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Reduction of Terrorist Operations and Congestion in the Control Points in Iraqi Cities Using of Intelligent Transportation Systems

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Abstract: The intelligent transportation system has a large place in the world and plays an important role in the development of modern technologies. Intelligent transport works in different applications of transport systems, for example, "transport management, control, infrastructure, operations, policies and control methods". The intelligent transport system plays an important role in "risk reduction, high accident rate, traffic, crowd carbon resurrection, air contamination and, on the other hand", increased integrity and accuracy, speedy travel, traffic stream. The intelligent transport depends on wireless sensor networks and reaches the strengths and weaknesses of the intelligent transport system. This proposed research of an intelligent transportation system gives a reliable routing process and a controller to minimize traffic congestion with a proper signal control and terrorist operations that Iraq facedand therefore to find the vehicle information from the source vehicle to the destination vehicle and the explanation of the good results compare than other related work surveys.

Key words: ITLs, VANET, control points, GPS, sensor networks, explanation

INTRODUCTION

The intelligent transportation system demonstrates the technology applied to vehicles as well as the information transmission infrastructure to enhance safety and productivity as well as to reduce traffic congestion. Each vehicle can send and receive messages to other vehicles, so, the VANET network is going to operate without infrastructure. As the transport system can change the way and help emergency services, so, the benefits of VANET is to allow vehicles to communicate easily among themselves. Intelligent transport systems implement advanced transportation and traffic management services, allowing users to be smarter and using transport networks more secure and intelligent (Wang *et al*., 2015; Targe and Satone, 2016). Over the past years, the focus of many institutions and researchers on improving road safety has allowed the development of wireless technology for those interested in this aspect of the design of communication systems and considered the system of vehicles part of them (Khosroshahi *et al*., 2011). The focus of this survey was on the ways to solve the problem of improving vehicular mobility and increasing road safety by developing vehicle technologies and thus focusing on safer efficiency.

Literature review: During the previous periods, intelligent transport systems have emerged as an important means of improving the performance of vehicles on roads, convenient driving and distribution of road information. We are discussing a number of information technology services offered in smart cities during the previous period. By Maslekar *et al*. (2011) and Gradinescu *et al*. (2007) it illustrates two traffic signaling systems based on wireless networks between vehicles and a fixed controller. In this research, a number of nodes have been designed and developed at intersections. The purpose of these systems was to improve the speed of traffic and reduce the time of vehicle waiting.While Schouwenaars *et al*. (2001), Chen *et al*. (2010) and Zhao *et al*. (2010) explained how to redirect vehicles in the shortest way to the intended destination, based on GPS and the time of the accident, at the same time pre-positioning of roads and other features. But these features are ineffective for rapid response to the emergencies due to a sudden accident as the update of traffic information is not real-time. So it's important to update your traffic information in real time. By Akhtar *et al*. (2015) the researcher explains the characteristics of the VANET topology through the requirements of realistic analysis of the time and place of highways. By Yan and Olariu (2011) this study, the researcher dealt with several aspects of it: Headway distance, log-normal distribution, path-loss model, probability distribution, Vehicular Ad-hoc Networks (VANETs), wireless communication, to investigate the probability distribution provides a Realistic radio transmission model and a realistic probability distribution model. By Skabardonis and Geroliminis (2008) the researcher explained that VANETs can deliver information in real time faster and cheaper

between one vehicle and another vehicle based on infrastructure connections and thus, become more efficient than the current systems. At the same time, the units on both sides of the road in VANETs will be able to enhance the time of data collection. Moreover the possibility of implementation planning an effective path for a group of vehicles.

MATERIALS AND METHODS

Proposed system: At the time of the challenges and terrorist operations facing Iraq and the world, the momentum of the many bombings that threatening the lives of many people, it was necessary to find modern ways to avoid these terrorist operations with minimal human and material losses. The idea of working without the need for infrastructure in the points of control between the cities that would cost the country a lot of money and it also relies on the information obtained from the vehicles to avoid accidents and physical losses. The point will be based on information in the control points for traffic and wireless networks which is transmitted to vehicles surrounding the control point orbit and at a distance of 1 km. Intelligent transportation system with wireless sensor network monitors online travel vehicles in real-time in the control points will appear warning messages of vehicles according to the status of vehicles coming to control points and colors that have been identified mission and at the same time sends messages to natural vehicles to change their course to avoid accidents and therefore there will be time to isolate the vehicle or accident with minimal losses and make scope to transport the injured in case of an accident. Smart city perimeter consists of smart traffic signals which will be in the form of clusters at the crossroads of smart cities. These totals of traffic lights will contain traffic information and vehicle congestion and at the same time the ability to update traffic congestion statistics for the smart city and it should be informed the vehicles about these congestions and the possibility of vehicle, identification of the correct route is done by sending warning messages to vehicles in the event of a traffic accident avoid collisions. All of the above information has already been addressed by a number of researchers (Khekare and Sakhare, 2012; Zang *et al*., 2011; Maslekar *et al*., 2011; Gradinescu *et al*., 2007). Our idea is to find a range of traffic information to avoid collisions, through the need to provide control points infrastructure and thus, the ability to collect information about vehicles. The proposed system is explained in Fig. 1.

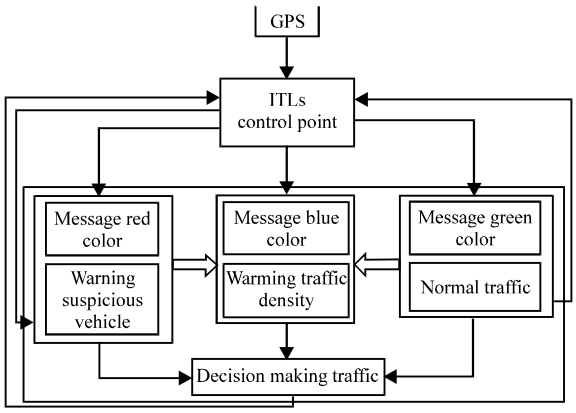

Fig. 1: System architecture

RESULTS AND DISCUSSION

It is assumed that the vehicles are determined by a GPS system on the computers equipped with the proposed system and located in the control points located between one city and another in Iraq. Thus, GPS will contain complete information about intelligent traffic lights for the distances around the control points for their association with each other at the point of control. In the case of a suspicious vehicle, at a distance of 1 km will be a red warning signal to the concerned authorities to prevent the approach of the vehicle. In the event of heavy traffic congestion, a reference will be made to the concerned parties in blue to intervene to find immediate solutions to prevent these congestions in order to avoid any terrorist act to exploit the situation. If the traffic is normal, there will be a green signal to the concerned parties for the flow of traffic as the decision-making stage of traffic in the situation in Iraq and its war against terrorism will be through traffic in addition to the security forces and distributed to the control points in the cities. In all cases, decision-makers located in order to get the response speed and the arrival of the information in three seconds due to the movement of vehicles fast and to be fully controlled of traffic at each control point, the best protocol which indicated a lot of research is Ad hoc On-Demand Distance Vector (AODV) (Perkins *et al*., 2001) routing protocol to implement the required plan near the controlpoints will make quick and appropriate decisions to avoid accidents.

CONCLUSION

This study presents an overview of the technologies used in the field of intelligent transportation systems. The proposed system offers the use of an Intelligent

transportation system with the wireless sensor network through the control unit located in the control points for every city in Iraq to avoid the occurrence of terrorist operations and to reduce traffic congestion by controlling the appropriate signals within the control unit at the control point. Therefore the possibility of security agencies to help guide vehicles towards the appropriate paths of traffic.

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