecessary rebroadcast and effectively use channel resource, it is necessary to broadcast messages according to their regions of interest, instead of blindly multihops broadcasting them into the entire road. For example: 1) if a vehicle sharply slows down, it just needs to inform the nearest vehicle behind it to avoid rear-

end collision, and one-hop broadcast is adequate in this scenario; 2) as ambulances needs guaranteed priority in traffic, the information coming from ambulance should be forwarded multihops along the road so that the vehicles in front can give way in advance, and 3) it is easy to cause chain collision in severe weather once traffic crash happens, so the information of traffic crash ought to be backward multihops broadcast to inform the behind vehicles to slow down.

Inspired by this idea, in the following, we will give a paradigm of emergency messages classification based on the region of interest of each message. We divided emergency messages into three types, i.e., one-hop broadcast, forward and backward multihops broadcast. We just used several common alarm messages



IV.PURPOSE

Most of the existing schemes adopt the well-known "store carry- forward" strategy due to the intermittent connectivity of VANETs. Flooding may be the simplest scheme among the existing broadcasting methods. However, in this scheme, it is easy to cause some problems such as high collisions and high data redundancy and even the storm problem, because each vehicle rebroadcasts the message to all of its neighbors after it receives a message, which results in increasing the delay and decreasing the reliability of message delivery. Besides, it is inefficiency in terms of radio resource usage. In, the influence of the broadcast storm problem was studied in the context of VANETs scenarios, and the authors have designed three suppression techniques by combining the probabilistic and timer-based methods. The schemes they proposed are distributed and just rely on the GPS information, and can effectively mitigate the storm problem.As aforementioned, reducing message collisions can improve the reliability and decrease the delay of message transmissions. The concept of mitigating message collisions and the storm problem is to reducing the retransmissions. Most schemes allow only a small part of vehicles to rebroadcast messages and others suppress their own transmissions.

4.2 PROJECT SCOPE

This system proposed a position-based broadcast protocol for emergency messages propagation in VANETs environment. Unlike most of the existing protocols, the proposed protocol does not require vehicles to collect the real-time information of their one-hop neighbors before they broadcast a message.

In other words, vehicles just depend on the information including in a received message to judge whether to rebroadcast the message, which can reduce the deliver latency and drivers will have more time to take actions to avoid accident happening. Since messages are just broadcasted along their regions of interest, the proposed protocol can efficiently reduce unnecessary rebroadcasts and collisions, which helps to improve the utilization ratio of wireless channel.

Additionally, the proposed protocol can deliver messages with low delay and few collisions by changing the parameter *r* to adapt to the transmission conditions. Last but not the least, the proposed protocol is

suitable for both urban and highway environment, because it is a distributed protocol and more than one vehicle can be chosen as the next forwarders.

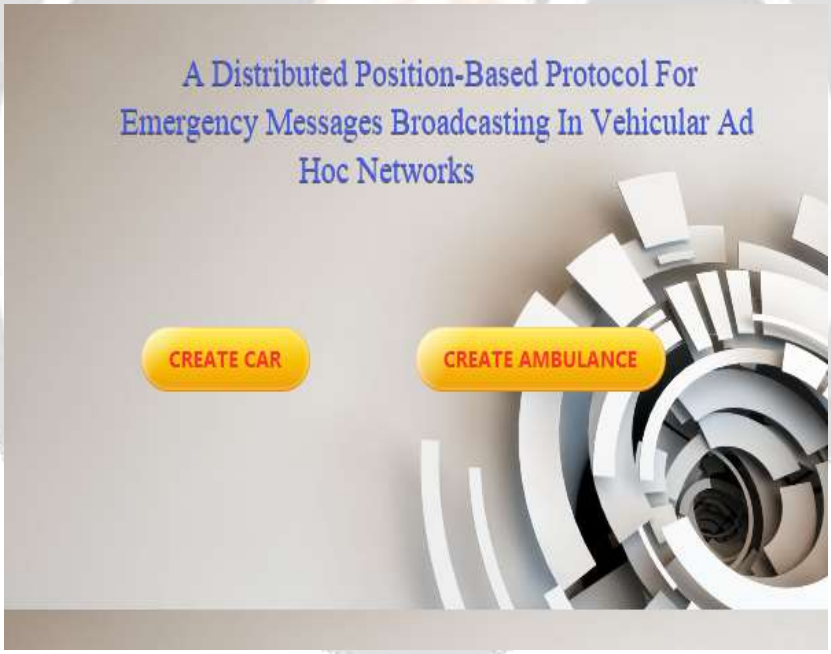
4.3 PRODUCT PERSPECTIVE

This system divided emergency messages into three types according to their regions of interest. In this section, we presented a protocol to adaptively broadcast emergency messages in their target regions. The purpose of this protocol is to make sure that the vehicles which are interested in a message can receive the message as soon as possible, meanwhile, redundant transmissions are effectively suppressed.

In our scheme, whether a vehicle broadcasts a message or not is determined by itself completely, which just relies on the message it has received, i.e., without any assistances of other foreknowledge. In other words, thisbroadcast scheme is completely distributed. In order to realize our scheme, all the vehicles are needed to equip with sensing, communication, calculation, and GPS modules. And we assumed that all the wireless communication devices have a same communication radius *R*.

V.EXPERIMENTAL RESULTS

The concept of the proposed protocol is to broadcast a message in its region of interest, so that the vehicles who are interested in the message can receive it, meanwhile, it can reduce unnecessary broadcast and effectively use channel resource. The proposed protocol is not only available for highway scenarios, but also applicable to urban environment, without need of infrastructure support.



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VI. CONCLUSION

In this project a new distributed architecture is proposed to improve system for enhancing the performance of traffic accident. most of the existing protocols, the proposed protocol does not require vehicles to collect the real-time information of their one-hop neighbours before they broadcast a message. In this aim, this project is proposed by exploiting VANET infrastructure to gather and disseminate information with the main goal to increase safety with a better management of road traffic. The dashing sensor is able to recognize dangerous events and notify alerts to neighbour vehicles. The spreading of these messages permits to reduce collision number and probability of road blocks.

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