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Patient Help Alert System using Android

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ABSTRACT: Our project is a working model which incorporates switches to alert patient health problem, A micro-controller board is used for detecting the inputs from the patient switch and any abnormality felt by the patient causes the monitoring system to give an alert to mobile through HC-05 Bluetooth module. This is very useful for future analysis and review of patient's health condition. For more versatile medical applications, this project can be improvised, by incorporating heart rate and blood pressure monitoring systems, dental sensors and annunciation systems, thereby making it useful in hospitals as a very efficient and dedicated patient care system. **KEYWORDS:**

KEYWORDS: Key sensing, Message display, GSM module, HC-05 Bluetooth module, AT89S52 development board

I. INTRODUCTION

This patient calling system consists of switches in which when they pressed gives text message on the mobile and an audio alert indicating that patient is calling. These switches are placed in the vicinity of the patient to enable medical access in an emergency. If patient facing a problem or saline is finished, or any other issue for that he or their helper will press the button. At the instant he presses the button the text message alert will sent to the nurse. As the nurse receives the message they can help urgently to the patients.

In many hospitals there are too many patients. And there may be limited nurses and brothers for their help. They have to service the patients continuously. Every time they have to go at every patient for monitoring their saline. It may possible that patient has emergency problem of their health. At that time to call the nurse or brother will take too much time. This project consisting of switches which is installed near the patient bed, when this switch is pressed the alert text message will be given to the respective nurse or brother on their mobile phone.

II. LITERATURE SURVEY

The system is proposed based on the review of some previous work in the wireless sensor network area and the use of mobile phones in health monitoring. Many applications are now-a day's available where use of smartphones in health monitoring is experimented. The device will send its data to the server through the android application. This data will be available to the doctor using his android application. [1]

Hospitals there are many patients' beds. And nurses and brothers are limited. They need to service the patients immediately continuously. Each time they have to go at every patient for monitoring their saline, when patient has emergency problem of their health. That time to call the nurse or brother will take too time. Project is of switches which is installed near to the patient bed where switch is to be pressed. Alert text message will be forwarded to the respective nurse or brother on their mobile phone in the form of text. The patient calling system consists of two switches which when pressed gives display on the screen and activities an audio alert indicating that patient is calling. These switches are placed in the vicinity of the patient to enable medical access in an emergency Patient Emergency alert. Uttara Gogate et al[1].

If patient facing a problem or saline is finished, or any other issue for that he or their helper will press the button. At the instant he presses the button the text message alert will sent to the nurse. As the nurse receive the message, they can help urgently to the patient Benjamin Kommey et al. [2] presented a technique for SMS based home security system. According to their research finding the entire project is simple in design and cost effective

III. BOARD HARDWARE FEATURES

SIM 900 GSM MODULE:

GSM/GPRS Modem-RS232 is built with Dual Band GSM/GPRS engine- SIM900A, works on frequencies 900/ 1800 MHz. The Modem is coming with RS232 interface, which allows you connect PC as well as microcontroller with RS232 Chip(MAX232).



Fig. 1: GSM Module

HC-05 BLUETOOTH MODULE

HC-05 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup. Serial port Bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband.

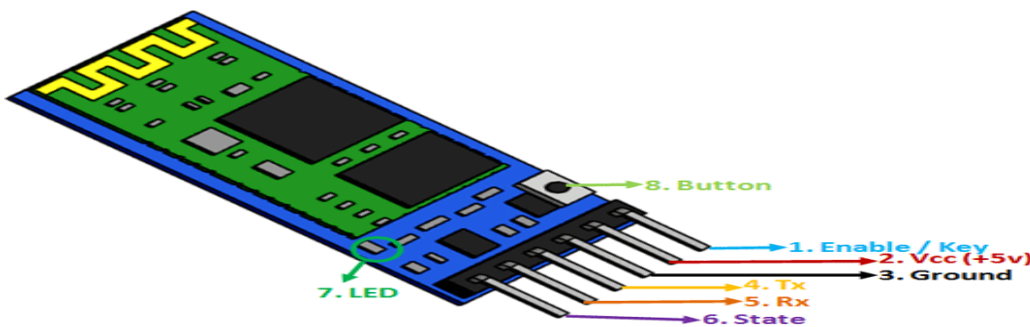


Fig. 2: Bluetooth Module

LCD

This is the display part of our system. All the changes or the required action needs to be taken will flash on this LCD. This LCD is of 16*2 configurations. That means they are having 16 columns and 2 rows. Each row and each column can be individually programmed to display the characters with the help of Microcontroller.

AT98S52 Microcontroller



Fig. 3: AT89S52 Microcontroller

Atmel microcontroller can be programmed with different software's that is available in the market. Arduino, Keil uVision are the most used platforms to name a few. If you are planning on serious programming and expansion with community support then Keil is recommended.

Push Button Switch

Push-Buttons are normally-open **tactile switches**. Push buttons allow us to power the circuit or make any particular connection only when we press the button. Simply, it makes the circuit connected when pressed and breaks when released. A push button is also used for triggering of the SCR by gate terminal.

IV. BLOCK DIAGRAM

WORKING:

This process of detection of key is done with the help of push button switches and Bluetooth module/GSM module. The Bluetooth module/GSM module which is mounted on the development board detects the signal from the controller. Bluetooth module/GSM module contains a gets message which defines the particular patient. Thus, when switch is detected the message will sent to the LCD display and mobile phone through GSM module/Bluetooth module. Controller will sense the key when the switch is pressed or not. Controller will identify which patient bed has pressed and gives response according with that. LCD display is beneficial for the sisters and brothers or even doctors for the patient's to identification where patient needs help

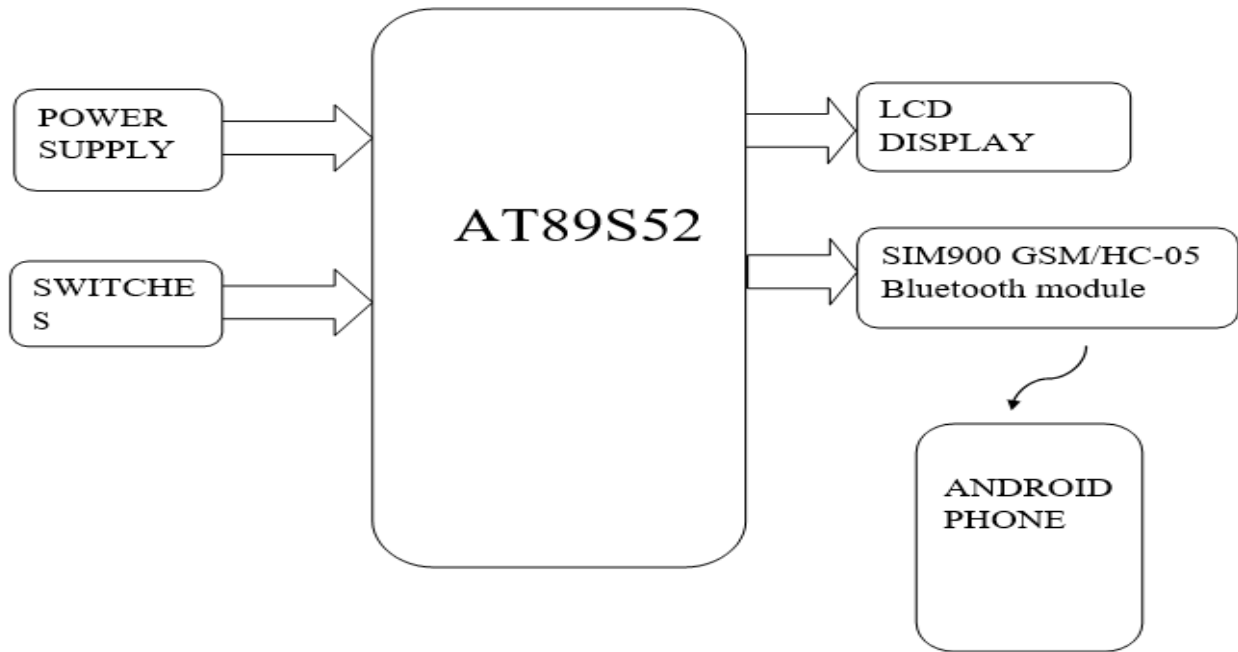


Fig 4. Block diagram

Design of 8052 microcontroller we interfaced various sensors such as SIM 900 GSM module/HC-05 Bluetooth module, LCD Display, Key sensing by push button switch.

Proposed system is Transmitter system consisting AT89S52 microcontroller to which various modules are interfaced like GSM module/HC-05 Bluetooth module, push button switches, LCD display. In this when key is pressed by the patient or his near person, microcontroller will sense that key and send alert message to doctors or nurses/brothers via GSM or Bluetooth. And on LCD also.

V. RESULTS

The main objective of this project is to help to the patients in hospital where critical health situation is happened. project is developed and implemented a system which is friendly to user.

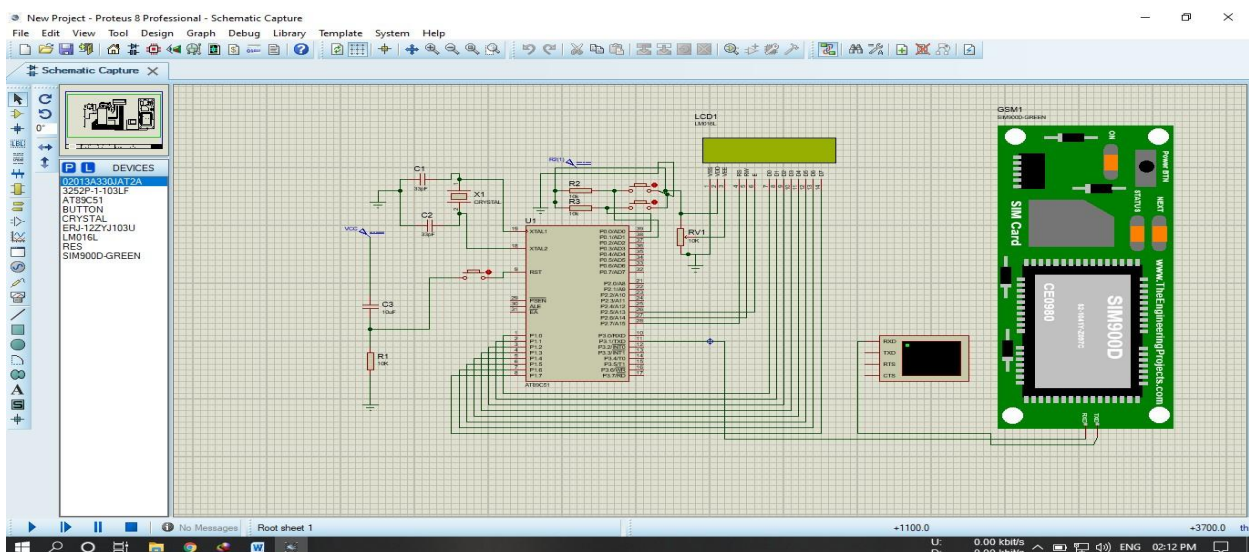


Fig. 7: Simulation

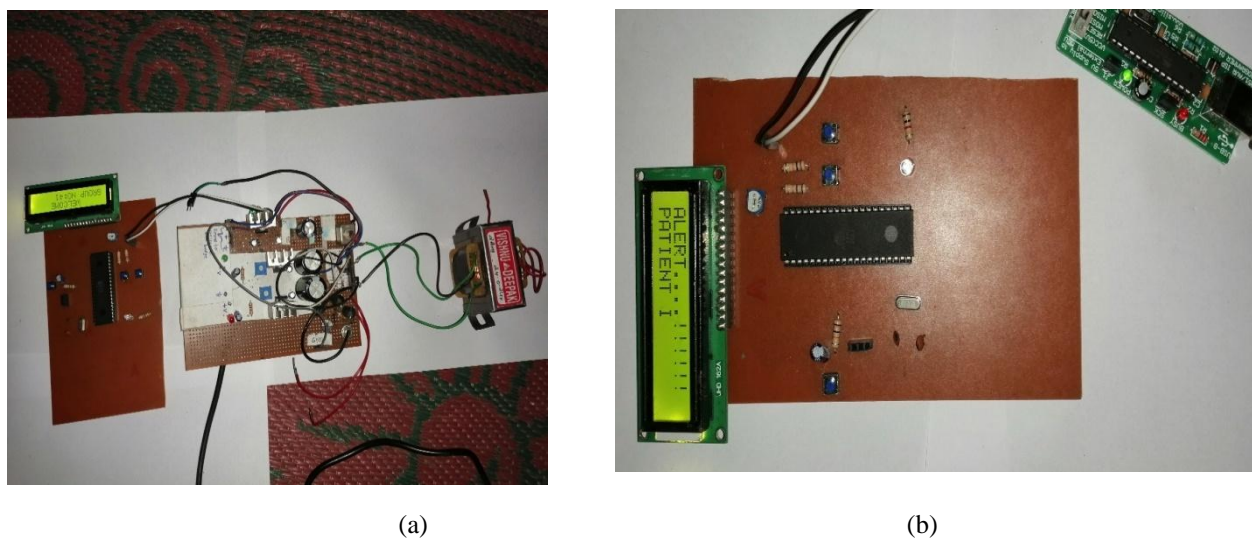


Fig. 5: (a) and (b) shows the result when key is pressed, alert is displayed and sent through GSM modem.

VI. CONCLUSION

Patient alert system prototype that is presented in this paper is in fact a final year project. A general conclusion that can be said about such engineering projects is that they are introducing students to an open horizon of developments. Such projects can only represent a minor part of what the future and technology integration may look like for the modernization of different service sectors including transport. Researching and developing a working prototype enhance self confidence and assure that it is possible to design a system and apply it for solving a particular problem by acquiring the necessary information. Moreover, developing a prototype system can serve as a basis of a far more sophisticated and advance form of control system such as a real alert system, where patients or their nearby person has to call a nurse or brother by walking towards their cabin, here the can get easily alert, that they can easily help to patient.

The main aim of this project is to make an automated system for prevention of any injury or any accident that may happen patient's death or more critical situation. Automated patient alert system is more energy-efficient and optimize patient service automatically in. In terms of operational efficiency and cost-saving, wireless networks offer many advantages, such as lower expenditure for staff, avoiding humanerror.

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