

ALCOHOL DETECTION SYSTEM FOR CAR DRIVERS

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ABSTRACT

The motor car accident is a major public problem in many countries, particularly Sri Lanka. Despite awareness campaign, this problem is still increasing due to rider's poor behaviors such as speed, drunk and without sufficient sleep driving. The numbers of death and disability are very high because of late assistance to people who got the accident. These cause huge social and economic burdens to people involved. Therefore, the system is to find some solution to one from those poor behaviors. It is design with the circuit to alcohol detection. System can reduce drunk driving; minimize the amount of accident on road while improving the efficiency of the drivers.

Keywords: Alcohol Detector, Microcontroller System, mikroC, PIC

1. INTRODUCTION

Generally, the main goal of the project is to design and construct the alcohol detection system with alcohol sensing circuit. Therefore, to achieve this goal there are many scopes for this project, which contains many aspects. The scopes contains in this project is about the alcohol sensing circuit, relay driver circuit, microcontroller and programmable code.

There used an alcohol detector to detect the presence of alcohol consumed by the driver. Moreover, this project is design for people who are going to drive with drunker. It is also an advantage for people because microcontroller reject drunken drivers and LCD display will help them to avoid driving. This project also consists with relay driver circuit. When the alcohol sensing circuit automatically senses the alcohol then relay driver circuit active. The ignition is connected to relay will control through the microcontroller. The processes are continuing with simulation, modification and construct the circuit to the board. This project is involved on PCB and casing design. As well as the PIC16F877A are used in order to program the LCD display and to make sure that the circuit that had been design are function as needed. The software involved in this process is Proteus and mikroC PRO for PIC. ¹

2. EXPERIMENTAL

The system consists of cooperative components of an alcohol sensor, microcontroller, Liquid Crystal Display (LCD), relay driver circuit and keypad. Alcohol sensor detects that driver's consuming limit of the alcohol & microcontroller decides that the driver can drive or not. If it is impossible ignition system of the motor car is off.

2.1 Designing of the System

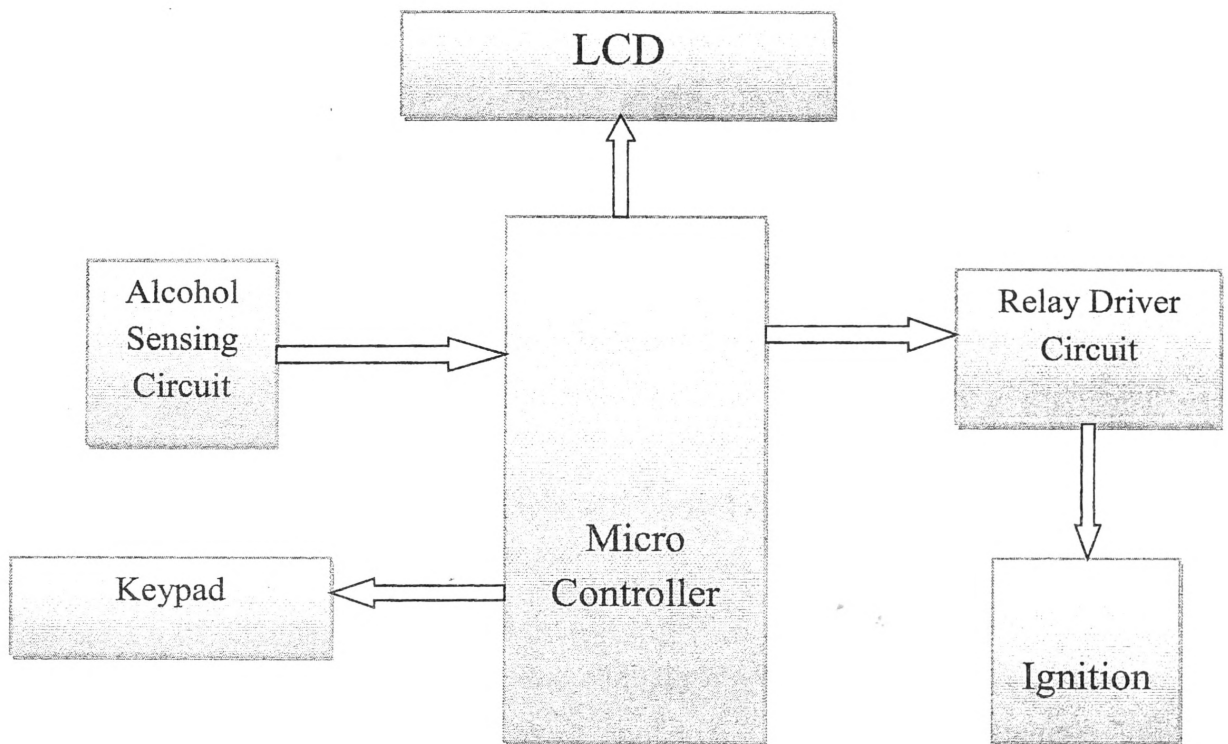


Figure 1: Design of the System

At the first it must set the alcohol limit to the system using keypad. That limit must be an effective to safety drive. When the drunken driver get on to the car the system is on. Then the alcohol sensing circuit measures the level of alcohol of the drunken driver. That alcohol level is display on the LCD. Then the previous setting limit and true alcohol level of driver compare using the microcontroller. If the true alcohol limit is higher than previous setting limit it will cause to off the ignition system. The circuit will sense the alcohol level and active the relay of ignition. The ignition is connected to relay and it will control by using the microcontroller. All the status will be displayed on the LCD.

2.2 System Design

First set the alcohol limit for the system. Then automatically, the circuit will sense the alcohol level of the driver and active the relay of ignition. If alcohol limit greater than the alcohol level of the driver then automatically ignition system on it mean user can drive. If alcohol limit less than the alcohol level of the driver automatically ignition system off it means user can drive.

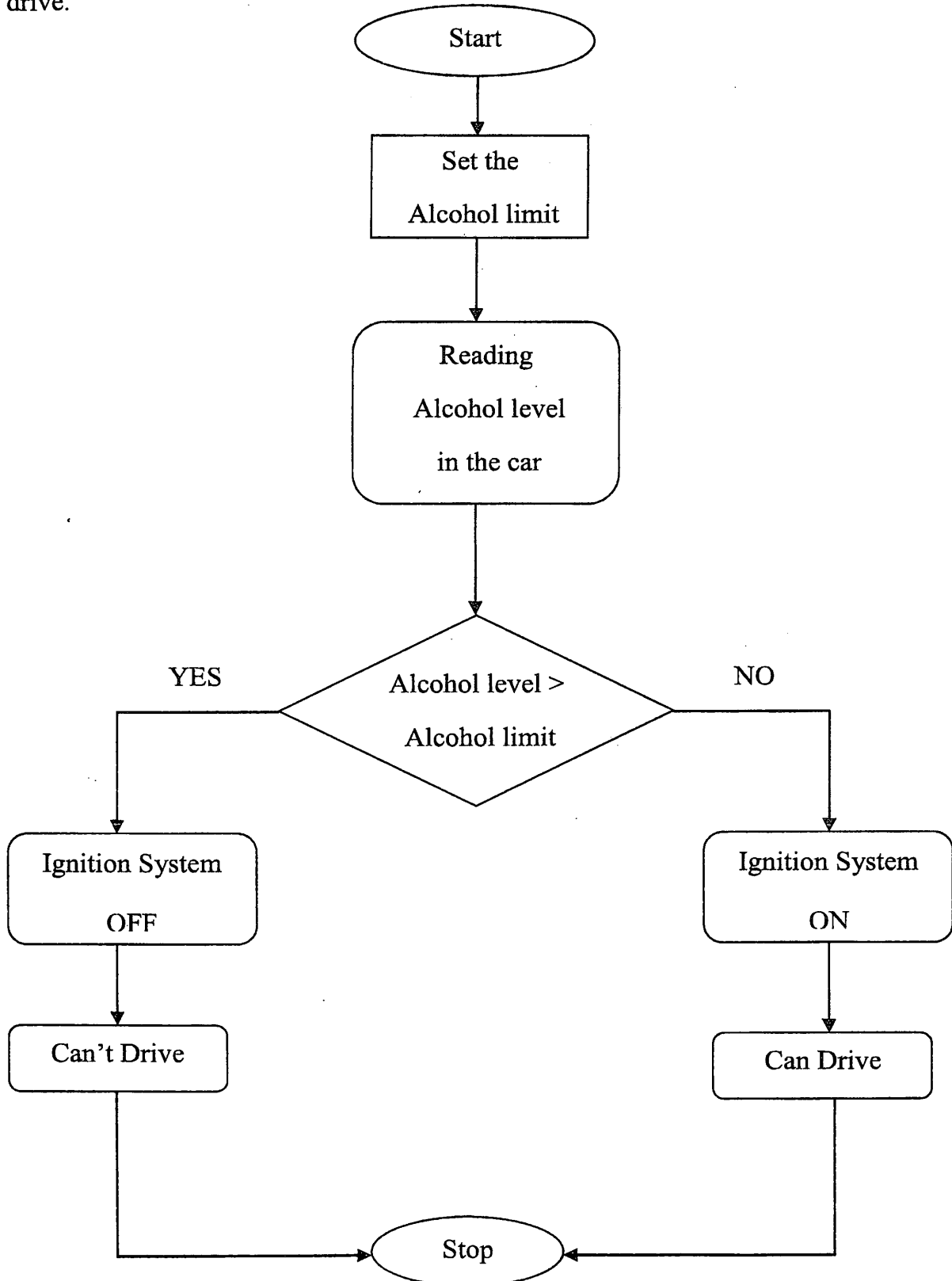


Figure 2: Flow Chart of the System

2.3 Printed Circuit Board

The Printed Circuit Board (PCB) layout is as follows.

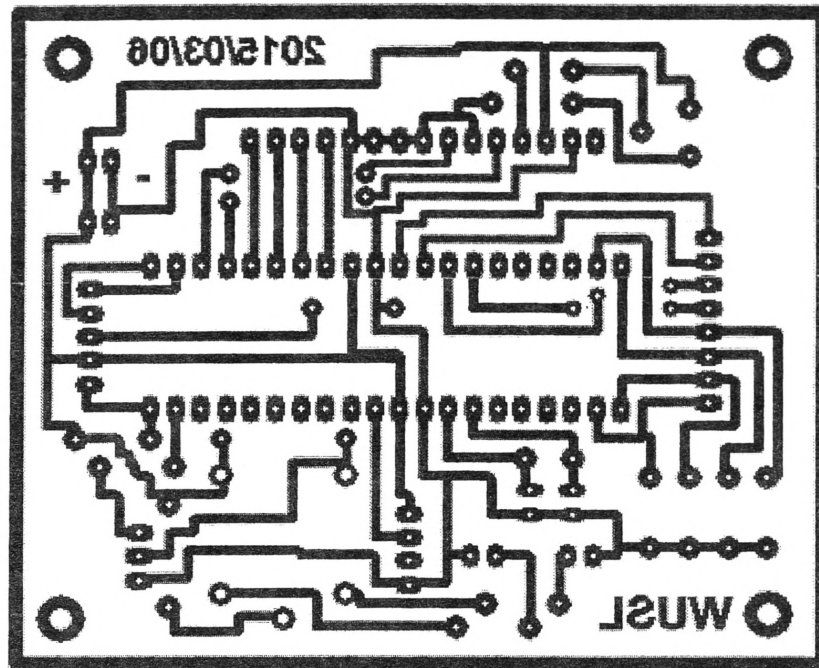


Figure 3: PCB Design of the System

The designed PCB board with components is showing as follows.

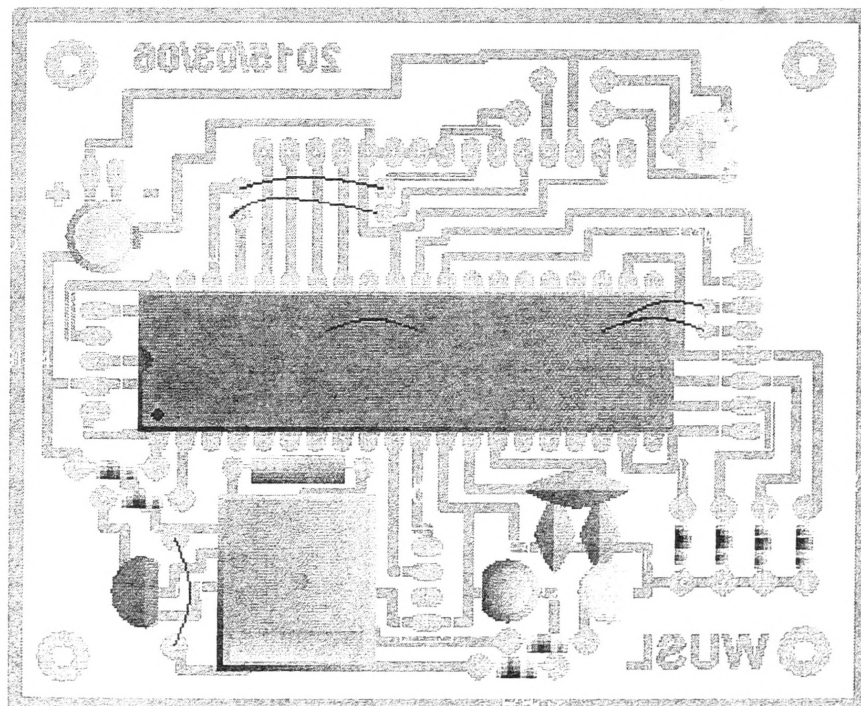


Figure 4: PCB Design with the Components

3. RESULTS AND DISCUSSION

This project is called the alcohol detection system for car drivers. Alcohol sensing circuit is the perfect solution to testing alcohol limit of the driver who has get alcohol. This circuit can be used to detect the alcohol limit and give a chance to drive or not. The final outcome of this project is minimizing the road accident by dunked drivers. The features of this alcohol detection system are low cost, easy operation & save life. Intelligent systems are in used with every aspect of systems, CARs are the critical systems which are real time and lives are involved. Alcohol detection is the vital and of great importance from the perspective of passenger safety and traffic safety. Impact detection and notification is also one of the life saving and critical information provider system. System which is describe in this paper more efficient, reliable & effective. Develop such kind of system with all the useful utilities, this will help drivers, Police, Rescue Squad and other authorities do their work more efficient and effective.

4. CONCLUSION

It is due to the driver's fatigue, traffic accidents keep with a yearly increasing of a high rate. This paper shows the new fatigue detection algorithms & techniques using alcohol sensor. In this technique the fatigue will be detected immediately and stop the vehicle without ability of driving. Through research presented in this paper, author proposes an alcohol detection system for car drivers to accident prevention and making the world a much better and safe place to live.

ACKNOWLEDGEMENTS

Author likes to express his indebt gratitude to the staff of Department of Electronics, Faculty of Applied Sciences, Wayamba University of Sri Lanka.

REFERENCES

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