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Security Management System for School Children and Driver Health Monitoring System

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ABSTRACT

Road accidents continue to be a major issue in India and it ranks first in the number of road accidents deaths across 199 countries. This paper proposes an SMS based solution to reduced parents insecurity and schools to track children's in real time. Different devices are connected with a single device through. The concerned device is connected to mobile via SMS. The device can be used by stockholders to track children and get real time data. The main Advantage of the proposed system is send location by using mobile network (GSM). Here a prototype model (device) is created which is hardware based. The work comprises PIC as microcontroller, along with GSM module. A Driver Health Monitoring System is designed to continuously track and monitor driver's vital health parameters such as (Blood Pressure, Body Temperature, Sleep Activity, Heart Beat And Alcohol Level).This system can monitor the state or condition of the driver which is the major reason for school bus/van accidents. In this system the analysis of vital health parameters is done before driving so that this information is used to alert the centralized controller installed inside the vehicle that controls the bus/van ignition system. This project aims at reducing the reckless driving situations which leads to major accidents life.

I. INTRODUCTION

As per the accident reports, a total of 49,002 school accidents took place in the country during year 2019. Accidents not only occur due to poor road condition, speed or driver fault they fail to understand the health condition of driver. This driver health monitoring system provides the solution for the above problem by tracking and monitoring the driver health condition before driving. This system keeps track of driver's vital status such as sleep, heart rate, blood pressure, body temperature and alcohol content in the body. There will be a centralized controller along with alcohol sensor fixed inside the vehicle which controls the vehicle ignition system. Once the driver enters the vehicle the drivers smart phone gets connected to the centralized controller which has access to the data that is tracked and monitored for the last24hours that is stored and processed in the application. The centralized controller checks all the vital health parameters, if found normal then the controller checks the alcohol levelIn the existing system, we use a voice recognition module in which the alert commands from the child are stored and kept for further reference.

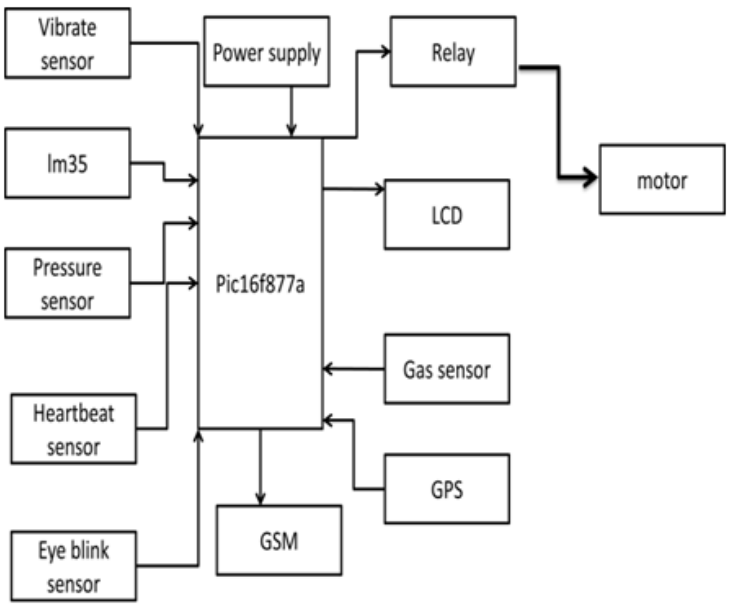
II. EXISTING SYSTEM

In the existing system, we use a voice recognition module in which the alert commands from the child are stored and kept for further reference. If the same child delivers the same command, it will compare with the alert command which was previously stored and set emergency level according to the alert command. The GSM has a SIM which is used to send an alert message or an alert call to the trusted peoples. GPS is used to track the live location and it is used when needed. The server will search the respective device ID from the database and search for respective contacts according to that device ID and helps in alerting the registered guardians.

III. PROPOSED SYSTEM

We propose a complete health tracking and monitoring system along with prevention technique so that we can reduce possibility of being in accidental situations due to variations in health conditions. Driver's vital health parameters such as (blood pressure, body temperature, sleep activity, heart beat and alcohol level) can be the main contributing factors to tell how fit a person is, so variations in these parameters may cause fatality. There will be a centralized controller (PIC) along with alcohol sensor installed inside the car which controls the car ignition system. Then the driver's vital health parameters have to be recorded with the help of On-Body sensors or wearable device like smart watch. The health parameters are recorded and sent to web application installed in the driver's Smartphone. The sensor data is tracked, monitored and processed in the application. When the driver enters the car the driver's Smartphone gets connected to the centralized controller and get activated. Controller has access to the processed data, if there are no abnormal cities then the controller finally checks the driver's alcohol level, if in permissible range then the car ignition system is unlocked and then the driver can start the vehicle.

IV. BLOCK DIAGRAM



V. SOFTWARE REQUIREMENT

EMBEDDED C

Embedded C is a set of language extensions for the C programming language by the C Standards Committee to address commonality issues that exist between C extensions for different embedded systems.

Embedded C programming typically requires nonstandard extensions to the C language in order to support enhanced microprocessor features suchas fixed-point arithmetic, multiple distinct memory banks, and basic I/O operations. The C Standards Committee produced a Technical Report, most recently revised in 2008 and reviewed in 2013, providing a common standard for all implementations to adhere to.

It includes a number of features not available in normal C, such as fixed- point arithmetic, named address spaces and basic I/O hardware addressing. Embedded C uses most of the syntax and semantics of standard C, e.g., main() function, variable definition, data type declaration, conditional statements (if, switch case), loops (while, for), functions, arrays and strings, structures and union, bit operations, macros, etc.

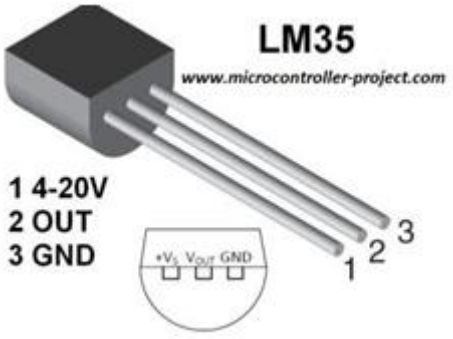
VI. HARDWARE REQUIREMENT

PIC16f877a:

PIC16f877a is one of the most renowned microcontrollers in the industry. It has a total number of 40 pins and there are 33 pins for input and output. PIC16F877A is used in many pic microcontroller projects.

LM35:

The LM35 is one kind of commonly used temperature sensor that can be used to measure temperature with an electrical o/p comparative to the temperature (in °C). It can measure temperature more correctly compare with a thermistor.



GSM:

A GSM modem or GSM module is a hardware device that uses GSM mobile telephone technology to provide a data link to a remote network. From the view of the mobile phone network, they are essentially identical to an ordinary mobile phone, including the need for a SIM to identify themselves to the network. GSM modems typically provide TTL- level serial interfaces to their host. They are usually used as part of

VIBRATE SENSOR:

A vibration sensor is a device that measures the amount and frequency of vibration in a given system, machine, or piece of equipment. Those measurements can be used to detect imbalances or other issues in the asset and predict future breakdowns.

PRESSURE SENSOR:

A pressure sensor is a device for pressure measurement of gases or liquids. Pressure is an expression of the force required to stop a fluid from expanding, and is usually stated in terms of force per unit area. A pressure sensor usually acts as a transducer. it generates a signal as a function of the pressure imposed. For the purposes of this article, such a signal is electrical.

EYE BLINK SENSOR :

The eye blink sensor illuminates the eye with infrared light and monitors the changes in the reflected light. The infrared light reflected from the eye is used to determine the results. The sensor output is active high for Eye close and can be given directly to microcontroller for interfacing application.

GAS SENSOR:

Gas sensors are devices that can detect the presence and concentration of various hazardous gases and vapors, such as toxic or explosive gases, volatile organic compounds (VOCs), humidity, and odor.

LCD:

A liquid crystal display (LCD) has liquid crystal material sandwiched between two sheets of glass. Without any voltage applied between transparent electrodes, liquid crystal molecules are aligned in parallel with the glass surface.

VII. CONCULUSION

The main objective of the project is to ensure safety in driving and to avoid accidents by developing a reliable and a cost-effective system to safe guard human life. The system will help the drivers to a much larger extent. It is a real time model that can monitor and track the status of driver's health and automatically unlock the car ignition system.ID3 algorithm used because of Understandable prediction rules are created from training data. It builds a short tree in relatively small time.

This system can be used by automobiles manufactures by integrating it in the manufacturing process of vehicles.

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