Traffic Sign recognition And Auto Indication System

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Abstract:. Traffic sign recognition is important to transport system on the high way or road. This paper presents an overview the traffic sign detection and recognition. we develop and implemented the procedure to extract the road sign. The main objective of this paper is to design and construct system which can automatically detect the road sign and display the image on dash board of vehicle. This paper is based upon a major approach to detect road sign and extract it. This system will play an important role for the detection purpose of specific domains like island, schools, etc.

Keywords—Transmitter,Receiver   Audio   module Graphic LCD and Microcontroller   Web based application testing, performance testing.

1. INTRODUCTION

Now a days technology is playing a vital role in almost all field, In automobile field also several advance systems are developed. Due to the very busy life , while driving several time we observe that we may not provide the attention on the various signals on plate on the road side . For example School, Hospital, No Horn Zone, Speed limit 30 etc.
    The negligence to such boards on road may become a reason for misshapes. So considering the same the need of time is to develop a system that automatically receives the traffic signal by the intelligent board and display on the dashboard and also automatically speed control of the vehicle will be carried.

Brief Introduction of Project

While driving it's important to follow the rules and regulations of the set by the RTO and as a part of the driving guidelines several indicators and boards are set at the various spots by Government . Each indicator has its meaning. Indicator include speed breaker , Speed Limit, No Horn Zone etc. Its drivers responsibility to watch the board while driving an follow the same. Several time its observed that due to heavy traffic etc the board are not

seen and chances of violation of rules may happen. So considering the same its required to develop an intelligent system which will give and Graphical Sign Boards on Dashboard Display and the Audio Indication for the same. The system should use the vehicle battery supply and it has a built in RF receiver and the transmitter set at the each of the board will transmit a unique code and accordingly the display will show the sign on the Dashboard followed by the audio indication.

 Several time traffic police takes an action for violation of the traffic rules . The violation may happen by mistake and main cause is not clearly seen the traffic sign boards. Again Due to heavy traffic its becomes very difficult for the vehicle drivers to observe each and every Sign. Again in rainy season due to less vision transparency the sign board may not seen properly. Again several times its observed that due to weather Condition the images on board are not in good condition. So the problem uncomforted feeling while driving to observe the various traffic sign boards.

2. METHODOLOGY

1. Studying literature on different road sign detection

Methods and image processing.

2. Studying the existing method for road sign detection.

3. Analyze and design for the proposed system.

4. Implement the proposed design of the road sign detection.

5. Carrying out experiment and evaluate the system.

3. Related Work

There are many researches in the literature deal with Road Sign Recognition (RSR) problem. In this section, we will explore some of those approach.

3.1 Traffic sign detection and classification

Author suggest for road vehicles can have three main roles: a) road detection; b) obstacle detection; and c) sign recognition. The first two have been studied for many years and with many good results, but traffic sign recognition is a less studied field.

Traffic signs provide driver valuable information about the road, in order to make driving safer and easier. They think that traffic signs must play the same role for autonomous vehicles. They are designed to be easily recognized by human drivers..

3.2 system partition (working)

The total System is divided into two parts. Fist is a system place in the Dashboard of Vehicle and the signal transmitters place aside the road. The vehicle side system operates on the Battery Supply of Vehicle. The Main part of this system is Microcontroller 89S52. A Graphical display is interfaced with the Microcontroller. Also RF Receiver operating on 433 MHz Frequency along with the decoder is interfaced to Microcontroller. The Power supply of 5V Dc generated which is used for controller and other peripherals. The Signal Image data is stored in the microcontroller with a lookup table . a specific key is assigned for each signal .For example 1 is assigned for No horn, 2 is assigned for speed limit 30 etc, .Additionally a SD card based audio track player is interfaced to microcontroller. A specific audio for corresponding Sign is stored in the SD Card. At each of the sign Board a system with Encoder and the RF Transmitter is placed. With the adequate connection a specific signal is transmitted continuously and the RF transmission frequency is also 433 Mhz.Now when any vehicle comes in the range of specific signal , as the operating frequency for the both side is common at 433 MHz the RF signal is received by the vehicle side and the received signal will be compared to the database stored in the microcontroller and the automatically the specific Signal Sign Image will on the Graphical display placed at the dashboard vehicle. And again the microcontroller gives command to the audio player and the specific road traffic sign related information audio is played.

4. Block Diagram:
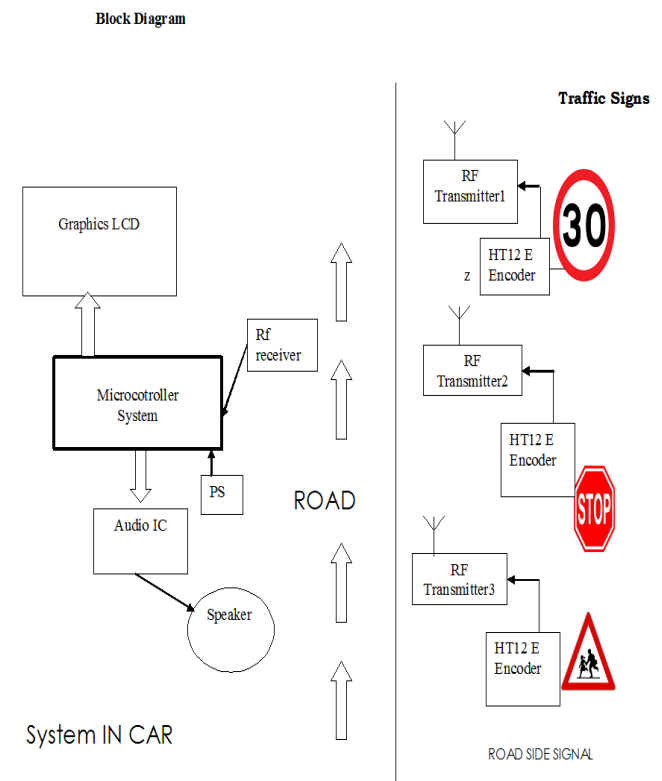
5. DESIGN OF SYSTEM:
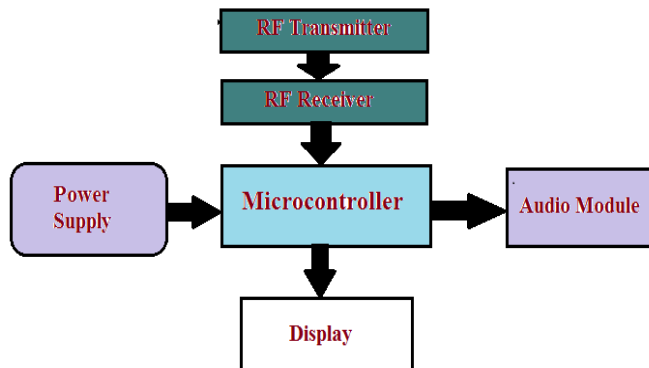
5.1 Hardware Implementation

In this system, power supply is used to provide the power to the whole controller , transmitter, receiver are the main components used for designing the system.
When power supply is given system worked. Controller is automatically interfaced and the output is displayed on the graphic display. Real time clock is used to update time date information. EEPROM is used to store the content.

5.2 Software Implementation:

For Software Implementation we have used the software "Turbo c ". In Software Implementation, The main part is programming of microcontroller and Interfacing of each device like Graphic Display. Once the power supply is given hardware circuit is get initialized. The microcontroller interfacing with display . The Signal Image data is stored in the microcontroller with a lookup table . a specific key is assigned for each signal give the proper output on display. According with corresponding output on display corresponding track is play with the help of SD card.

5.3 Flow Chart:

5.4 Components of Hardware in System:

The components of hardware implementation are as follows:

5.4.1 Graphic LCD display

- It is easy to use work with graphic LCD display. It works with most of microcontroller. It having +5V power supply.

5.4.2 Power supply

The microcontroller need +5V DC, These specifications dictate the use of a low-cost, ubiquitous linear regulator National Semiconductor LM7805. The LM7805 requires an input voltage of at least 7.5V in order to guarantee regulation, so the unregulated power supply should supply at least this voltage under worst-case current consumption, assumed to be about 200mA. Because a full-wave rectifier will be used for efficiency (diodes D1-D2), we can assume that about 1.4V will be lost across the bridge (0.7V per conducting diode). We therefore need a transformer was selected as T1, which is of rating 9-0-9 secondary at 500 mA

5.4.3 Microcontroller

In this system, microcontroller is used. IC 8952 is used.

5.4.4 RF Transmitter
- The frequency range is 433.92 MHZ for the transmitter. It operates on 3-12V supply voltage and output power is 4-16dBm.

5.4.5 RF Receiver

- Receiver Frequency is 433.92 MHZ for the receiver. It having typical sensitivity -105dBm.it operates on3.5mA supply current and 5V voltage.
- Typical sensitivity: -105dBm
- Supply Current: 3.5mA
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6 CONCLUSIONS:

This project deals with object detection in outdoor environments which are useful for Driver Support systems and Intelligent Autonomous Vehicles to take some decisions about their speed, trajectory and send a warning signal indicating over speed, warn or limit illegal ma-oeuvres. This technique is used for detecting road sign. It helps researchers because it is time effective one.

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