Indian J.Sci.Res. 17(2): 449 - 451, 2018
ISSN: 0976-2876 (Print)
ISSN: 2250-0138(Online)

VEHICLE CONTROL SYSTEM BASED ON GSM

[1]Anthati Akhila,[2]GaddamSrujan,[3]DastariBhavani
[1,3]Department of Electronics and Communication Engineering-Communication system, Aurora's Engineering College, Bhongir, Hyderabad
[2]Department of Electronics and Communication Engineering,Aurora's Engineering College, Bhongir, Hyderabad

Abstract-The system envisioned is an automatic collision detection and warning system relying on GPS module and a GSM modem. The advent of technology has also increased the traffic hazards and the road accidents take place frequently which causes huge loss of life and property because of the poor emergency facilities. The aim and scope of this paper is to provide an optimum solution to this draw back. It can be used as a crash or rollover detector of the vehicle during and after a crash. With signals from an accelerometer, a severe accident can be recognized.

Keywords-Automatic Collision Detection, Gps Module, Gsm Module Microcontroller 8052, MAX 232

I. Introduction

In present time high demand of automobiles has also increased the traffic hazards and the road accidents. Life of the people is under danger because of the lack of best emergency facilities available in our country. An automatic alarm device for vehicle accidents is introduced in this paper. This design is a system which can detect accidents in significantly less time and sends the basic information to first aid centre within a few seconds covering geographical coordinates, the time and angle in which a vehicle accident had occurred. This alert message is sent to the rescue team in a short time, which will help in saving the valuable lives.

To avoid traffic jam, accidents instantaneously we design a project in simple manner. We design a project based on MEMS application. We need to secure and protection in vehicle and focus on eco-friendly safety. Everyone has to reach his/her home in safe condition with avoiding accident occurred in any areas.

Block Diagram

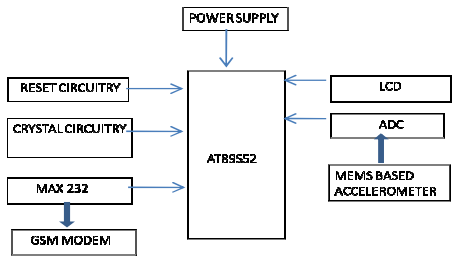

Fig.1. Block diagram of the purposed system model.

II. System Component

A.GSM (Global System For Mobile)

Global System for Mobiles (GSM) is a cellular network, which means that mobile phones connect to it by searching for cells in the immediate vicinity. GSM networks operate in four different frequency ranges. Most GSM networks operate in the 900 MHz or 1800 MHz bands. Some countries in the Americas use the 850 MHz and 1900 MHz bands because the 900 and 1800 MHz frequency bands were already allocated.

Fig.2. GSM modem

B.GSM Network

GSM provides recommendations, not requirements. The GSM specifications define the functions and interface requirements in detail but do not address the hardware. The GSM network is divided into three major systems: the switching system (SS), the base station system (BSS), and the operation and support system (OSS).

[1]Corresponding Author

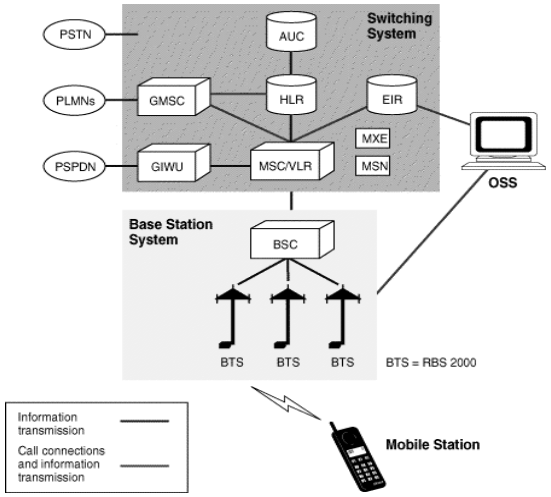

Fig. 3: Block diagram of GSM network

C.Microcontroller 8052

A microcontroller (also MCU or µC) is a functional computer system-on-a-chip. It contains a processor core, memory, and programmable input/output peripherals. It includes an integrated CPU, memory (a small amount of RAM, program memory, or both) and peripherals capable of input and output.

The AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 8Kbytes of in-system programmable Flash memory.

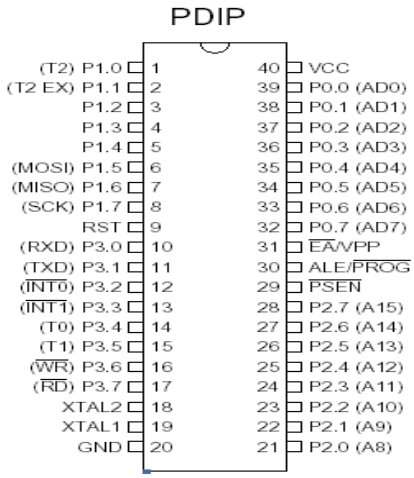

Fig.4. 8052 Microcontroller

Microcontrollers are used in automatically controlled products and devices, such as automobile engine control systems, remote controls, office machines, appliances, power tools, and toys. By reducing the size, cost, and power consumption compared to a design using a separate microprocessor, memory, and input/output devices, microcontrollers make it economical to electronically control many more processes

D.MAX 232

The MAX232 is a dual driver & receiver that includes a capacitive voltage generator to supply TIA/EIA-232-F voltage level from a single 5-V supply. Each receiver converts TIA/EIA-232-F inputs to 5-V TTL/CMOS levels. These receivers have a typical threshold of 1.3 V, a typical hysteresis of 0.5 V, and can accept ±30-V inputs. Each driver converts TTL/CMOS input levels into TIA/EIA-232-F levels.

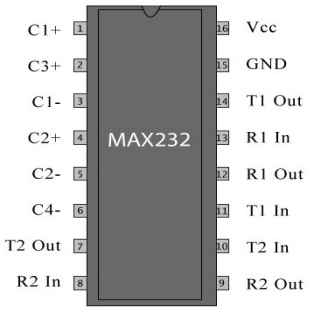

Fig.5. MAX 232

E.EEPROM

EEPROM is used in this project. This EEPROM stores the mobile numbers entered by the user for receiving accident alert SMS. The data stored in the EEPROM will retain even the power is off for long time.

F.16X2 LCD

16 X 2 LCD is used to display the operating instructions and status of the output. HD44780U is used in the project. The HD44780U dot-matrix liquid crystal display controller and driver.

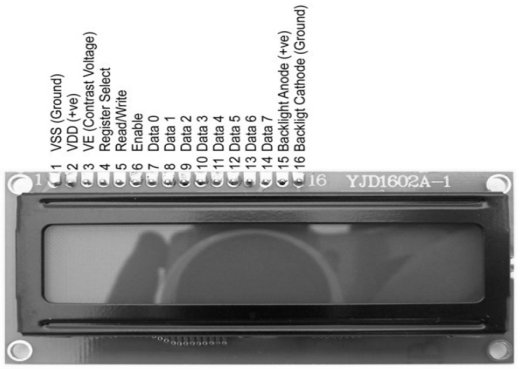

Fig.6. 16*2 LCD

LSI displays alphanumeric, Japanese kana characters, and symbols. It can be configured to drive a dot-matrix liquid crystal display under the control of a 4- or 8-bit microprocessor. Since all the functions such as display RAM, character generator, and liquid crystal driver, required for driving a dot-matrix liquid crystal display are internally provided on one chip, a minimal system can be interfaced with this controller/driver.

G.Reset

Reset control circuit is used to reset the microcontroller at any stage of work. This section also comprises of auto power on reset. If the reset switch is pressed, the microcontroller restarts and the function will start from the beginning. This circuit is connected to 9th pin of microcontroller.

H.Crystal

A crystal is used to supply clock frequency to the microcontroller. The clock frequency is 11.0592MHz. 11.0592 MHz crystals are often used because it can be divided to give you exact clock rates for most of the common baud rates for the UART, especially for the higher speeds (9600, 19200). Despite the "oddball" value, these crystals are readily available and commonly preferred.

III.Operational Model

The prototype model of an automatic vehicle accident detection and messaging using GSM modem working will be made in the following steps: The main intention of this paper is to find whether accident is occurred or not. So, when the accident is occurred the MEMS sensor detects & sends the electrical signal to ADC channel of microcontroller. Then the microcontroller sends the accident alert signal to MAX 232 which in turn sends signal to GSM modem. Then GSM modem sends the message “ACCIDENT OCCURRED” to the authorized mobile number. The phone number is pre-saved in the EEPROM.

IV. Conclusion

In summary, we have designed and implemented a complete working model using a Microcontroller. The programming and interfacing of microcontroller has been mastered during the implementation. This work includes the study of GSM modem. This system will be useful in several applications such as tracking, security and monitoring etc.The design system is useful to track and inform the right person whenever accidents occur.

V.Acknowledgment

The author wishes to thanks to the Principal, HOD, ECE and R&D Department to support us to do the same.

References

[1] D.Santhoshi Rani, K. Radhika Reddy, Raspberry Pi Based Vehicle Tracking And Security System For Real Time Applications”International Journal of Computer Science and Mobile Computing, IJCSMC, Vol. 5, Issue. 7, July 2016, pg.387 – 393.

[2] KajalNandaniya, VirajChoksi, Ashish Patel, M B Potdar, “Automatic Accident Alert and Safety System using Embedded GSM Interface” Volume 85 – No 6, January 2014.

[3] C.Prabha, R.Sunitha, R.Anitha, “Automatic Vehicle Accident Detection andMessaging System Using GSM and GPS Modem” International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering” Vol. 3, Issue 7, July 2014.