

SMART Honking ZONE FOR SMART CITY

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Abstract— Due to the increasing cases of noise pollution both the physical and mental get affected. A sustainable and economically viable solution is a need of society. Unwanted and aggressive honking has become a major issue in India. The residential area like schools, hospitals and other workplaces are highly affected. There is no any automated system to reduce the honking intensity. In order to reduce the honking intensity, we are aiming to develop disincentive measures for unwanted honking by developing a E-horn which will honk with a specified intensity when vehicle is in honking zone. In addition with this we are merging a feature which will trigger the driver if the speed of vehicle is exceeding above the given limit.

Keywords: honking, E-Horn, noise pollution, Speed.

I. Introduction

There is always considerable effort to reduce speed in the honking zones and avoid annoyance amongst the residents[6]. 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 provides an indication of how much the prevailing traffic noise will affect the exposed residents[1]. According to the International Program of (WHO 1994), an adverse effect of speed is defined as a change in the morphology and physiology, that results in impairment of functional capacity[2]. 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 Behavior and Annoyance Reactions[1]. Temporary speed exposure results in physiologic changes those 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 speedy vehicle 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[1]. How that bad effect was reduce.

II. RESEARCH BACKGROUND

System comprises of admin panel, municipal corporation and the E-horn is the model which consist of piezo buzzer, GPS, arduino board and an accelerometer sensor.

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.

E-horn:

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

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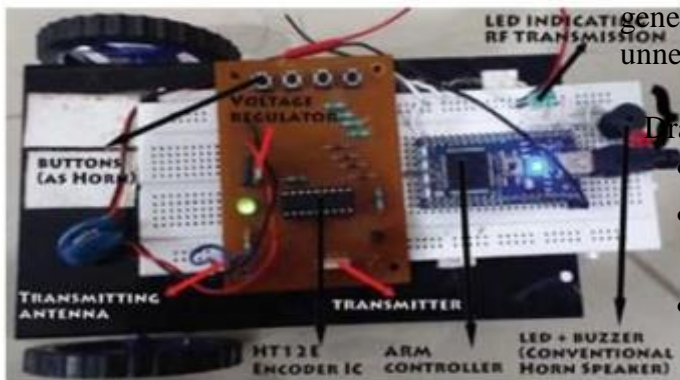
the noise level of the horn and keep safe and noise pollution free drive.

- Horns do not have any manual control

III. LITERATURE SURVEY

1] Author- Shraddha Sanap Paper- Adaptive Honking for no honking zone (Apr-2018)

This research work aims to provide a solution in form of an embedded module, in which inter vehicular communication is done using Radio Frequency signals with proportionate (appropriate) range, frequency involved (energy requirement) and cost of equipment. The module also includes the provision of avoidance of accidents occurring because of loud music playing inside the vehicle.



3] Author- Shivaji Karhale Paper- A survey on automatic vehicle horn intensity control(2019)

In this paper, the honking of horn is detected or work only when the other vehicle is in the given range of at given specific distance. Here the proposed system is that the horn won't work unless a vehicle is close enough or else simply the horn won't work. By this way it can avoid all the noise pollution and give a noise free environment, this project ensures that there will be less noise generated by horn and we can avoid the unnecessary honking where it is not at all required.

Drawback:

- Horn works only in specified areas
- Do not have any preventive measures for speed of vehicle
- Due to the use of Bluetooth the range of honking area becomes limited.

Drawbacks:

- No solution provided for two wheeler vehicals.
- Proposed system do not detect the speed of vehical
- External power supply is not provided.
- Intensity of sound buzzer is comparatively high.
- Uses wifi module for detection of honking zone

2]Aurhor- SAI KRISHNA PRASAD P Paper- Automatic vehicle horn control using proximity sensors.(2018)

The system proposed is of automated horn.the horn won't work unless a vehicle is close enough or else simply the horn won't work. By this way we can avoid all the noise pollution and give a noise free environment, this project ensures that there will be less noise generated by horn and we can avoid the unnecessary honking where it is not at all required. This system used GPS instead of wifi to detect the location of vehicle.

Drawbacks:

- It does not have any provision for speed.
- External power supply is not provided

IV. PROPOSE SYSTEM DESIGN

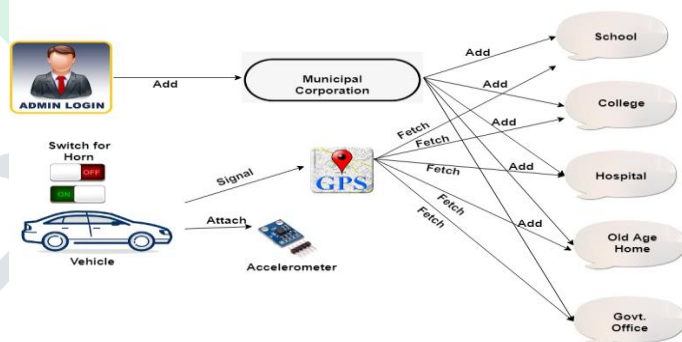


Figure: System Architecture

System Architecture gives us the overall description about the how system is working . System Architecture contains both input and output and also short description about the operation . It gives basic idea about what type of functionality is performed . In this system we access the data from sensorsand also require some things like aurdino board, GPS, accelerometer, power supply to perform operation.All required data will be gathered and shared with Mysqldatabasewhich will be accessed by expert.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. Repeated violations results to which will help in reduction of violations by the vehicle user.

Mathematical Model

APPENDIX A:

Let S is the system;

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

I: (Input to the system)

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

O: (Output of the system)

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

F: (Fusion in system)

F: {addMunicipalCorporation(), viewHonkZone(), loginAdmin(), loginMunicipalCorporation(), autoNoiseControl(), speedDetection(), buzzerBuzz()}

Success:

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

Failure:

No internet connection, power shortage.

Feasibility Study

A key part of the preliminary investigation that reviews anticipated costs and benefits and recommends a course of action based on operational, technical, economic, and time factors. The purpose of the study is to determine if the systems request should proceed further.

Technical Feasibility:

The system being developed is economic. It is cost effective in the sense that it has eliminated the

registered work completely. The system is also time effective because the calculations are automated which are made at the end of the paper or as per the student requirement. The result obtained contains fewer errors and are highly accurate as the data is required.

Economic feasibility:

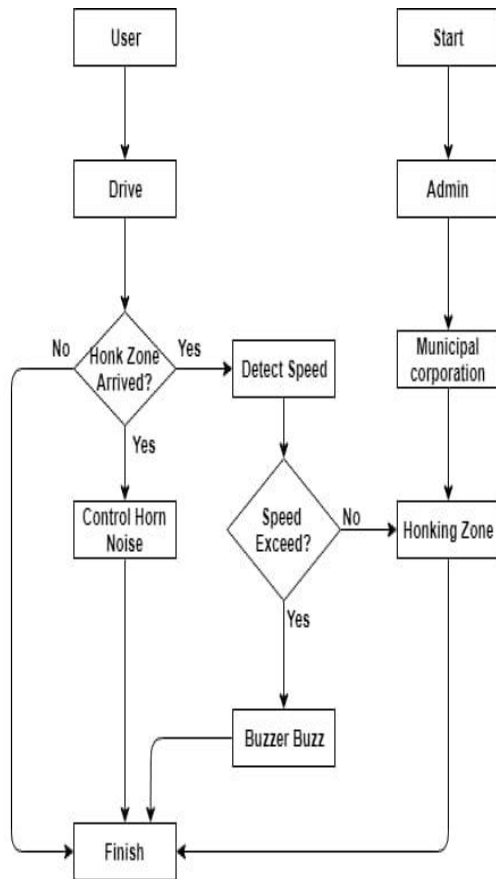
As part of this, the costs and benefits associated with the proposed system compared and the project is economically feasible only if tangible or intangible benefits out weight costs. The system development costs will be significant. So the proposed system is economically feasible.

Behavioural Feasibility:

The system working is quite easy to use and learn due to its simple but attractive interface. User requires no special training for operating the system.

Feasibility Assesment:

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Flowchart**Application:**

1. Reducing noise pollution at honking zones and preventing rash driving.
2. use at municipal department

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ADVANTAGES

- Reduce accidents due to high speed of vehicle can be avoided.
- Driver will be intimated about exceeded speed and noise of horn in Honking Zone.
- Automatic speed and noise can be controlled and noise of horn will be reduced.
- GPS tracks the location of Honking Zones. All these zones send it to user so as to control the speed of vehicle and help to reduce noise pollution.
- This system is also helped to decrease headache and maintain silence in honking zone.
- Enhanced safety and security provided.

Limitation:

- Wi-Fi / Internet connection should be always Available.
- Sensors output vary with respective season.
- Sensors range will vary according to vehicle movement.

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. In normal driving mode, we can expect other vehicles interfering nearby and possibly blocking or attenuating RF signals. In this aspect, we are going to use GPS location for restricted areas. Noise pollution seems to be a general problem, but when seen through global perspective it is a major issue. When honking unnecessarily is reduced it results in a peaceful environment and less stress for the daily travelers. Travelling 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.

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