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Review of Rf-Base Managed Intelligence Transport System

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Abstract:

Intelligent instrument are use in every part of live. It wants' to time to realize the most task in electronics. It rapid vehicular growth to every increasing the population. It occur the accidents in fast speed of transport system day by day. Early day fast driving are getting extremely increase. So are traffic jams, rough driver it more imparity accidents occur. In this project they avoid the accidents. This Technology is referring as IEEE. This Technology can be implementing the speed control of transport system1. It automation of driving control of vehicle. It is import need of hour. In this project develop to avoid the accidents due to high speed vehicles. Usually the traffic police cannot proper response them, also they are not monitor those area all time they control our speed. IN this project are control the speed of vehicles at certain limit of restricted zone without interruption of the drivers with the help of wireless communication protocol(WCN). This project can present the efficient architecture that will increase the safety of travel on road. In vehicle communicate by forming network and station so that coming vehicle at that restricted zone. They can receive or use the information reliable ITS architecture.

Keywords—**RF Tran receiver, RS 232 protocol, ULN2803, ST3654, ATMEGA16.**

II. INTRODUCTION

As the city road networks is growing day-by-day, the question of how to obtain information about the roads is becoming more and more challenging. In such an era, Intelligent Transportation Systems (ITSs) has emerged as a key candidate that benefited from the unique features and capabilities of Wireless Sensor Networks (WSNs) and Wireless Modem technology. WSNs are composed of small tiny devices that work in autonomous manner to sense the surroundings [1]. The Wireless Transmission protocol can be used for inter-vehicle communication among vehicles equipped with Transceiver devices. ITSs are a state of art combination of transportation infrastructure and computer and information technology [3]. ITSs can also resolve severe situations like traffic congestion and cope with emergency conditions like major accidents. This Project presents an efficient architecture that will increase the safety of road travel using the concepts of WSN and the Wireless Communication protocol. We also discuss the ad-hoc network formation between vehicles and data exchange sensed by sensors. The simulation results show that wireless and sensor networks can be used collaboratively to increase the safety of road travel [2]. With the advances in the technology of micro-electromechanical system (MEMS), developments in wireless communications and wireless sensor networks (WSNs) have also emerged. WSNs are usually composed of small, low-cost devices that communicate wirelessly and have the capabilities of processing, sensing and storing. The nodes communicate wirelessly and often self-organize after being deployed in an adhoc fashion. It is an infrastructure comprised of sensing (measuring), computing, and communication elements that gives the user the ability to instrument, observe, and react to events and phenomena in specified environment. Currently, WSNs are beginning to be deployed at an

accelerated pace. It is not unreasonable to expect that in 5-10 years that the world will be covered with wireless sensor networks with access to them via the Internet [2]. This can be considered as the Internet becoming a physical network. The development of WSNs was motivated by military applications such as battlefield surveillance and target tracking. Some typical applications of WSNs are tracking, monitoring and controlling. In a typical application, a WSN is scattered in a region where it is meant to collect data through its sensor nodes. WSN are being used in many industrial and civilian application areas including industrial process monitoring and control, machine health monitoring, environment and habitat monitoring, healthcare applications, home automation and traffic control [5]. One of the major challenges that vehicle control and traffic management applications are facing is to know the position and speed of the vehicles on the road network in real-time is. WSN received significant attention in the last decade and successful research put them in the forefront to answer this challenge. WSN technology can help in the infrastructure development of ITS[4]. Vehicles equipped with wireless radios can communicate wirelessly with each other. The California PATH program has created a complete Autonomous Highway System (AHS) in which vehicles travel together in platoons. Although it is a demonstration of intelligent vehicle technologies, this requires major changes in the existing highway infrastructure to implement such a system. Forming platoons seems to be infeasible in real world because everyday traffic follows random patterns and this depends on the type of vehicle and its driver. Various governmentally-funded ITS projects have been launched in many countries like Canada, USA, Europe, Japan, Australia and others. Furthermore, various projects have been funded by educational institutions, regional organizations and the industry to research on ITS. In this Project, we are proposing an efficient and reliable architecture for intelligent transport system with the help of WSN and ad-hoc networks formed among vehicle using chip on. Chip on provides reliable communication between vehicles equipped with wireless devices. Sensor nodes in WSN are deployed at important places to collect and provide information from/to vehicles [1]. Vehicles communicate by forming an ad-hoc network and serve the base station so that coming vehicles can use this information. This is a more reliable ITS architecture compared to the previously proposed architectures.

III. PROJECT CONCEPT

We are not going to explain very complex solution for this; neither have we claimed to be an expert traffic controller. If we could fix up some sort of transmitter system on the highways which can detect the speed of the vehicle and convey to the driver that he is not in the permitted speed limit in the particular area or he is in a no horn area, or even further, if the ITS gives the message to driver about Railway Gate and school ahead then he will defiantly try to control vehicle speed. In this project concept we broadly focus on the below mentioned points for safer and smooth transportation system. 20 speed limit, 40 speed limit, 60 speed limit, hospital ahead, no horn area, railway crossing, U turn, breaker ahead, traffic jam, red signal information.

IV. METHODS

Transmitter Circuit

Transmitter consists of microcontroller, sensor switches and wireless data modem. Keypad is connected with this microcontroller. Every Key has it unique functioned by which operation or data signal will be send to receiver[5]. Traffic density counter output is also connected transmitter unit and sends diversion information at receiver end.

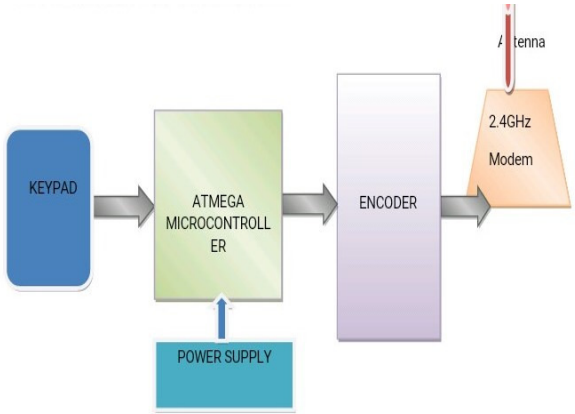

Fig1: Block diagram of Transmitter circuit

V. VEHICLE RECEIVER CIRCUIT

Receiver consists of a microcontroller, 16x2 LCD Display devices for display purpose, RF data Modem and distance sensor. Alarm switch connected to Port 3. Data transmitted from the transmitter received by the Modem that is read via RS 232 Protocol. Output from this receiver is connected to RXD of the microcontroller IC. This serially received data is displayed on the LCD. Port 3 of the microcontroller also controls the operation of the relay. Whenever the vehicle is in no horn zone, no horn relay' normally close contact will open and driver will be prohibited to sound horn. Railway Gate, Limit 40, School Ahead and No horn etc are codes connected to Transmitter section one side of the keys is connected to ground, so whenever any key is pressed, that particular pin of the Encoder will become low and microcontroller will detect key pressed. If no key pressed, all these pins will stay high[2]. Corresponding messages are stored into microcontroller ROM area. Microcontroller will read the corresponding message from the ROM area and display on the LCD. Entire circuit driven by 12v battery IC 1 is 5v regulator that gives regulated 5v dc required for microcontroller and other module.

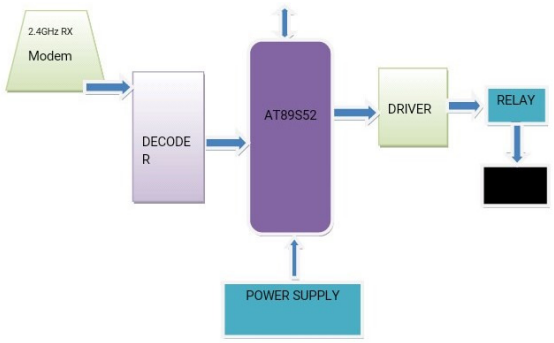

Fig2: Block Diagram of Receiver Circuit

VI. RF TRAN RECEIVER

This is an FSK Transceiver module, which is designed using the Chip on IC(CC2500). It is a true single-chip transceiver, It is based on 3 wire digital serial interface and an entire Phase-Locked Loop (PLL) for precise local oscillator generation .so the frequency could be setting. It can use in UART / NRZ / Manchester encoding / decoding. It is a high performance and low cost module[1]. It gives 30 meters range with onboard antenna. In a typical system, this trans-receiver will be used together with a microcontroller. It provides extensive hardware support for packet handling, data buffering, burst transmissions, clear channel assessment, link quality indication and wake on radio. It can be used in 2400-2483.5 MHz ISM/SRD band systems. (e.g. RKE-two way Remote Keyless Entry, wireless alarm and security systems, AMR-automatic Meter Reading, Consumer Electronics, Industrial monitoring and control, Wireless Game Controllers, Wireless Audio/Keyboard/Mouse). It could easily to design product requiring wireless connectivity [2].

It can be used on wireless security system or specific remote-control function and others wireless system. Operating Range is 30 meters without requiring any external antenna.

Express SCH

Express SCH software used for Circuit designing.

- Begin a new schematic by running Express SCH. You can launch Express SCH from your desktop by clicking on the icon.
- Select New from the File menu. Then start designing a schematic diagram.
- Take component from Components and Symbols manager as per required and it by using wire.

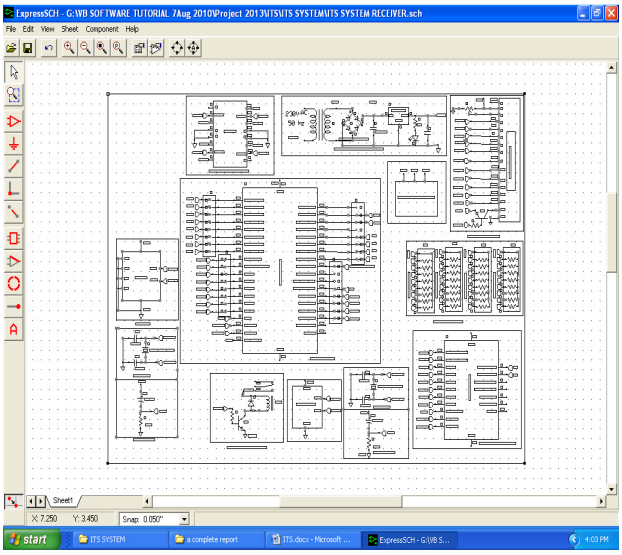

Fig3: Circuit design in Express SCH software

VII. Results and Conclusion

We have tested our system both hardware and software part. We have successfully completed it. It is working properly[2]. We get information about different zone and we also controlling speed of vehicle.

VIII. References

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