

Adaptive Horn For smart City To Reduce Noise Pollution

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Abstract- This project has an aim to control the horn volume in cities and also in the restricted area as such schools, parks, hospitals, old age homes, college, government offices and in speed limited areas, etc. Some peoples are driving vehicles at a high speed and create the noise of horns of vehicles. So the police are not able to monitor all those things. The driver does control the speed of the vehicle at places. This paper provides a way for how to control the speed of the vehicle and control the noise of a horn without harming others. This project has the aim to control the noise of the horn automatically. The speed of any vehicle will be detected using an accelerometer if the speed of a vehicle exceeds in honking zone then the buzzer can buzz and get alert to the driver about. cities and also in the restricted area as such schools, parks, hospitals, old age homes, college, government offices and in speed limited areas, etc. Nowadays in a fast-moving world, all the peoples do not have self-control. controls are taken automatically by the use of an electronic system. In this project, we use GPS for indicating the nearby honking zone. Speed is measured by the help of an accelerometer in the vehicle. The controller compares the speed. If it exceeds the limited speed the piezo buzzer buzz and alerts the driver and controls taken automatically by a driver and when a vehicle is near at honking zone the switch can automatically decrease the volume of the horn if it on. In this way, our smart honking zone for smart cities project will be performed.

Keywords- Speed control, inter-vehicular communication, honking, Arduino, switch, GPS, Pizzobuzzer, noise control.

I. INTRODUCTION

At present accidents are mostly occur due to rash driving and over speed in the road. People do not bother about human lives. The accidents rates are increasing year to year by more vehicles on to the ground. The government has taken to many steps to prevent this kind of Things but it not enough. Most of the manufacturers have developed a laser-based control system but its cost is too high. But it is again a difficulty when human crosses the road it cannot detect properly so we tried to develop a system to control these things simply. The current speed will be monitored by the separate module or by the use of an ultrasonic sensor that also

sends information to the controller. The controller compares both speed and the driver does not decrease the speed the control transfers automatically but the driver again operates it manually and exceeds the limited speed.

Due to an increase in a vehicle the amount of pollution, that is generated by these vehicles has increased significantly. This has, in turn, caused disturbances and therefore, in some areas such as in central cities, near the hospital, near the school, etc, honking (operating a horn to generate sound) is prohibited by law or regulation. In general, there are many traffic signs in various areas to notice the drivers not to operate horns. Additionally, or local governments issue permanent or temporary regulations the horn operations. However, some drivers ignore such traffic signs or International Journal of Pure and Applied Mathematics Volume 118 No. 20 2018, 695-700 ISSN: 1314-3395 (on-line version) URL: <http://www.ijpam.eu> Special Issue ijpam.eu 695 forget or do not know of such regulations, especially in those areas that they are not familiar with, and thus operate horns in the wrong way against the regulations. The only way by which the driver can honk is that if the driver gets close to the other cars range only then the driver will have full access to honk, if the other car is not nearer to the car of the driver, he will not be able to honk. Thus, it needs to provide a technical solution for automatically deciding the closeness of the car and preventing unnecessary honking.

There is always considerable effort to reduce speed in the honking zones and avoid annoyance amongst the residents. The annoyance level of traffic speed may be personal but the community as a whole is quite sensitive to traffic noise especially honking by vehicles. L10 is a measure of daily exposure to traffic speed and indicates how much the prevailing traffic noise will affect the exposed residents. According to the International Program of (WHO 1994), an adverse effect of speed has dined as a change in the morphology and physiology, which results in impairment of functional capacity. WHO has documented seven categories of adverse health effects of noise pollution which is having only because of speedy driving on humans that includes hearing impairment, Interference with Spoken Communication, Sleep Disturbances, Cardiovascular Disturbances, Disturbances in

Mental Health, Impaired Task Performance and Negative Social Behaviour and Annoyance Reactions. Temporary speed exposure results in physiologic changes that are readily reversible. However, noise exposure of sufficient intensity, duration provokes changes that may not be so readily reversible. Noise pollution which having only because of a speedy vehicle is driven is not believed to be a cause of mental illness, but it is assumed to accelerate and intensify the development of latent mental effects on human health because of noise. How that bad effect was reduced.

II. BACKGROUND & LITERATURE REVIEW

Currently, Indian cities are ranked thrice in Top 10 noisiest cities in the world according to Citi quite. The effects of Noise pollution which is generated from the high-speed vehicle it is mainly affected by the honking zone area. The speed Barriers and smart Honking Zones are created but are hardly followed. The people are susceptible to early seeing less than the expected average age, Institutional disturbance, Patients in the hospital suffer. Coming to present and existing solutions, there are speed barriers, smart honking zones which are hardly paid any attention to, and people continue honking irrespective of which zone they are in.

1. Author- R. K. Mishra Paper- Evaluation and analysis of traffic volume noise along has a rapid transit system corridor. In this research paper The R. K. Mishra analysis on traffic volume noise. He tries to reduce noise pollution which created by the extra volume from vehicles.
2. Author- T. Vaidya Sagar Paper- Noise Pollution Levels in Visakhapatnam City (India). In this research paper, the ambient air quality noise levels (AAQNL) at traffic junctions were 5 DBA or more than those prescribed by AAQNS for commercial zone and most of the values were found in the range of 80 10 DBA, among which 75
3. Author- Prof. S.M. Patil Paper- Law on Environment Some Reflections. In this research paper, this author describe the law of the environment. He searches what was the reaction of law on the environment.
4. Author - Ising H., Kruppa B. Paper- Health effects caused by noise. In this research paper, the author shows what was the effects on human health because of noise. How that bad effect was reduced.

III. PROPOSED SYSTEM

The objective of this system is to present a viable alternative to these problems which also leads to an ecofriendly society. This research work aims to provide a solution in form of an embedded module, in which inter vehicular communication is done using GPS signals with

proportionate (apposite) range, frequency involved (energy requirement) and cost of equipment. The module also includes the provision of avoidance of accidents occurring because of high speed of vehicle. The smart honking system aims to develop the disincentive measure for unwanted honking. Mostly during the , the high speed will create a lot of noise pollution occurs that causes irritation to the public nearby and people living in residential areas, schools and hospitals, old age homes and government offices. The high speed of vehicle is may be cause of dangerous accidents. This problem can be solved by our system efficiently as accelerometer would be control the speed of vehicle in surroundings. The source car, bikes built up accelerometer in vehicle body which is get the speed of that vehicle if the speed is goes on 40km/h average then the buzzer will be buzz and alert the driver to maintain the speed limit of vehicle in honking zone.

IV. DESIGN ISSUES

Mathematical Model:

Let S is the system;

$$S = \{I, O, F, DD, NDD, \text{Success}, \text{Failure}\}$$

I: (Input to the system)

$$I = \{\text{Username}, \text{Password}, \text{Municipal Corporation Detail}, \text{Honking Zone Information}, \text{Latitude}, \text{Longitude}, \text{Switch Press}, \text{Accelerometer Value}\}$$

O: (Output of the system)

$$O = \{\text{View Honk Spot}, \text{Detected Vehicle Speed}, \text{Auto Controlled Horn Noise}, \text{Buzzer Buzzed}\}$$

F: (Fusion in system)

$$F = \{\text{addMunicipalCorporation}(), \text{viewHonkZone}(), \text{loginAdmin}(), \text{loginMunicipalCorporation}(), \text{autoNoiseControl}(), \text{speedDetection}(), \text{buzzerBuzz}()\}$$

DD: (Deterministic Data)

$$DD: \{\text{Null}\}$$

NDD: (Non Deterministic Data)

$$NDD: \{I, O\}$$

Success:

When vehicle enter in honking zone, auto control horn noise and speed detection of vehicle. If speed exceed than limit then buzz the buzzer.

Failure:

No internet connection, power shortage.

V. SYSTEM ARCHITECTURE

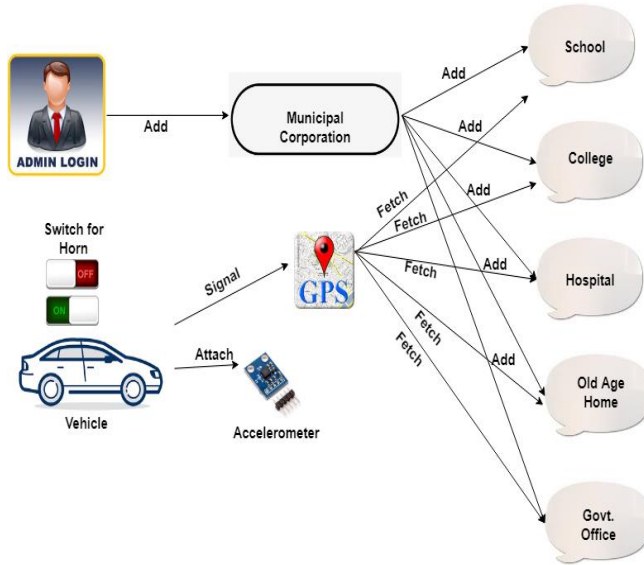


Fig. 1. System Architecture

Smart honking zone for smart cities system the system architecture is define as follows:

Admin:

Admin can add the municipal corporation and view the honking zones which are included by the municipal corporation on GPS. He also view and delete the of municipal corporation and also view all details and data of others which is included by the municipal corporation.

Municipal Corporation:

In our system the municipal corporation can add the honking zones like hospital, school, college, old age home and government offices in cities as a honking zone with their longitude, latitude, Name, Type, and other description and decide the speed level of the vehicle which is travel from near the honking zone.

System:

In this web application when any car or vehicle goes from any honking zone the accelerometer can track the current speed limit of that vehicle. This accelerometer can built in the vehicle which is note the speed of vehicle during honking zone which is declare and saved on GPS by municipal corporation, if the detected speed of vehicle is greater than the speed which is allowed in honking area then the pizzobuzzer

will buzz and get alert to driver to drive slowly in honking zone area. It also check the horn of vehicle if it on then the in-built switch press action will automatically decrease the noise level of the horn and keep safe and noise pollution free drive.

VI. RESULT & ANALYSIS

Using this system we can reduce the level of noise of horns and speed of the vehicle in the honking zone declared by a municipal corporation.

VII. CONCLUSION

The accidents that are caused due to loud music inside the vehicle, which inhibits the ability of the driver to alert mitigate by this system. In this paper, we developed a new design to control the speed of the vehicle. Noise pollution seems to be a general problem, but when seen through a global perspective it is a major issue. When honking unnecessarily is reduced it results in a peaceful environment and less stress for daily travelers. Traveling is a part of day to day life for every human, so when noise due to unnecessary honking is eliminated humans will be able to sleep, concentrate and improvise their memory efficiently. Therefore, with this initiative overall stress is reduced and a peaceful journey will begin.

VIII. FUTURE SCOPE

If over speed is detected it sends alert message to driver. Wireless transmission is achieved with the help of accelerometer, which provides low cost transmission of data. The Drivers are made aware of their driving behaviour and violations made so that careful and conscious driving can be achieved.

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