

MODERN SMART VEHICLE SYSTEM

Muralikrishna T.V¹, Babu .K², Thanushree K.M³,
Sindhu G.M⁴, Lokesh B⁵, Ravikiran R⁶

^{1,2,3,4} B. E. Final Year, ^{5,6} Assistant Professor
^{1,2,3,4,5} Dept. of ECE, CBIT- Kolar ⁶ Dept. of ECE, SJGIT-Chickkabalapur

Abstract- The population of our country has been increasing rapidly, which indirectly has increased the vehicle density and lead to many road accidents. The main causes of accidents include drowsiness of driver, health conditions, drunk and drive[1], collision of vehicles etc. The main aim of this project is to minimize the road accidents occurring due to driving fatigue which cause the loss of invaluable human life and other valuable things, till now we saw many ways to reduce causes for accidents,

Keywords: fingerprint scanner-FPS, analog to digital converter-ADC

I. INTRODUCTION

Biometric systems have overtime served as robust security mechanisms in various domains. Fingerprints are the oldest and most widely used form of biometric identification. The use of fingerprint for identification has been employed in law enforcement for about a century. A much broader application of fingerprint is for personal authentication, for instance to access a computer, a network, an ATM machine, a car or a home.

Electronic lock using fingerprint recognition system is a process of verifying the fingerprint image to open the electronic lock. This project highlights the development of fingerprint verification. Verification is completed by comparing the data of authorized fingerprint image with incoming fingerprint image. Then the information of incoming fingerprint image will undergo the comparison process to compare with authorized fingerprint image.

The main aim of this project is develop a secure locking system based on fingerprint scanning. In this project,

microcontroller accompanied with an interface circuit has been used for authenticating the right user of the car. Based on the authentication the temperature, seat adjustment can be done automatically.

With the fingerprint ID scan technology, the gadget allows complete safety of your car from any kind of theft and misuse as only the authorized drivers (registered) can start the car. So, even if you have lost the keys, there is no need to panic.

II. BLOCK DIAGRAM

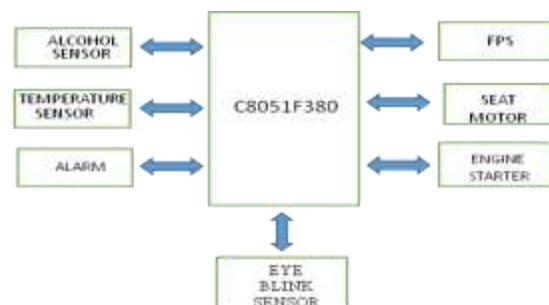


Fig. Block diagram

III.FINGER PRINT SCANNER:

Fingerprint processing includes two parts: fingerprint enrollment and fingerprint matching (the matching can be 1:1 or 1: N). When enrolling, user needs to enter the finger two times. The system will process the two time finger images, generate a template of the finger based on processing results and store the template. When matching, user enters the finger through optical sensor and system will generate a template of the finger and compare it with templates of the finger library. For 1:1 matching, system will compare the live finger with specific template designated in the Module; for 1: N matching, or searching, system will search the whole finger library for the matching finger. In both circumstances, system will return the matching result, success or failure.

The FPS system stores up to 120 users supported to enrolled, additional to that it have SEARCH,DELETE,ALL DELETE,VEIFY PASSWORD, commands.



Fig:finger print scanner system

The finger print scanner supports a enrollment the user and verify password then authentication will be done i.e. compares the finger print image after that it moves to further.

Eye blink sensor:

Driver's drowsiness is as an important factor in the vehicle accidents the basic principle of IR sensor is based on an IR emitter and an IR Receiver. The eye blink sensor continuously monitors the movement of the eye, and calculates the closing time of eyelid, and those values are compared with the original values. If the blinking rate is less, then the engine will get slowdown. This Eye Blink sensor is IR based[2],The Variation Across the eye will vary as per eye blink. If the eye is closed means the output is

high otherwise output is low. This to know the eye is closing or opening position. This output is give to logic circuit to indicate the alarm. This can be used for project involves



Fig:Eye blink sensor module

According to the output of the IR sensor ADC will converts analog signals into digital i.e. logic 0 and 1. When logic high it gives a caution through buzzer.

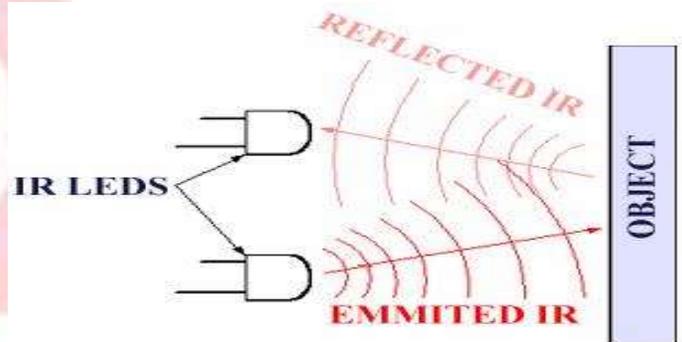


Fig:operation of IR sensor

IV.TEMPERATURE SENSOR

Here in this system we are using LM-35 as a temperature sensor, whenever the user can enrolled if it is particular identical person it moves on to the further step i,e the temperature can be set automatically which the database stored in the FPS system, and also we can set temperature automatically.

XI. FUTURE IMPLEMENTATIONS

IX.BUZZER

Buzzer is used for any abstraction by any of the feature it will indicate through sound. And parking lights will be on relay is deactivated, slowly vehicle is stop.

During the authentication time Finger print scanner takes image from Finger print scanner and compares with stored images in the database, if the user is not consumed Alcohol and image matches then car can be started and according to his configuration vehicles Mirror , Seat, Temperature can automatically adjusted.

Hardware Requirement:

- Microcontroller c8051f380.
- Finger print scanner.
- Stepper Motor.
- Temperature sensor.
- Alcohol sensor.
- Eye blink sensor.

Software Requirement:

- Silicon Labs.
- Debugger.

In this software we are used to serial communication with a baud rate of 115200bps. UART is used interfacing peripherals. Writing code check the errors then rebuild after that download the kit verify the outputs.

Features

- Fast response and High sensitivity.
- Stable and long life.
- Simple drive circuit.
- Comfortable journey.

X. CONCLUSION

The proposed system based on a microcontroller is found to be multipurpose. Moreover the development board used and the software used are Open source, hence this project provides an option for future enhancements.

One of the major problem as arises in this system, if the authorized person was enrolled after that anyone can use the system to avoid this planned to implement face recognition as a key to start the vehicle.

REFERENCES

1. Ueno H., Kanda, M. and Tsukino, M. "Development of Drowsiness Detection System", *IEEE Vehicle Navigation and Information Systems Conference Proceedings,(2013)*
2. Sean Enright, *Electronics Engineering Student, May 26-2011, Alcohol Gas Detector "Breathalyzer"*.
3. Weirwille, W.W. (2012). "Overview of Research on Driver Drowsiness Definition and Driver Drowsiness Detection,"
4. Silicon Laboratories Inc.
<https://www.silabs.com/support/pages/contacttechnicalsupport.aspx>
5. Datasheet of LM_35X series www.ti.com.
6. *Wikipedia and MQ-6 datasheet.*