

Bullock Cart Speed Maintaining Using RPM Sensor

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Abstract: Road safety is a concern of all authorities. One of the most important safety concerns is excessive speed in bullock cart at in loading condition which results in accidents, injuries, death, as well as damage in public property. Therefore, the imposition of automatic speed is essential and important in municipality's arsenal to prevent and combat excessive speed. The speed control system that we used in this project depends on IR Sensor with Arduino. The system consists of an IR Sensor, an Arduino board, and a brake system bullock cart. By using this prototype speed control system, speed controlling can be done through sensors, in efficient and cheaper way.

Keywords: IR Sensor, Arduino Board, Brake System

I. INTRODUCTION

This system is aimed at making vehicle driving safer than before. This is implemented using Arduino. Nowadays in a fast-moving world people does not have self-control. Such people are driving vehicles in a high speed. This project provides a way for how to control the speed without harming others. This project has an aim to control the speed of any vehicles automatically in cities and also in restricted areas such schools, parks, hospitals and in speed limited areas etc. And also, We have derived the driver's condition in real time environment and we propose the detection of alcohol using alcohol detector connected to Arduino such that when the level of alcohol crosses a permissible limit, the vehicle ignition system will turn off thus making vehicle stop and proposed system automatically detects traffic signals and follows them in order to avoid any accidents.

1.1 Objective of the Project:

- ❖ To understand the basic principal of the our project
- ❖ Describe the construction and working of various parts of our project
- ❖ Development of the working model of the our project
- ❖ To reduce time spent on this activity.
- ❖ To analyze the technology according to needs and capabilities.

1.2 Problem Definition:

- ❖ From the advent of increased transportation, over speeding of vehicles has become one of the major causes for accidents and killing many lives.

II. LITERATURE REVIEW

Vishal Pande et.al [1] has proposed a framework for autonomous speed control of over speeding vehicle using Radio Frequency to design a controller to control vehicles speed and display to monitor the zones which can run on an embedded system platform. Monika Jain [2] presented a device to detect the rash driving and alerts the traffic authorities in case of any violation. This frame of reference intends to design a system aimed at early detection and alerts vehicles driving patterns which is related to rash driving. The speed limit is by the police at very location who use the system depending on the traffic. This device reports, displays and data base system for over speed violation management. Ni Hlaing et.al [3] designed a system that detects the speed of the vehicle in the roads, main highways and the places where the drivers over speed. If the speed exceeds the limit, the information will be sent to PC (Personal Computer) which starts the camera which captures the vehicle of over speed. Amarnarayan et.al [4] developed speed estimation system that alerts drivers about driving conditions, robust and reliable and helps to avoid joining traffic jams is an important problem that has attracted lots of attention recently. Nehal Kassem et.al [5] introduced a novel RF-

based vehicle motion and speed detection system which can detect vehicle motion estimates the vehicle speed in typical streets with an accuracy of 90% and detects motion with an accuracy of 100%. Rajesh Kannan

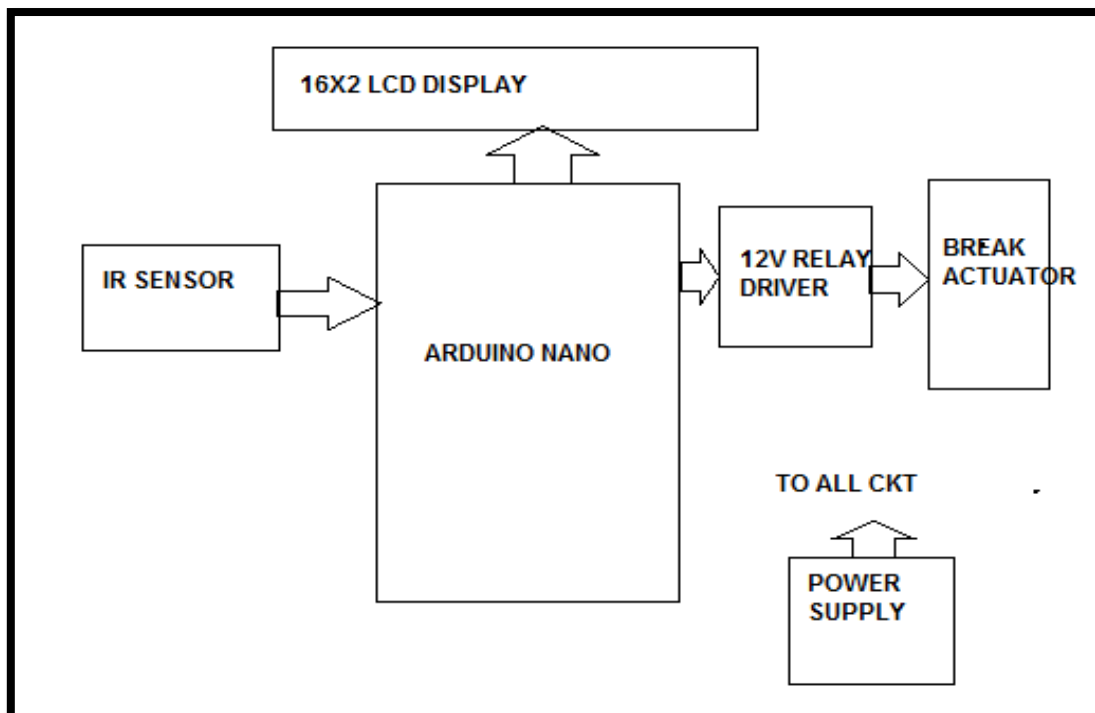
Megalingam et.al [6] developed a wireless sensor network that performs efficient traffic routing but also tracks over speeding vehicles i. e, smart traffic controller. Mica Z motes (MRP2400, a 2.4 GHz IEEE 802.15.4, TWMS (Tiny Wireless Measurement System) from Crossbow are utilized for this purpose. To acquire, transmit and receive data, a gateway and DAC (Data Acquisition Card). Over Speed detection unit comprises microcontroller for interrupt generation and speedometer simulation. Muhammad Tahir Qadri et.al [7] developed a system which detects Automatically and recognizes the number plate and for security control of a highly restricted area like military zones or area around top government offices like Parliament, Supreme Court etc, is deployed at the entrance. The developed system detects the vehicle and then captures the vehicle image. Using the image segmentation in an image, the Vehicle number plate is extracted. Shyr-Long Jeng et.al [8] presented a device that detects rash driving on highways and alerts the traffic authorities in case of any violation. Lots of devices have been made to detect rash driving on highways in the past. The main aim of the system is early detection and alerts the dangerous vehicle driving patterns related to rash driving. Most of the approaches requires human concentration and involve a lot of effort, which is difficult to implement. Nurhadiyatna A et.al [9] developed an Intelligent Transportation System (ITS) which has become a world wide solution for traffic problem. In this the vehicle speed measurement is made by using a camera as sensor. It uses a method to estimate vehicles speed using video processing in real time. Principal Component Analysis (PCA) is used to classify vehicles. Kalman filter is harnessed to track and identify passing vehicles in real time. Then vehicle speed can be estimated via Euclidean Distance method

III. DEVELOPMENT OF THE PROJECT

3.1 Parts used in the Project

- ❖ Arduino Nano
- ❖ LCD Display
- ❖ IR sensor
- ❖ Relays Driver
- ❖ Power Supply- Battery
- ❖ Brake Actuator
- ❖ Disc Brake
- ❖ Wheels

3.2 Diagram of the Project



3.3 Working of the Project:

Higher speed in bullock cart in full loading the cause of many road accidents all over the India. So many people and animal were killed on roads .The traffic population has increased considerably in India as there is no means to control or monitor the speed of vehicles running on roads.

This system proves highly effective in detection of over speed driving. In these project IR sensors, relay driver and LCD are placed on the Arduino board. When the bullock cart crosses the sensors, both IR sensors are connected to the interrupted pin of Arduino and identify the fall wave and the time between activating the Arduino's internal timer sensor. And then they measure the speed and covered by any moving object, displayed on a digital monitor or on a 16x2 LCD screen. So, let us start with an arduino from this measurement circuit.

IV. ADVANTAGES, DISADVANTAGES AND APPLICATION OF THE PROJECT

4.1. Advantages of the Project:

Advantages of the project as per following like as:

- ❖ Highly reliable and durable
- ❖ Easy to operate and maintain speed of bullock cart

4.2. Disadvantages of the Project:

Dis-advantages of the project as per following like as:

- ❖ High installation cost

4.3. Application of the Project:

Our project should use for following various applications like as:

- ❖ Speed controlling bullock cart
- ❖ Vehicles

4.4 Future Scope:

The project has covered almost all the requirements. Further requirements and improvements can easily be done since the as per requirements is mainly structured or modular in nature. Improvements can be appended by changing the existing modules.

4.5 Conclusion:

It is observed that, this model, we can easily detect the speed of vehicles (bullock cart) by utilizing Arduino and IR sensors so that it alerts the over speed of vehicles/human (bullock cart). This paper is mainly used as sport check, to control over speed near prohibited areas.

The system accumulates information of vehicle/human speed (moving objects) by displaying on LCD display and if over speed occurs it control by using brake.

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