

Smart Real Time Horn Control System

Aditya Sachin Madiwale¹, Atharva Dhananjay Sonar², Ashish Ashok Ranmale³,

Harsh Ganesh Pawar⁴

^{1,2,3,4} Bachelors Student, Department of Mechanical Engineering Rajarshi Shahu Maharaj Polytechnic,
Nashik

ABSTRACT

Automatic Horn Control System in Two-Wheeler is the System made to reduce noise pollution in urban areas. Noise pollution is the major issue in India as compared to other countries because road and regulation acts are strictly followed in other countries as compared to India. Unnecessary honking is prohibited across the globe, but it is seen that India lacks in following the basic rules passed the government. People suffer from partial or complete hearing loss. Traffic noise can lead to increased stress levels, impact sleep quality, increase blood pressure and lead to poor quality of life. This system can contribute to reduce noise pollution to some extent by controlling the honking repetition of the vehicles. This system limits unnecessary honking

Keyword: - Unnecessary Honking, System limits Unnecessary honking, Reduces noise pollution, Arduino Uno microcontroller, essential component in modern vehicles.

1. INRODUCTION

The Transportation sector is one of the major contributors to the noise pollution in urban areas. Various researches show that honking is one of the major causes for noise pollution. This constant increase in noise pollution due to honking needs to be restrained effectively. We present you various techniques which can be implemented to reduce the impact of honking on noise pollution without reducing the effectiveness of honking. Scientific community across the globe sees pollution as the commonest enemy of human health but a World Health Organization document terms noise pollution as the deadliest because of its health and social implication including hearing impairment, interference with spoken communication, cardiovascular disturbances, mental health problems impaired cognition, negative social behavior and sleep disturbances. [6]

1.1 Definition

Noise Pollution is generally defined as regular exposure to elevated sound levels that may lead to adverse effects in human or other living organisms. According to the World Health Organization, sound levels less than 70db are not damaging to living organisms, regardless of how long or consistent the exposure is.

1.2 Problem statement

To find a solution for the problem of Noise pollution due to vehicle honking, to reduce problems like, increased stress level, impact sleep quality, increased blood pressure which lead to heart disease, and lead to poor quality of life caused due to noise pollution due to vehicle honking. [2]

1.3 Objective

The main objective of this project to minimize or overcome the problems mentioned in the problem statement namely adverse effect on human health and ecosystem due to vehicle honking also to check and ensure the performance of work is in accordance with the plans.

- To create a sustainable system that controls and limits decibel values of automobile
- To ensure the said system is feasible in nature and easy to rectify and apply. Automatic horn control system for two wheelers
- To measure the change occurring in noise pollution for a single vehicle through means of testing.
- To create and outline for mass production of said system and cob out the further advantages.

1.4 Methodology

Methodology used for whole processing of Automatic horn control system is given below; this methodology gives way about how work is to be carried out in systematic way. It is standard process of describing process, how it is done in simplest manner.

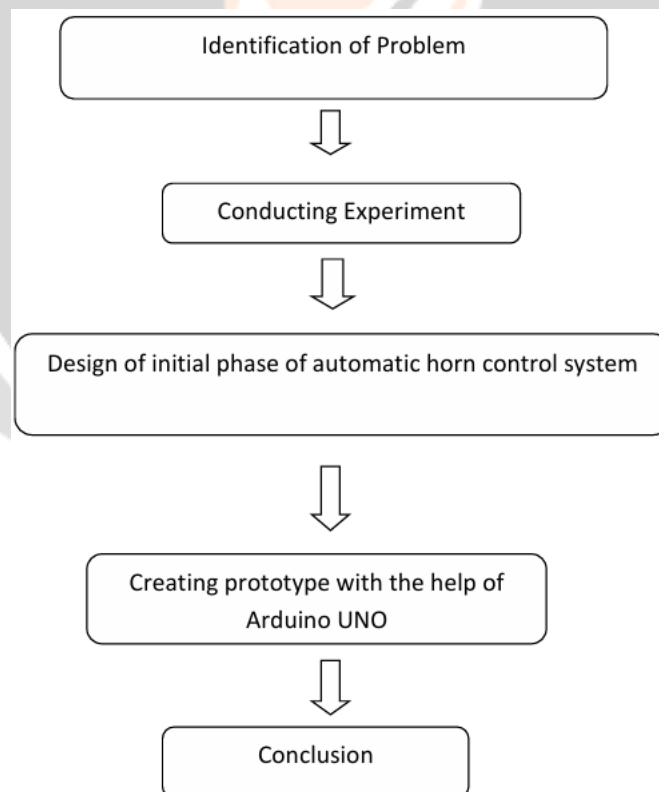


Fig 1 Flow diagram of Design

2 LITERATURE RIVIEW

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This paper presents a study conducted at major rotaries for quantifying the traffic noise levels by considering the vehicle volume and their respective honking as governing parameters for heterogeneous traffic. The traffic noise data was analyzed using noise tools for identifying noise level variation. The data collected was subjected to statistical analysis for light, medium and heavy vehicles, and their contribution towards noise levels is proven to be effective. [4]

3 COMPONENTS OF SYSTEM

3.1 Arduino UNO Board

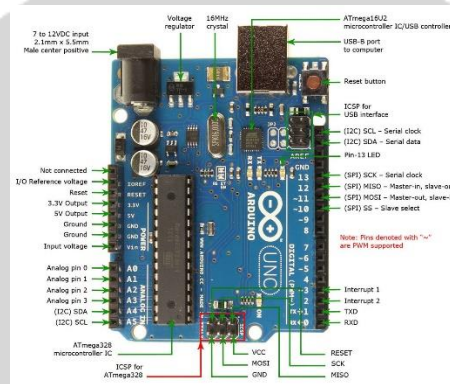


Fig 2 Arduino UNO Board

The Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino. The board is equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and circuits. The board has 14 digital I/O pins (six capable of PWM output), 6 analog I/O pins, and is programmable with the Arduino IDE (Integrated Development Environment), via a type B USB cable. It can be powered by the USB cable or by an external 9-volt battery, though it accepts voltages between 7 and 20 volts. It is similar to the Arduino Nano and Leonardo. The hardware reference design is distributed under a Creative Commons Attribution Share-Alike 2.5 license and is available on the Arduino website. Layout and production files for some versions of the hardware are also available. [3]

3.2 IR SENSOR

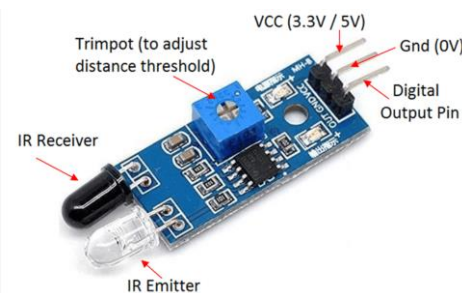


Fig 3 IR sensors

IR LED is one kind of transmitter that emits IR radiations. This LED looks similar to the standard LED and radiation which is generated by this is not visible to the human eye. Infrared receivers mainly detect the radiation using an infrared transmitter. These Infrared receivers are available in photodiodes because they detect simply IR radiation. Different kinds of infrared receivers mainly exist depending on the voltage, wavelength, package, etc. [7]

3.3 Relay Driver



Fig 4 Relay Driver

A Relay driver IC is an electro-magnetic switch that will be used whenever we want to use a low voltage circuit to switch a light bulb ON and OFF which is connected 220V mains supply.

3.4 LED



Fig 5 LED

A light-emitting diode (LED) is a semiconductor light source that emits light when current flows through it. Electrons in the semiconductor recombine with electron holes, releasing energy in the form of photons. The color of the light (corresponding to the energy of the photons) is determined by the energy required for electrons to cross the band gap of the semiconductor. White light is obtained by using multiple semiconductors or a layer of light-emitting phosphor on the semiconductor device.

3.4 Resistor



Fig 6 Resistor

A resistor is a passive two-terminal electrical component that implements electrical resistance as a circuit element. In electronic circuits, resistors are used to reduce current flow, adjust signal levels, to divide voltages, bias active elements, and terminate transmission lines, among other uses.

3.5 Switch Connected to Arduino

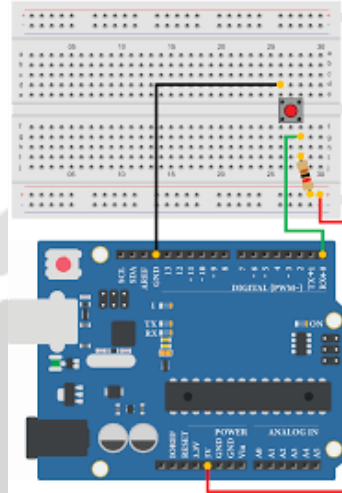


Fig 7 Switch Connected to Arduino

Switch case controls the flow of programs by allowing programmers to specify different code that should be executed in various conditions. In particular, a switch statement compares the value of a variable to the values specified in case statements.

3.6 12V DC Motor



Fig 8 12V DC Motor

A DC motor (Direct Current motor) is the most common type of motor. DC motors normally have just two leads, one positive and one negative. If you connect these two leads directly to a battery, the motor will rotate. If you switch the leads, the motor will rotate in the opposite direction.

3.7 Wheel Module



Fig 9 Wheel Module

Rotating element connected to Arduino system

4 CONCLUSION

A horn controlling system is an essential component in modern vehicles and various other applications, designed to ensure effective and efficient operation of the horn for safety and communication purposes. The system typically involves the integration of electrical circuits, sensors, and user input methods, enabling drivers or users to activate the horn with ease. The advancements in technology have allowed for the development of more sophisticated honking

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