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Transafe Vehicle: Safety in Public Transport

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Abstract: As urban areas are becoming more noticeable and developed, safety management becomes more challenging. Through our project, we let people meet today's high demands for improved and safe transportation systems. Whether we are working on small-scale traffic projects or extensive national and international planning projects, our first priority is to create safe and comfortable transport systems. To develop this, we focus on creating the right balance between heavy and light road users. We try hard to improve the visual environment in both urban and rural areas.
While travelling in public transport like buses, we face so many problems like overloading, medical and safety related problems like harassment, to overcome this entire problem easily we design our Project "Transafe Vehicle". We designed a circuit in which we use technologies by which we implement our project. In the project, we use counter which is use to count the number of passenger available inside the bus and to show this count we use LCD which display the total number of passenger and overloading related messages. And to indicate overloading we use buzzer, which will get start when overloading occurs. For medical and safety related problem, to provide this facility inside the bus we are providing two switches, one is for medical emergency and another is for safety related problem. Whenever any of this switch is press by the passenger, at that time the message will goes to local police or ambulance with the help of GSM according to situation occur. As the main motto of our project to provide safety transportation is achieved.
Keywords: GSM, Counter, LCD, Buzzer, Microcontroller.

I.   INTRODUCTION

In INDIA, Long distant travelers face so many problems like rush, overload, medical and safety issues. Most of the times we see that according to bus limit, excess of people enter into the bus and they remain unsettled. Some people fall down from the vehicle especially public buses and lost their life due to overloading problem. Sometimes in long journey usually at night, medical emergency occurs and are helpless as we don't have any transporting source. And with this, an evil deed like molestation especially in case of women is very common issue. Keeping all this type of problems and emergency issues in our mind, we have proposed to designed our project "TRANSAFE VEHICLE".

The meaning of "TRANSAFE VEHICLE" is nothing but a vehicle that provide safety for transporting. The proposed system is divided into two parts. In first part, we are using LASER which is use to count the number of people coming inside and leaving the bus. The basic need of counting is to know the amount of passengers available inside the bus so that overload issue is avoided. If the number of passenger is in limit then door is closed and bus is moves smoothly. Second part consist of switches, first switch is used if any medical emergency occurs so that the message is delivered to any near-by hospital for need of ambulance and certain medical treatment. second switch is used for police emergency. Whenever any police emergency occurs at that time if passenger press the second switch then message will send to nearby police station and immediate action will be taken.All our approaches will help normal man to travel in this running world with ease comfort and safety.

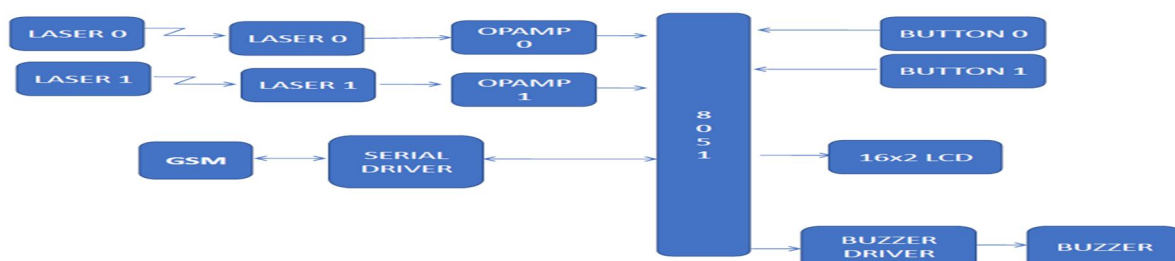## II.   PROPOSED SYSTEM BLOCK DIAGRAM

Fig.1 Block Diagram of Transafe Vehicle

Microcontroller 8051 is the brain of the proposed system which can read, analyze and gives output as per prewritten program. Laser

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transmit the signal and received by Light dependent resistor(LDR). LDR generates the signal to OPMP while it is in light or dark. Op-amp convert the signal level that controller can understand, Means in logic 0 and 1.

Serial driver is used to convert logic level TTL to CMOS logic and vice versa. Relay driver is used to drive the relay. A relay driver amplifying the signal level from controller to required level. LCD is used to display the counted passenger in Bus.

Whenever user pressed switch at that time switch is read by microcontroller to perform appropriate operation as per prewritten program for each key. buzzer driver amplify the signal level to drive the buzzer. Buzzer is used to indicates the overload.

III.   WORKING PRINCIPLE

The "TRANSAFE VEHICLE" consists of two major parts:

Vacant seat display

Switches

A.   Working of Vacant Seat Display

We have already seen the cases of accident due to overload. The purpose of vacant seat display is to indicate the number of vacant seat available inside the bus which is fixed at the entry door of the bus. With the help of that those who are waiting for the bus can easily identify whether the seats are occupied or not. Two infrared sensors are fixed at the door of the bus so that incoming and outgoing of the people are sensed which is used to display the vacant seat number.

Simple counter that counts the number of visitors entering or leaving a bus or any other place where we have installed this circuit at the door. On receiving an interrupt from light-dependent resistor(LDR) sensors, the circuit increments the count and shows it on liquid crystal display(LCD).

The system should be fitted on the door such that only one person can cross through at a time, interrupting the light falling on the LDR sensor.

B.   Working of Switches

In Transafe Vehicle we are providing two switches. Whenever any switch is pressed by the passenger at that time controller will perform action as per prewritten program. If any case medical or safety related problems identified by the passenger at that time passenger will press the switch according to situation. And the message like (eg. Bus No. 7841, medical problem) will be deliverd to hospital or police station with the help of GSM.

IV.   TECHNICAL DETAILS

A.   List of Components used

Microcontroller:8051 Microcontroller(P89C51RD2)

Sensor: Light Dependent Resistor (LDR)

IC7805: Voltage Regulator

ICMax232:Serial Communication

LM358 Opamp: Dual operational Amplifier

Buzzer: Piezobuzzer(12v)

Liquid Crystal Display(LCD):16x2 Alphanumeric LCD.

Connectors:8pin, 4pin, 2pin Reliament Connector.

GSM: SIM300 Modem

V.   METHODOLOGY

A.   The System Design is Developed by Following Software Tools

1)   Circuit Diagram and PCB layout is made using Proteus Software.

2)   Programming and testing is done in Keil 4.0v Software

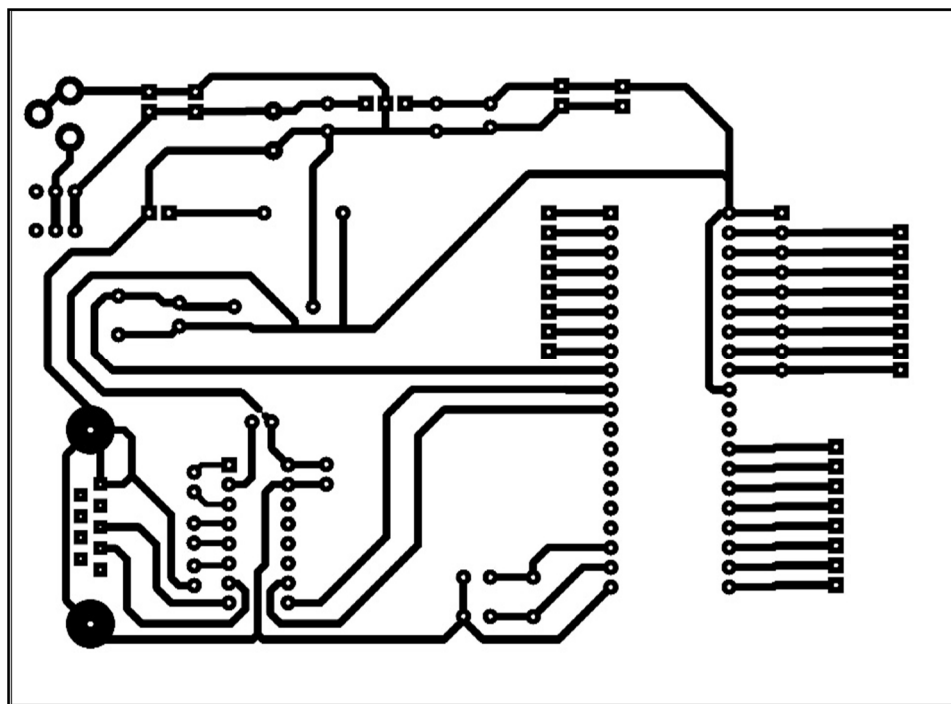3) Dumping is done in Top-win Software.
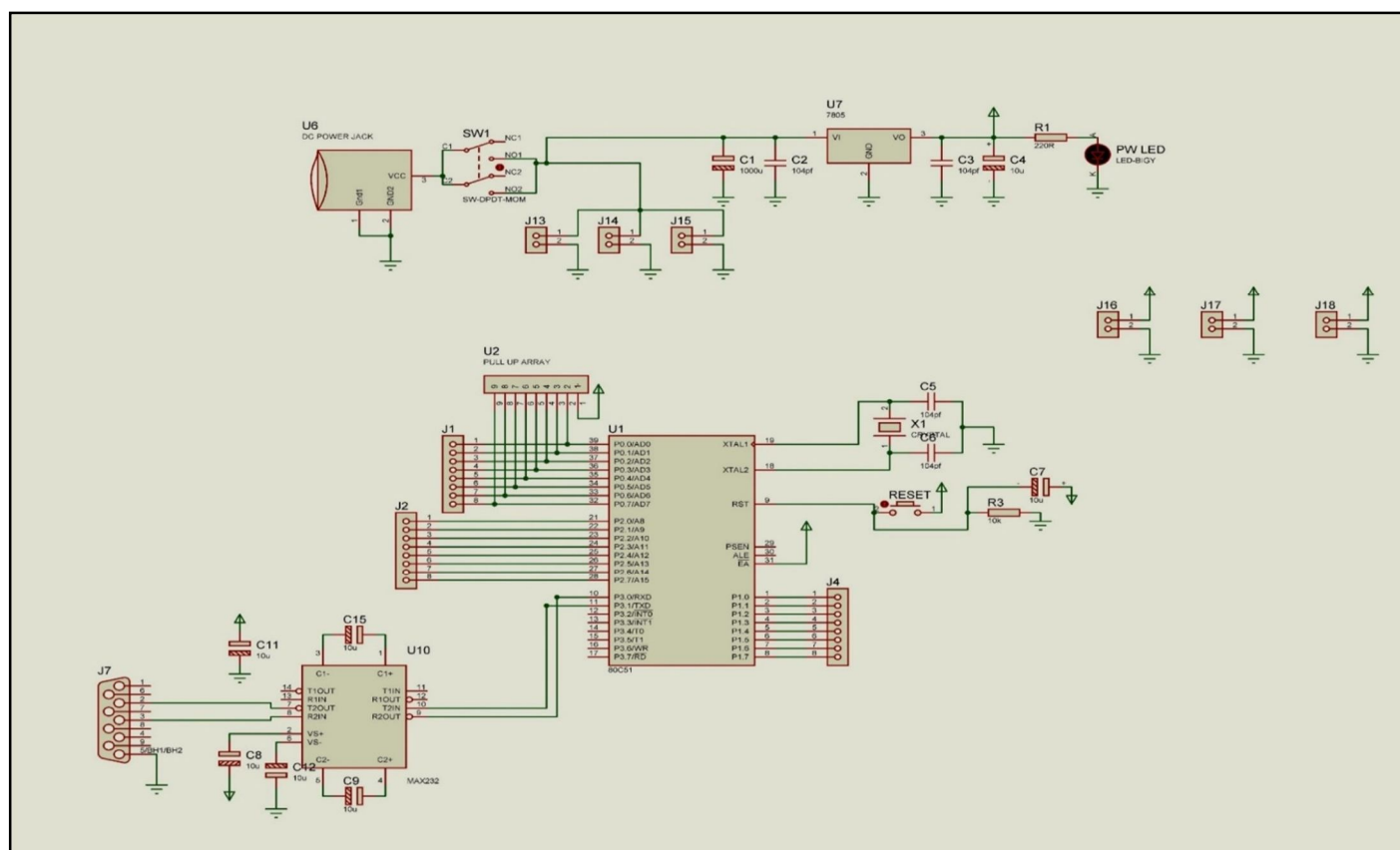

Fig.2 PCB Layout

Fig.3 Circuit Diagram

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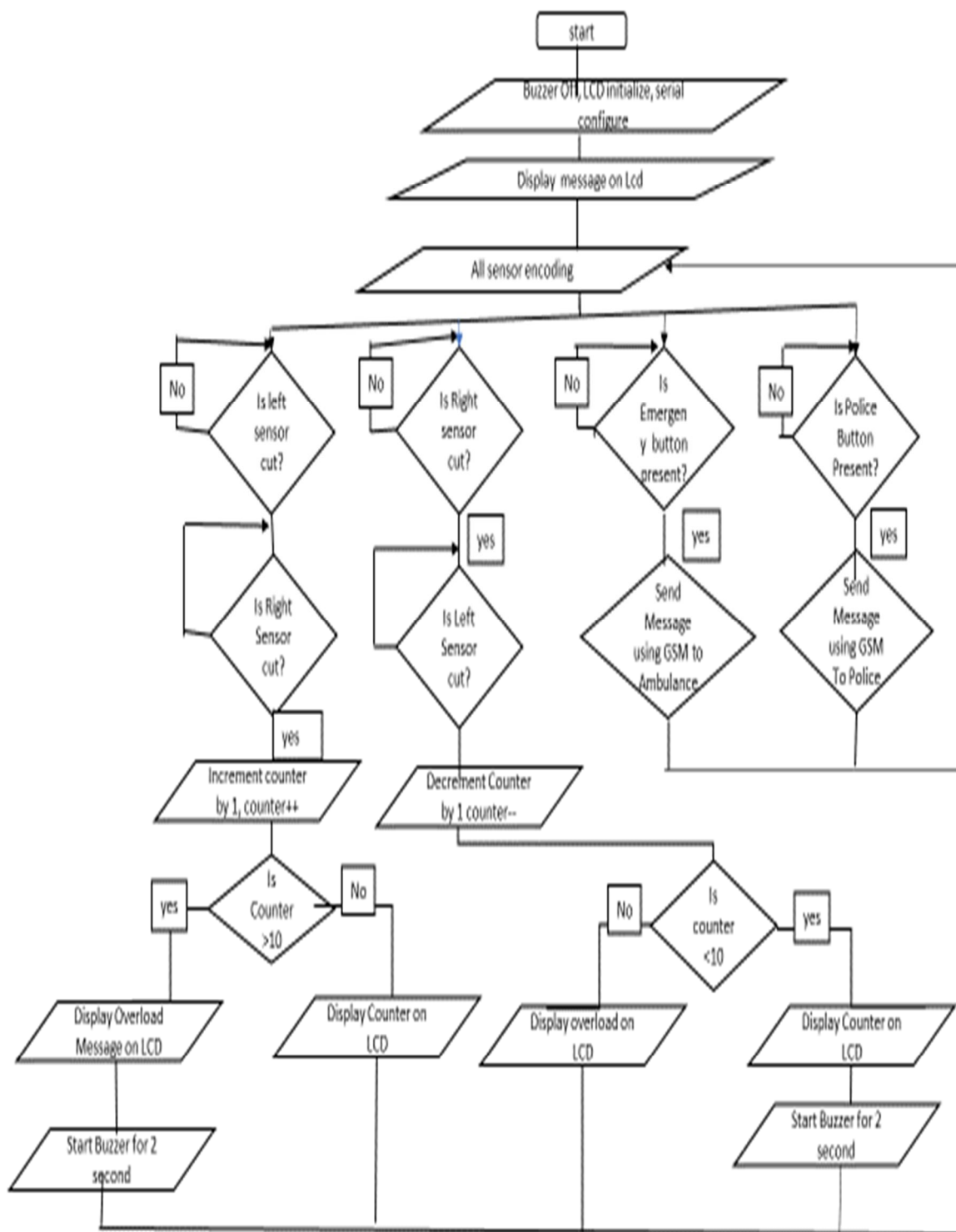## VI.   FLOW CHART

Flow Chart of Our Project is as Follows

Fig.4 Flow Chart

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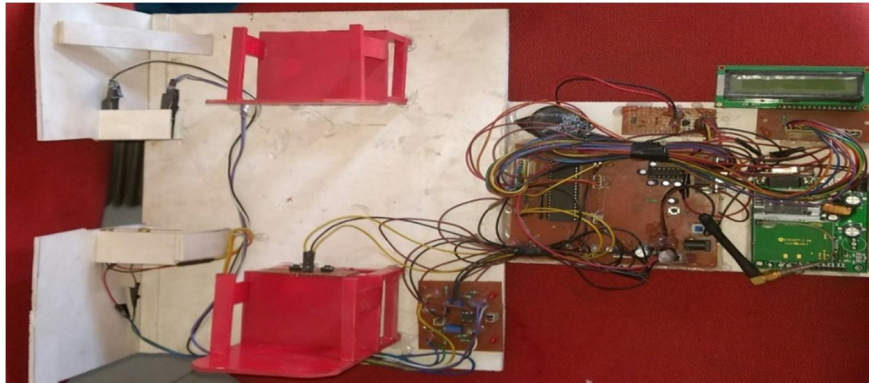
VII.   IMPLEMENTATION OF PROJECT

Fig.4. Proposed System

VIII.   APPLICATION

A. Application of Transafe Vehicle are as Follows

1) With the help of this device, we can overcome the overloading problem
2) Rate of accident and death will reduce with the help of "Transafe Vehicle".
3) Due to safety feature it will reduces women harassment.
4) Medical facilities will be easily available on long journey.
5) It will reduce the maintenance cost of vehicle.

IX.   CONCLUSION

This project is very effective in transportation. The basic need related to safety and emergency issue are satisfied by our project. Accidents due to overloading were reduced and also the physical difficulties were overcome during journey by our project. For senior citizen the journey become more comfortable due to no rush. For Womens, it will be easy to get help in case of any physical harassment. Medical facility will also be easily available. Here we conclude that all needful and necessary condition are satisfied by installing GSM, LCD, Microcontroller, counter, Buzzer.

REFERENCES

[1]   Network statistics" Public Transport Victoria. Retrieved 26th May 2013.
[2]   Adam Cary" (27th October 2013). "901bus service 'flawed'". Retrieved 28th October 2013.
[3]   Implementation of Real Time Bus Monitoring and Passenger Information System by: Mrs.Swati Chandukar, Sneha Mugade, Sanjana Sinha, Megharani Misal, Pooja Borekar.
[4]   Analysis of Bus Tracking Using Gps on   Smart Phones by: Mr. Pradip Suresh Mane,   Prof. Vaishali Khairnar.
[5]   Planning for Safety in High Capacity Bus System by: Dinesh Mohan.
[6]   Dhaval Gada, Rajat Gogri, punit   Rathod, Zalak Dedhia, Nirali Mody, Sugata Sanyal and Ajith Abraham, "A Distributed Security Scheme for Ad Hoc Networks", ACM Crossroads, Special Issues on Computer Security.Volume 11, No. 1,September, 2004, pp. 1-17.

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