

A Literature Survey On Sign With Smart Connectivity For Better Road Safety

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ABSTRACTION :

The beginning of civilizations, transportation has been one of the most important requirements for humans. Over the years, it has been evolved to modern transportation systems such as road, train, and air transportation. With the development of technology, intelligent transportation systems have been enriched with Information and Communications Technology (ICT). Nowadays, smart city concept that integrates ICT and Internet-of-Things (IoT) have been appeared to optimize the efficiency of city operations and services. Recently, several IoT-based smart applications for smart cities have been developed. Among these applications, smart services for transportation are highly required to ease the issues especially regarding to road safety. In this context, this

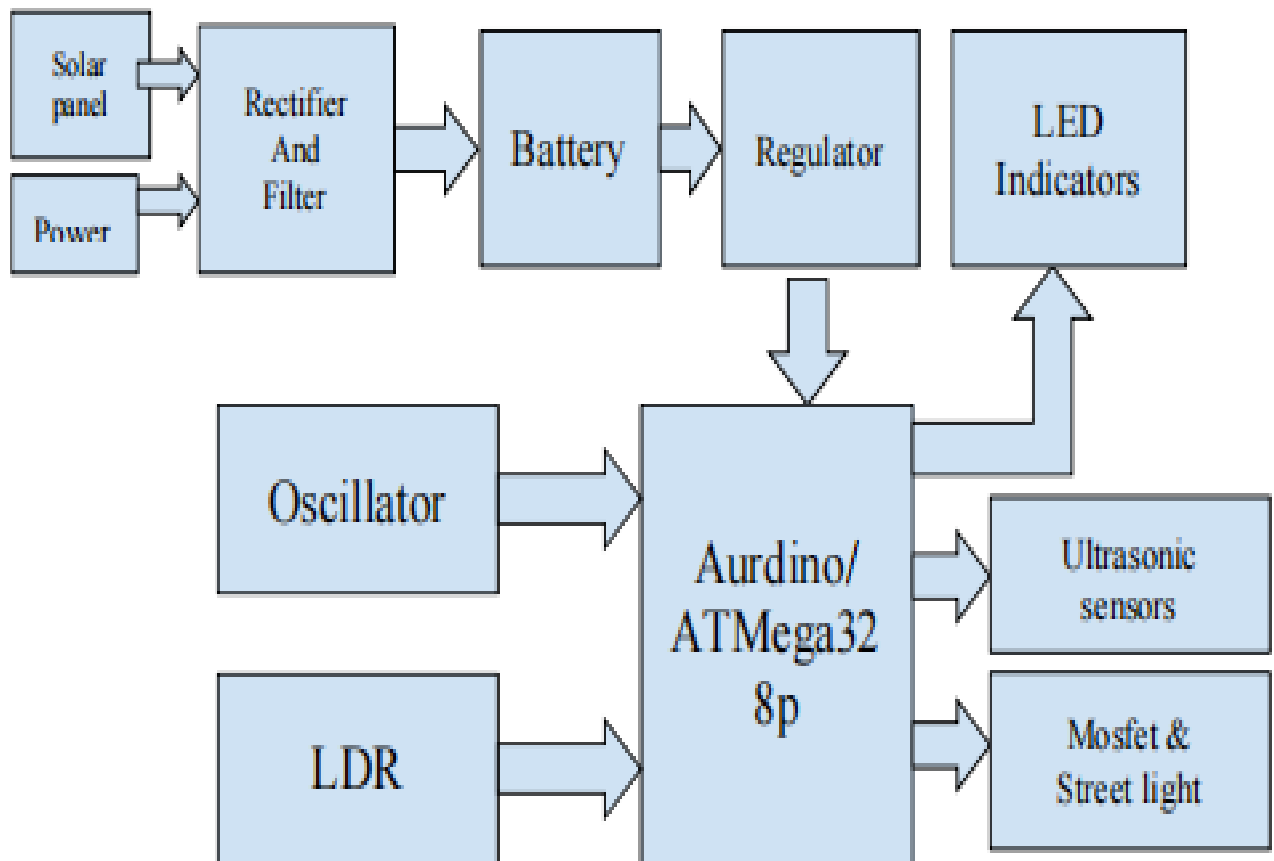
study presents a literature review that elaborates the existing IoT-based smart transportation systems especially in terms of road safety. In this way, the current state of IoT-based smart transportation systems for safer roads are provided. Then, the current research efforts undertaken by the authors to provide an IoT-based safe smart traffic system are briefly introduced. It is emphasized that road safety can be improved using Vehicle-to-Infrastructure (V2I) communication technologies via the cloud (Infrastructure-to-Cloud – I2C). Therefore, it is believed that this study offers useful information to researchers for developing safer roads in smart cities.

Keywords—internet of things, road safety, smart city, smart transportation

INTRODUCTION:

The concept of smart city merges Information and Communications Technology (ICT) and Internet-of-Things (IoT) in order to optimize the efficiency of city services and allows to connect them to citizens. It enables an interaction between the officials and community along with the city infrastructure to monitor the cities for different purposes. With the help of IoT, indeed, the quality and interactivity of city services is expected to be enriched. Moreover, the cost and resource consumption could be reduced. It is also highly possible to ease the relation between the governments and the citizens. Thus, the IoT-based smart cities integrate the city services and infrastructures through the novel communication technologies.

SYSTEM ARCHITECTURE :



MODULES :

- Smart road safety
- Accident Prevention
- Ultrasonic Sensor

- Mountain Roads
- Microcontroller

Smart Road safety:

When two cars pass from the opposite side of mountain curve the IR sensor senses the car and LED color changes to red and raises the buzzer giving signal of danger and then it changes one LED color into green to allow one car to pass and then the other LED color turns green .

Accident Prevention:

Health and safety at work. There are three aspects to the prevention of accidents at work. Safe place of work. A safe place to work is a prime requirement of the Health and Safety at Work, etc Act 1974 (HSWA).

Organizational factors, reduce employee injury, illness and death rates; improve employee performance, strengthen workforce morale and motivation; and lower absentee rates.

Ultrasonic Sensor :

Ultrasonic sensor (HC-SR04) can measure distance it emits an ultrasonic at 40KHZ. considering the travel time and the speed of the sound you can calculate the distance.

$$\text{Distance} = (\text{duration} / 2) * \text{velocity of sound} \quad (340\text{m/s})$$

Microcontroller :

Microcontroller is a compressed micro computer manufactured to control the functions of embedded systems in office machines, robots, home appliances, motor vehicles, and a number of other gadgets.

A microcontroller is comprises components like memory, peripherals and most importantly a processor .Microcontrollers are used in automatically controlled products and devices, such as automobile engine control systems, implantable medical devices, remote controls, office machines, appliances, power tools, toys and other embedded systems.

SOFTWARE REQUIRMENTS

Software Requirements:

Operating system : Windows / linux ,7

Platform : IOT

Software : Python IDLE

Hardware requirements:

Hard disk : 20GB

RAM : 256 MB(min)

Monitor : SVGA

Keyboard : two or three button mouse

PROPOSED METHOD :

I propose to use node MCUs connected with IOT which controls and limits the speed in some specific areas and GPS to get the exact location where the accident may occur.

ADVANTAGES OF PROPOSED SYSTEM :

- The goal of the project is to reduce the number of accidents, This system helps people to drive day and night carefully.
- The solar powered system is especially useful in hilly areas where this system is currently deployed.

EXISTING SYSTEM :

Over Speed : These systems cannot control speed at some specific zones .Exact location of accident occurred : These systems cannot give the precise location of accident .

DISADVANTAGES OF EXISTING SYSTEM :

- Driving while intoxication
- Over speeding , High cost of most applications .

CONCLUSION :

The number of casualties associated with road collision is growing rapidly. The rapidly growing population in today's big cities adversely affect the transportation. Hence, in smart city concept, IoT-based smart services for transportation are highly demanded to provide efficient, and safer transport conditions to citizens. In this study, it is aimed to address smart transportation systems for safer roads in smart cities. For this purpose, a literature review has been conducted to present the current state

of understanding of IOT-based smart transportation systems for safer roads.

FUTURE SCOPE :

In this paper, the project infrastructure has been conceptually presented. Currently, a research group has been working on the limitations of the infrastructure (light poles from COMLIGHT AS) and the integration of IQRF technology. As a next step, the most important safety information to communicate between the vehicles and the infrastructure at the testing area will be identified. Further, the requirements and considerations when designing such an adhoc network of connected vehicles and fixed infrastructure elements will be determined.

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