FINGERPRINT BASED PATIENT IDENTIFICATION IN AMBULANCE USING IoT

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ABSTRACT

In this paper, we suggested a fingerprint-based patient identification in ambulance and reporting traffic accidents at intersections. A system with these properties would be beneficial in determining the cause of accidents and the features of an intersection that impact safety. This model makes decisions on the traffic accident based on the extracted features. The fingerprint of the corresponding victim is scanned, and then the scanned parameter is matched with our database. And based on the predefined details associated with the database, the phone number of the victim's family member is extracted. And with the use of a GSM (Global System for Mobile communication) module, an alert sms is sent this phone number along with the latitudinal and longitudinal coordinates of the accident location and heartbeat rate of the person.

***Keywords -** fingerprint, accident, parameter, database, GSM*

I.INTRODUCTION

Every year, vehicular accidents cause tragic loss of lives, cost many countries tremendous amount of money, and produce substantial congestion to a nation's transportation system. Approximately 50%–60% of the delays on urban freeways are associated with incidents, and on urban surface streets, a large percentage of traffic accidents and most delays occur at or near intersections. Intersections are a common place for crashes, which may be due to the fact that there are several conflicting movements, as well as a myriad of different intersection design characteristics. Intersections also tend to experience severe crashes due to the fact that several types of injurious crashes, such as angle and left-turn collisions, commonly occur there. Therefore, accurate and prompt detection of accidents at intersections offers tremendous benefits of saving properties and lives and minimizing congestion and delay. Traffic accident detection employing fingerprint scanning and processing has attracted much attention recently. There are many situations which involves the necessity of tracking a person or an object. The tracking and localization systems can be found in warehouse management, fleet management, military applications, etc. Almost all of these applications involve the use of electronic devices specially designed for them.

II.EXISTING METHOD

The current method of accident indication is of manual type. Only the patient's details can be seen on identifying the biometrics. After the patient has been to the normal stage, if he can speak, then their family is informed. Because without the patient's knowledge, there is no way to obtain his family details.

III.PROPOSED METHOD

This paper deals with the concept of sending an alert to the victim's family regarding the accident.Upon sensing the fingerprint, an automatic alert will be sent to the family. Details such as the location of occurrence, victim's heartbeat are sent. A microcontroller is sued that controls and coordinates with the associated peripherals. The fingerprint of the corresponding victim is scanned, then the scanned parameter is matched with the database. Here we have used the atmel microcontroller ATmega8

IV.DESIGN IMPLEMENTATION
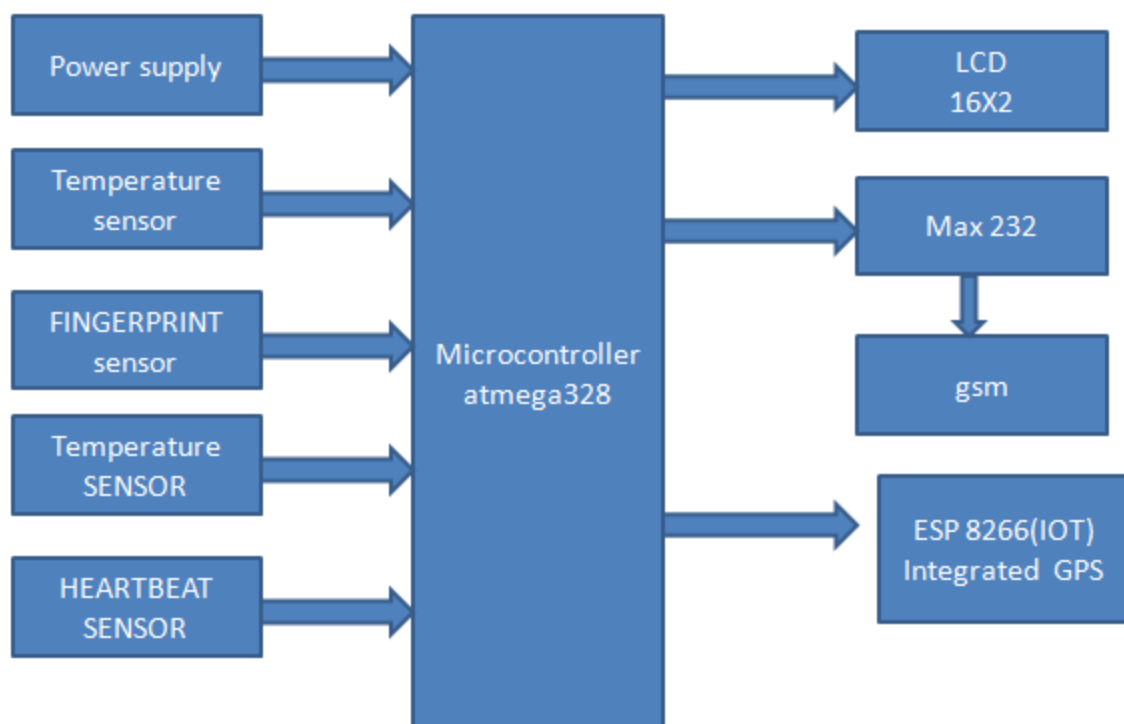
The fingerprint sensor is interfaced with the microcontroller which is also connected with devices such as the LCD, GSM etc. As soon as the fingerprint of the victim is scanned, the microcontroller will identify the details and will send an alert SMS along with the location of the accident to the family members via the global system for mobile communication module Also the vital parameters of the patient such as the heartbeat rate of the victim is also sent. The infrared sensor and the heartbeat sensors are connected as input to the microcontroller. The heartbeat to an ADC pin and to any digital/ADC pin.

FINGERPRINT SENSOR

Fingerprint scanners are security systems of biometric. They are used to unlock doors and in other security applications. During the 2010s fingerprint scanners became commonplace on mobiles. People have a pattern of ridges on their fingers. This fingerprint cannot be removed or changed. Every fingerprint is different from any other in the world. Because there are countless combinations, fingerprints are much used for identification. It consists of tens of thousands of tiny pressure transducers that are mounted on the surface of the sensor. An alternative design uses switches that are closed when pressed by a ridge, but that stay open when they are under a valley. This only provides one bit of information per pixel, instead of working with a gray scale.

GSM MODEM HARDWARE

A GSM modem is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone. From the mobile operator perspective, a GSM modem looks just like a mobile phone. When a GSM modem is connected to a computer, this allows the computer to use the GSM modem to communicate over the mobile network. While these GSM modems are most frequently used to provide mobile internet connectivity, many of them can also be used for sending and receiving SMS and MMS messages. A GSM modem can be a dedicated modem device with a serial, USB or Bluetooth connection, or it can be a mobile phone that provides GSM modem capabilities.

HEARTBEAT SENSOR

Heart rate data can be really useful whether you're designing an exercise routine, studying your activity or anxiety levels or just want your shirt to blink with your heart beat. The problem is that heart rate can be difficult to measure. Luckily, the Pulse Sensor Amped can solve that problem! The Pulse Sensor Amped is a plug-and-play heart-rate sensor for Arduino. It essentially combines a simple optical heart rate sensor with amplification and noise cancellation circuitry making it fast and easy to get reliable pulse readings.

MICRO CONTROLLER

The ATmega8 is a low-power CMOS 8-bit microcontroller based on the AVR RISC architecture.By executing powerful instructions in a single clock cycle, the ATmega8 achieves throughputs approaching 1 MIPS per MHz, allowing the system designer to optimize power consumption versus processing speed.

CONCLUSION

An application accident reporting and guidance was developed. The main purpose of the system is to victim's family from the accident location. In the future, the application will be implemented in IOS devices (for mobile terminals) and the accident detection module will be improved wit IA features. Also, the accuracy of commercial GPS included in the mobile phones will be increase using Kalman filters.

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