Touch screen based on Nurse/attendant calling system for physically impared.

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ABSTRACT

The aim of this paper is to develop an embedded Touch screen based nurse/attendant calling system for physically impaired by using touch sensor and GSM as wireless technology. There are many touch sensors in use today but the sensor that is used will detect the Infrared rays that are emitted from the human body. We know that in hospitals there are many situations that occur like some people are very badly wounded, injured and are in drossy condition, some of them cannot help themselves and some people can be unconscious (means they may be still alive) there will be no quick medical service to rescue them and due to the delay in the medical service people may lose their life instead when the medical service is given on time then that person can be rescued from death. In hospitals a impaired person cannot call the nurse as he is physically impaired so he will just touch the screen to intimate the nurse she is in emergency. When a human being is touch the panel sensor then it sends the signal to the microcontroller and the microcontroller sends the signal to the GSM (global system for mobile communication) this GSM sends the message to the nurse team that the patient is in emergency The code contains the registered mobile number of the nurse team. Then the nurse operation will be fast in detecting the persons who are in emergency. The nurse team can save many people life at a faster rate through this embedded system

Keywords: Microcontroller AT89S52, Touch sensor, GSM, LCD, Buzzer, Power supply.

1.INTRODUCTION

As it is a touch screen there is no need of applying any strength, patient can just touch the screen. This reduces the time consumption and helps the nurse to attend patient in time, So that the patient can get the treatment with in time at the time of emergencies. Touch screens provides fast access to any and all types of digital media, with no text-bound interface getting in the way. Faster input can mean better service. Using a touch interface can effectively increase operator accuracy, reduce training time, and improve overall operational efficiencies, a properly designed touch interface can improve each operator's accuracy. Touch screens are practical in automation, which has become even simpler with touch screen technology. Owners familiar with the icon system appreciate touch screens that make automation systems user friendly.

2.EXISTING SYSTEM

In the existing system we are using touch panel based alarm system by using microcontroller, when patient will touch the screen the alarm will be activated.

3.PROPOSED SYSTEM

The project is implemented on an 8051 based AT89S52 developed board combined with Touch sensor, GSM and LCD for display purpose. In this system we are using mainly GSM to overcome miscommunication when the patient will touch the screen it will send SMS to the particular nurse who are observing the patient

Hardware Requirements are:
1. Micro Controller (AT89S52)
2. Lcd
3. Buzzer
4. GSM
5. Power supply
6. Touch panel

Software Requirements are:
1. KEIL is a c compiler.
2. Embedded 'C' is extension of C programming.
3. RIDE to write code.

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AT89S52

The AT89S52 is a high-potential, low-power, CMOS 8-bit microcontroller with 8Kilo bytes of in-system programming Flash memory. It is manufactured using Atmel's high-density not volatile memory technology and is well suited with the industry-standard 80C51 micro controller. The on-chip Flash enables the program memory to modify the program in-system or by a standard non volatile memory programmer. By combining a versatile 8-bit CPU with in-system programming flash one monolithic chip; the Atmel AT89S52 is a potential micro controller, which renders a highly flexible and cost-effective solution to many embedded control applications

LCD

A liquid crystal display (LCD) has a flat display and is thin device consist of many number of color or monochrome pixels arranged in front of a light source or reflector. A program must and should provide interaction with the outside world using input and output devices that interact directly with a human being. One of the most frequently used devices are attached to a controller is an LCD display. One of the most common LCDs connected to the controllers are 16x2 displays. This means 16 characters per line by 2 line.

GSM

GSM (Global System for Mobile communications) is a cellular or a mobile network, which means that mobile phones connected to it by searching for cells in the immediate vicinity. GSM networks will function in 4 various frequency ranges. Most GSM networks manage from 900 MHz to 1800 MHz bands. It also provides a low-cost, to the network conveyor, alternative to voice calls, the Short message service (SMS, also called "text messaging"), which is now available on other conventional mobiles as well.

Power supply

The main source of electrical power is Power supply. A device or system that provides electrical or other types of energy to single output load or group of loads is known as power supply unit or PSU. The term is most frequently applied to electrical energy suppliers, less often to machines-driven ones, and hardly to others.

This power supply section is required to convert AC signal to DC signal and also to decreases the amplitude of the signal. The obtainable voltage signal from the mains is 230V/50Hz which is in the form of AC voltage, but the demand is for DC voltage(no frequency) with the amplitude of +5V and +12V for various applications.

Transformer

A transformer is a device that transfers electrical energy from one circuit to another through inductively integrate electrical conductors. A varying current in the first circuit (the primary) generates a varying magnetic field; in turn, this magnetic field influences a varying voltage in the second circuit (the secondary). By increasing a load to the secondary circuit, one can allow flow of current in the transformer, thus transferring energy from one circuit to the other. The secondary induced voltage is denoted by V_S, of an ideal transformer, is measured from the primary V_P by a

Bridge Rectifier

A diode bridge or bridge rectifier is an arrangement of four diodes in a bridge configuration that provides the same polarity of output voltage for any polarity of input voltage. When used in its most common application, for conversion of alternating current (AC) input into direct current (DC) output, it is known as a bridge rectifier. A bridge rectifier provides full-wave rectification from a two-wire AC input, resulting in lower cost and weight as compared to a center-tapped transformer design, but has two diode drops rather than one, thus exhibiting reduced efficiency over a center-tapped design for the same output voltage factor equivalent to the ratio of the number of turns of wire in their respective windings:

$$\frac{V_S}{V_P} = \frac{N_S}{N_P}$$

Voltage Regulator

A voltage regulator is an electrical regulator designed to automatically maintain a constant voltage level. The 78xx (also sometimes known as LM78xx) series of devices is a family of self-contained fixed linear voltage regulator integrated circuits. The 78xx family is a very popular choice for many electronic circuits which require a regulated power supply, due to their ease of use and relative cheapness. When specifying individual ICs within this family, the xx is replaced with a two-digit number, which indicates the output voltage the particular device is designed to provide (for example, the 7805 has a 5 volt output, while the 7812 produces 12 volts). The 78xx line is positive voltage regulators, meaning that they are designed to produce a voltage that is positive relative to a common ground. There is a related line of 79xx devices which are complementary negative voltage regulators.

SOFTWARE COMPONENTS

Embedded 'C'

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It 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 to the C language in order to support exotic features such as fixed point arithmetic, multiple distinct memory banks and basics I/O operations

KEIL

The KEIL 8051 development tools are designed to solve the complex problems facing embedded software developers. The KEIL development tools support a huge range of standard microcontroller devices from a variety   of vendors.

3.WORKING METHOD

The present work is very much useful for the patients who are unable to speak and who lied bed in drowsy   condition. In general in ICU's patients are not in a condition to walk. So that we will arrange our embedded board at each and every bed of the patient by means of a touch panel.

In this present work we will arrange a touch panel by n just simply touch attaching with 8051 based AT89s52 embedded board. Whenever a patient wants to call a nurse he/she will simply put their hand on touch panel. That board will automatically gives a buzzer sound by putting their hands on touch panel and send sms to the particular nurse mobile number. So that the nurse will go towards the patient and she can do the needy to the patients.

The system uses a compact circuitry built around Flash version of AT89S52 microcontroller. Programs are developed in embedded C. ISP is used to dump the code into the microcontroller.

4.NON-FUNCTIONAL REQUIREMENTS

Performance Requirements

We can use this system in hospital placed near to bed and touch the panel to call nurse After touch the panel it will send to controller and pass sms to nurse using GSM.

Design Constraints

This system is reliable since it gives information to nurse.This system is protected for modifications.
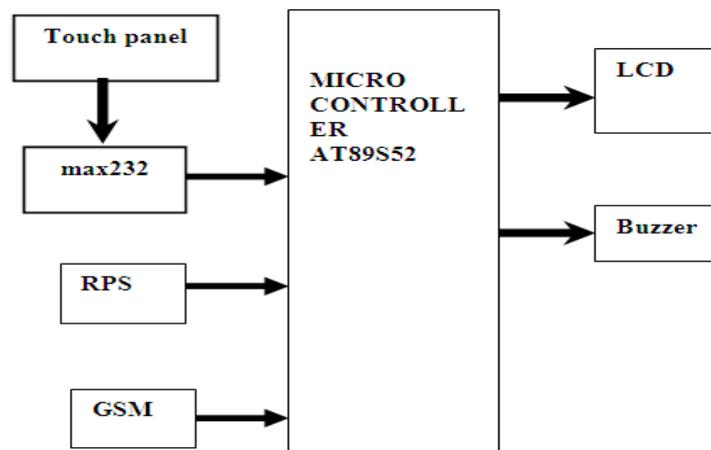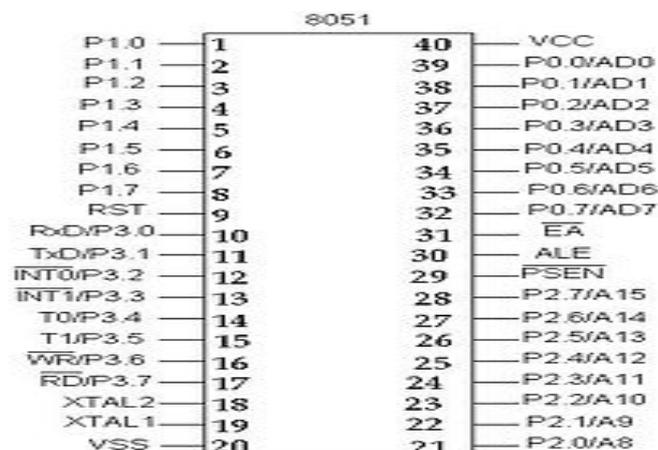
Figures

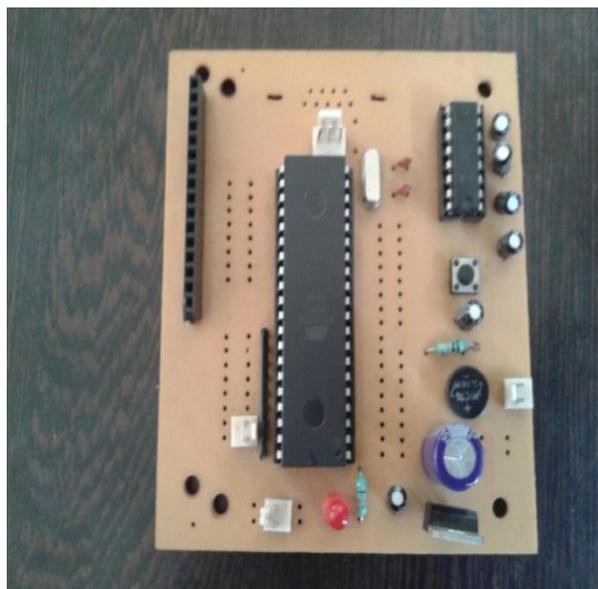**Fig1:** Architecture of the system

Fig2: pin diagram of AT89S52

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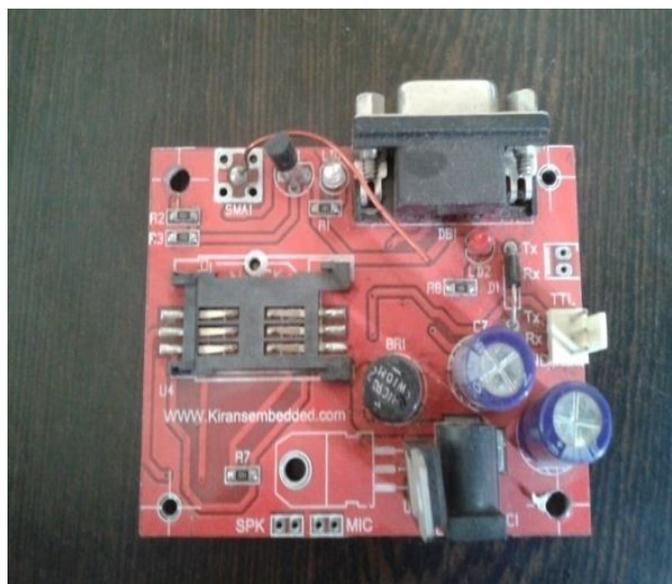**Fig3:** circuit board of microcontroller

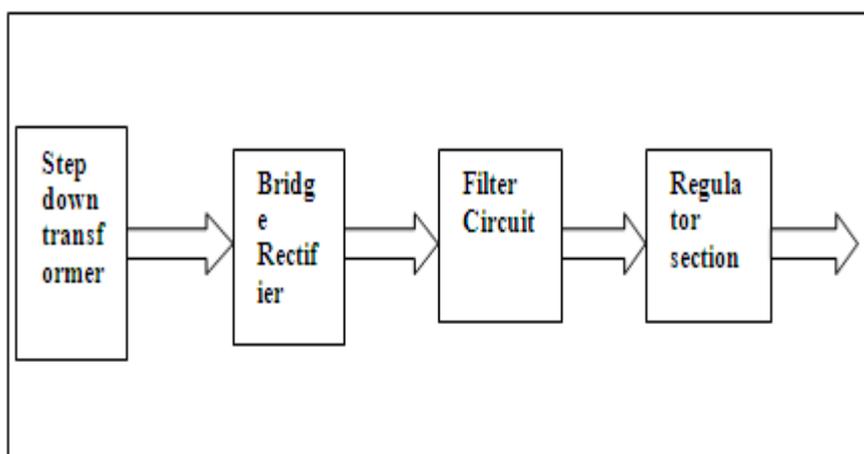**Fig4:** GSM model
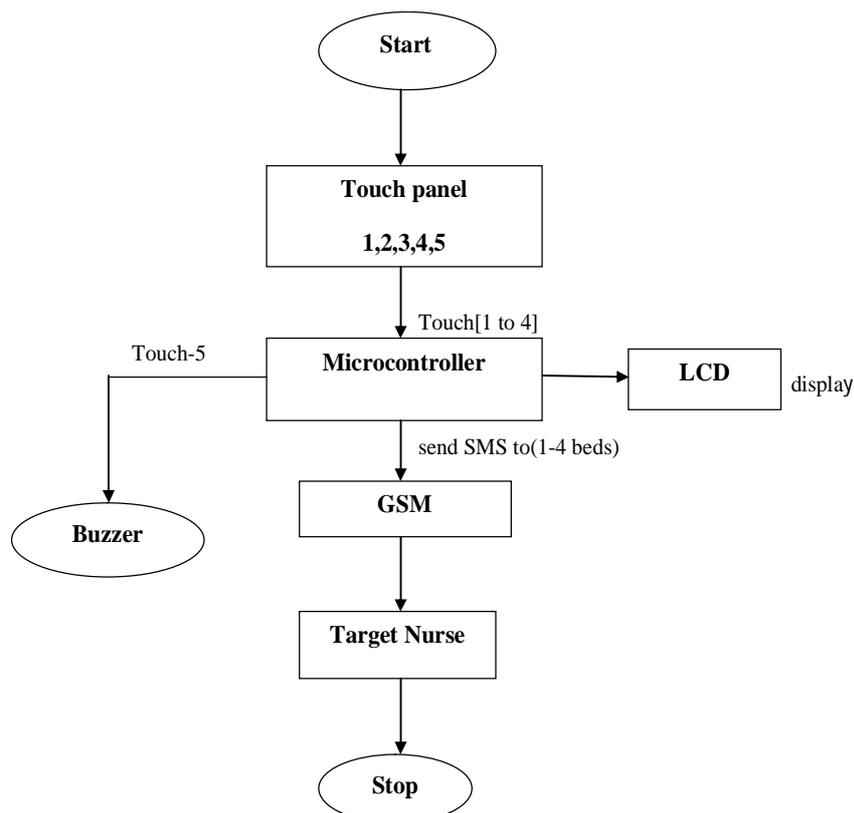
Power supply:

Fig5: power supply flow

Fig6: flowchart of the system

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