Traffic Control System

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Abstract — *the growth of industrialization and urbanization has result in associate huge increase within the population invariably leading to rise within the variety of vehicles on road. The ensuing traffic congestion and traffic jams are the most important hurdles for emergency vehicles like ambulance carrying important patients as these emergency vehicles aren't able to reach their destination in time, ensuing into a loss of human life. To solve this drawback to some extent we've got apparently come back up with "Smart ambulance using IR sensors" for ambulance". The proposed system clears the tie up by turning all the red lights to green on the trail of the ambulance, hence helping in clearing the traffic and providing means towards its destination. The system consists of associate android application which registers the ambulance on its network. In case of emergency scenario, if the car halts on its means, the application sends associate emergency command to the traffic signal server and additionally the direction wherever it needs to move with this position with the assistance of world Positioning System. The closest signal is known based upon this position of the ambulance. And that particular signal is formed green until the ambulance passes by and later it regains its original flow of management. During this way it acts sort of a lifesaver project because it saves time throughout.*

Keywords: industrialization, urbanization, congestion, apparently.

I. INTRODUCTION

The pace at that the globe is developing is extremely high these days. Reformations in technology each day is evolving and improving efficiency in tending sector is one amongst the foremost difficult and difficult jobs conjointly with the appearance of Industrialization and Urbanization, because the population increases day by day the quantity of vehicles conjointly will increase on the roads. This ends up in high traffic jams in massive cities. Traffic congestion causes several somebody affects on countries transportation. One of the wide affected services because of traffic jams is that of an ambulance. Many another times, ambulance contains emergency or essential patients that have to be taken to the hospital in minimum amount of time providing correct treatment to the patient so probabilities of extant will increase in critical condition. A Patient could lose his life if there's delay in reaching of ambulance to the hospital. In line with the surveys ninety fifth of the guts attacks cases will be treated, if the ambulance will reach the hospital at current time while not stuck into the traffic. For this, it's required that the vehicles on the road to form approach for the ambulance. However typically, the ambulance gets stuck within the traffic that successively wastes a great deal of your time looking ahead to the traffic to get clear. we are able to overcome these limitations by the rising technology like IoT i.e. internet of Things. Varied package implementations and hardware devices will be connected with the assistance of wireless networking tools or wired tools. In IoT the parts are connected and controlled by the web. Therefore the impact of IoT in today's era is important because it helps to represent the article digitally and makes itself one thing larger than the object by itself.

1. PROBLEM INGREDIENTS:

It is well known that the increasing of car numbers in big capitals arises a real problem of traffic blocking. Different research papers have been introduced to solve this problem, although people are still suffering. The blocking traffic between the place of patient and hospital becomes case of sending. Thus, the need of a system to decrease life loosing, and sending delay has been vital automatically. The system controls the traffic glows using wireless communication system and selects short path with less congestion. All that to reduce the time taken by ambulance to deliver the patient to the hospital in optimal time.

2. Goals and Objectives
1. The main objective of this idea is to design an quick auto traffic signal control system.
2. The main objective of this system is to make it possible for the ambulance to reach a specific location without having it to stop anywhere till the destination is reached. Developing priority-based signaling which will help to give the priority to the emergency vehicles such as ambulance developing priority-based signaling which will help to give the priority to the emergency vehicles such as ambulance
3. Developing priority-based signal which is able to facilitate to present the priority to the emergency vehicles like ambulance.

3. Scope

Scope of our project is as follows:

- The project has been designed to substantially enhance the performance by ensuring smooth mobility of ambulance.
- The system also reduces the workload of traffic employees as it totally automates the whole view of traffic signaling which also importantly reduces the domain of error.

II. LITERATURE REVIEW

1. TITLE: Recommendations of the DG eCall for the introduction of the pan-European eCall
Published by: eCall Driving Group

With fatalities on the road across the EU of more than 40.000 people every year, the European Commission recognizes that the current measures towards reducing the fatality number is not enough. In the White Paper on European transport police from 2001, the European Commission proposed that the European Union should set itself the target of halving the number of road fatalities by 2010.

One of the initiatives from the European Commission is the establishment of the eSafety Forum, which is a joint industry/public initiative for improving road safety by using new Information and Communications Technologies. The overall objective is to join forces and to build up a European strategy to accelerate the research and development, deployment and use of Intelligent Integrated Safety Systems including Advanced Driver Assistance Systems (ADAS) for increasing road safety in Europe.

2. TITLE: Towards Vehicular Sensor Networks with Android Smartphones for Road Surface Monitoring.
Published by: Girts Strazdins, Artis Mednis, Georgijs Kanonirs, Reinholds Zviedris and Leo Selavo

Android is one of the most popular smartphone platforms at the moment and the popularity is even rising. Additionally, it is one of the most open and flexible platforms providing software developers easy access to phone hardware and rich software

API. We envision Android-based smartphones as a powerful and widely used participatory sensing platform in near future. In this paper we examine Android smartphones in the context of road surface quality monitoring. We evaluated a set of pothole detection algorithms on Android phones with a sensing application while driving a car in urban environment. The results provide first insight into hardware differences between various smartphone models and suggestions for further investigation and optimization of the algorithm, sensor choices and signal processing.

3. TITLE: Providing Accident Detection in Vehicular Networks Through OBD-II Devices and Android-based Smartphones.
Published by: Jorge Zaldivar, Carlos T. Calafate, Juan Carlos Cano, Pietro Manzoni

By combining smartphones with existing vehicles through an appropriate interface we are able to move closer to the smart vehicle paradigm, offering the user new functionalities and services when driving. In this paper we propose an Androidbased application that monitors the vehicle through an On Board Diagnostics (OBD-II) interface, being able to detect accidents. Our proposed application estimates the G force experienced by the passengers in case of a frontal collision, which is used together with airbag triggers to detect accidents. The application reacts to positive detection by sending details about the accident through either e-mail or SMS to pre-defined destinations, immediately followed by an automatic phone call to the emergency services. Experimental results using a real vehicle show that the application is able to react to accident events in less than 3 seconds, a very low time, validating the feasibility of smartphone based solutions for improving safety on the road.

4. TITLE: Fail Silent Road Side Unit for Vehicular Communications.
Published by: Joaquim Ferreira, Arnaldo Oliveira, João Almeida, and Cristóvão Cruz

Wireless vehicular networks for cooperative Intelligent Transport Systems (ITS) have raised widespread interest in the last few years, due to their potential applications and services. Cooperative applications with data sensing, acquisition, processing and communication provide an unprecedented potential to improve vehicle and road safety, passenger's comfort and efficiency of traffic management androadmonitoring.Safety,efficiencyandcomfortITSapplicationsexhibittight latency and throughput requirements, for example safety critical services require guaranteed maximum latencies lower than 100ms while most infotainment applications require QoS support and data rates higher than 1 Mbit/s. The mobile units of a vehicular network are the equivalent to nodes in a traditional wireless network, and can act as the source, destination or router of information. Communication between mobile nodes can be point-to-point, point-to-multipoint or broadcast, depending on the requirements of each application. Besides the adhoc implementation of a network consisting of neighboring vehicles joining up and establishing Vehicle-to-Vehicle (V2V) communication, there is also the possibility of a more traditional wireless network setup, with base stations along the roads in Vehicle-to-Infrastructure (V2I) communication that work as access points and manage the flow of information, as well as portals to external WANs.

5. TITLE: Performance Analysis of Maximum Length LFSR and BBS Method for Cryptographic Application.
Published by: N.S.Abinaya, P.Prakasam

In this paper, 8, 16 and 32 bit maximum length LFSR which can give the maximum states of PN sequence has been implemented. Also presented the comparison of performance analysis of 4 bit LFSR and 16 bit BBS based on synthesis and simulation result on FPGA using hardware descriptive language(HDL) with maximum length feedback polynomial to understand the area, speed and power requirement. The target device we have used is Xilinx Virtex6 XA9572XL FPGA and performed simulation and synthesis using Xilinx ISE 12.l. FPGA is a predesigned reconfigurable. It has the ability to reconfigure its circuitry for a desired application or function at any time after manufacturing. It is an adaptive hardware that continuously changes in response to the input data or processing environment.

The FPGA configuration is generally defamed using a hardware description language (HDL), similar to circuit (ASIC).FPGAs can be used to implement any logical function that an ASIC can perform. Because of various advantages and rapid prototype development can possible, so FPGA is chosen.

III. SURVEY of PROPOSED SYSTEM

Now a days there is a high traffic at a specific time due to that the traffic signals should kept correctly to reduce chances but at the same time during some extra situations ambulance may blocked in the signal it leads to major cause. To avoid this, based on all data, traffic signal should be controlled. For that strategy, the proposed system is built in real time. This application is very useful for the world's day to day life to save someone's life. IoT plays the role between ambulance and the traffic signs. This project is built on the IoT to save the hominid life at critical condition. This project is to start the communication between the traffic signals and the ambulance so that the traffic signal can respond to the arrival of the ambulance and reply according to that. When the traffic signals are variations its states according to the position of the ambulance it can able to make a free way for the ambulance. Thus this mission will action as a life saver.

    a. Automatic vehicular signal control.
    b. Clearance to emergency vehicle/fire car.

ADVANTAGES OF PROPOSED SYSTEM:

➢   Ambulance service will no longer be affected by traffic jams.
➢   Over a wide range applicability.
➢   One time investment cost.
➢   Life of people can be saved.

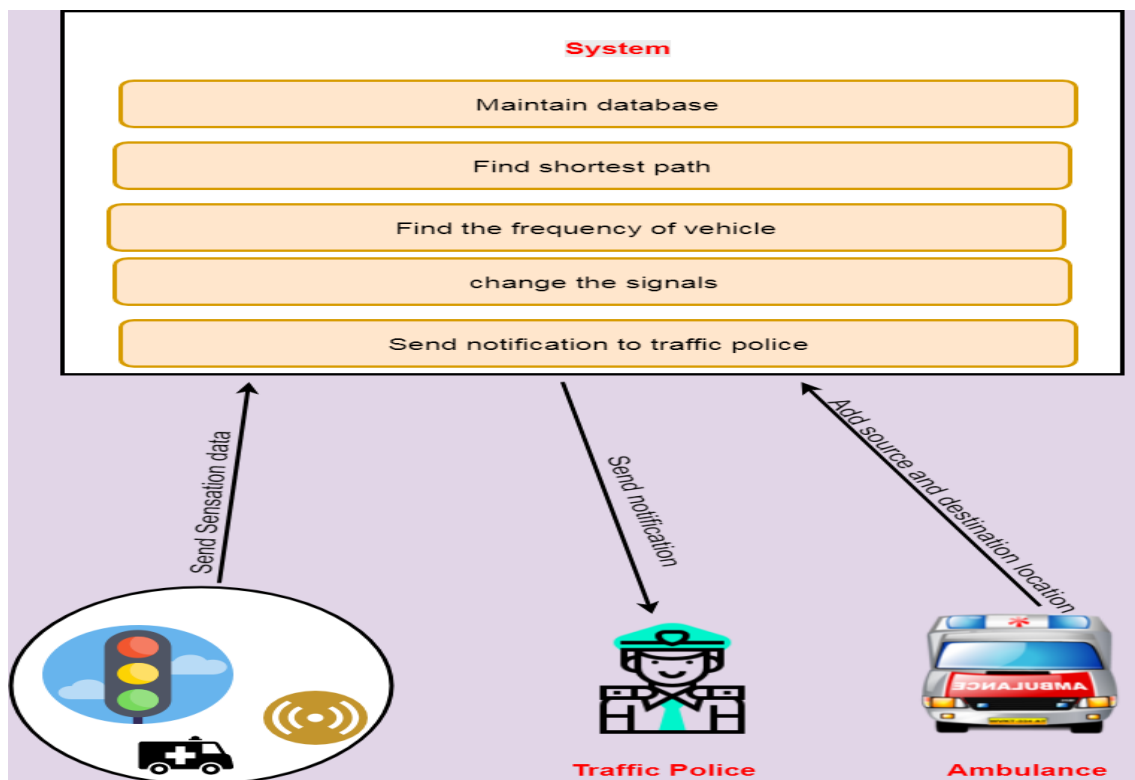## V.   SYSTEM ARCHITECTURE

Fig.: System Architecture

VI. CONCLUSION AND FUTURE WORK

The proposed technique is designed, implemented and targeted directly for effective management of traffic such that vehicles of emergency moving on road can proceed in a smooth manner without getting stuck in traffic jam until they arrived to the point of destination without taking much time and human involvement. The proposed system is also effective in controlling the congestion of traffic.

VII.   REFERENCES

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