

Challenges and Opportunities for Hospital Appointment System

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Abstract: Doctor rendezvous arrangement is essential to control and additionally to keep music of day after day functionalities in medical quarter. So that have a properly appointment scheduling device helps us to supply medication in time and convenient get admission to scientific provider which enhance affected person pride and doctor's performance. In most emergency case the patient rush to the clinic and has to go registration manner which is too longed, someday it's additionally viable to get date for the consulting form health practitioner's. Thus to triumph over this trouble a try has been done via growing a mobile application and medical treatment facility online. Even after this plenty opposition to the sufferers still there exist the environs of awaiting medicinal drug shipping so to enhance the medicine transport facility (NFC SYSTEM) is advanced it is called as Near Field Communication device. In the NFC System the affected person only wants to tapped the NFC appointment card at appointment in health center or health center for making an appointment.

Keywords: ARM 7 (lpc2148), Bluetooth, LCD Display (16x2), ZIGBEE.

1. Introduction

The main intention behind this seminar is to develop a system in which the patient will get a complete time delivery of medication and can fix appointment according to his time schedule. Before proposing of this system the patient has to wait for medication for long time and even has too face problems regarding to appointment fixing. Most of the time in causality cases the patient 's relative has too fill registration form and then only the patient was attained by the doctor's Thus now by using this seminar idea the patient no more need to wait for long time and have to go through long registration process. Appointment scheduling systems is the intersection of efficiency and timely access to health services. Timely access is an important for realizing good medical outcomes. It is also an important determinant of patient's satisfaction. The ability to provide timely access is determined by a variety of factors that include fundamental questions about how many and which types of physical assets and equipment a health system should invest in, how should it allocate resources among multiple sites, how should it staff each clinic or hospital site, what rules best determine which providers and patients receive higher priority access to resources, and how appointments are scheduled. We do not consider questions pertaining to the size of facilities, equipment and staff, and to resource allocation in multiple-service-site systems.

A. Existing system

Today the medication and appointment gadget is based on first come first serve bases this technique works fine if the no of the sufferers are less. But as more affected person need to get and appointment in line with their handy, the above approach falls brief and results in unsuitable medication shipping to emergency sufferers. Even in case of road accidents the patient has to fill the registration shape that's extraordinarily inconvenient and painful for the patient.

B. Proposed system

To triumph over the prevailing gadget troubles the (Near Field Communication System) NFCS Was developed in this device the database of the patient needs to be loaded and according to the concern of the affected person, (precedence depends on age and the hassle thru which the affected person suffers via) a device would call to the concerned affected person on the way to restoration the following appointment. In this device the patient can return his /her rendezvous thru net, also the sensor community that is linked to his whole frame will provide the everyday health checkup report to the nearby medical institution. The figure.1 block diagram indicates the glide of the NFC gadget wherein the patient question comes via the sensor i.e. Coronary heart beat sensor or via zigbee module and that records is given via the GSM module in form of SMS to the physician or to the NFC device.

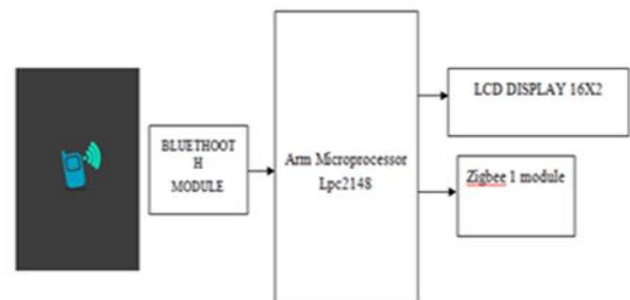


Fig. 1. Mobile Bluetooth Main Control System

The block diagram proven above is the flow diagram of the worried task. In which the Bluetooth in the cell communicates through Bluetooth module related to the relevant gadget which constitute of Arm Processor (LPC2148).

2. System architecture

When arranging a follow visit for a patient, the doctor communicates the time of the next visit either verbally or by writing on a card or form. This traditional way of arranging appointments is very inefficient because people tend to forget the appointments. In some cases, the doctor's assistant will telephone the patient with a reminder, which is somewhat more efficient but increases the overall cost and hassle for the clinic or hospital.



Fig. 2. NFC tag-based alarm activation for medical appointment.

Fig.2 shows the proposed NFC-based alarm activation for appointments. Upon completing the current checkup, if a subsequent appointment is needed, the doctor enters the date and time of the follow-up appointment in a central database. The doctor's receptionist can access this information and transfer it to a fixed Near Field Communication passive tag at the reception desk through the NFC read/write device. The patient taps his smart phone against the read/write device to automatically set a schedule alert in the patient's calendar, with the option to set multiple reminders, and thus free the patient from the responsibility of actively tracking future appointments.

3. About LPC2148 microprocessor

The LPC2148 microprocessor belongs to ARM 7 own family. The LPC2148 board is a 32 bit ARM7TDMI-S microprocessor with real-time emulation. It consists of eight kilo byte to forty kilobytes of on chip static RAM and 32kb to 512kB of on chip flash reminiscence, the microprocessor works with 12 MHz crystal frequency. The processor also supports distinctive protocols suite consisting of ISP (In System Programming), 10 bit ADC affords variable analogue output, 32-bit timers with external event counter (with four seize and suit channels) [7]. The processor additionally has RTC in-built hence extra hardware for the timer is not required. Lpc2148 has 2 serial terminals that is called as UART0 and UART1. The same controller also has SPI and I2C bus with a speed of (400kbit/s)

The Arm LPC2148 Board shown in figure.2 also supports VGA, and SD/MMC card's those modules' are inbuilt in arm processor. The board also helps AUDIO –MP3 format, additionally a PS2 connection are also possible thru which we will join PS2 keyboard. Thus the usage of arm 32 bit processor

can deal with more application than traditional 8051 8 bit controller.

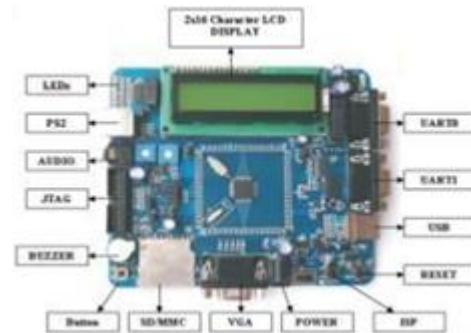


Fig. 3. Arm Processor (lpc2148) Development Board

A. Zigbee module



Fig. 4. ZIGBEE S2 Development modules

The module proven in the figure.4 is ZIGBEE S2 Development module wherein the module can get interface with lpc2148 microprocessor. In the entire task 4 Xbee modules are used the alternative 3 modules are connected to PC for unique branch in a health center which include Nurse can get the appointment listing of the patient's on which date the patient desires to come. And same data may be handing over to the physician. In the same challenge there are priorities assign. Where nurse could get the simplest the information this is required, medical doctor can broadcast the message to his patient.

B. Liquid crystal display



Fig. 5. 16x2 LCD Display

The fig. 5 treasured stone alphanumeric show off means that it's going to display sixteen characters for every line and there are a couple of such traces. Amid this LCD every person is shown in 5x7 element grid. This LCD has 2 registers, to be precise, Command and statistics register i.e. Information sign in. The order signs up shops the rate headings given to the LCD. A summon is associate degree course given to LCD to try and do a predefined undertaking like introducing it, clearing its

screen, putting the marker function, winning show and so forth the statistics sign up stores the information to be proven on the LCD. The records is that the ASCII really worth of the character to be proven on the LCD.



Fig. 6. Bluetooth module

Fig.6 shown within the fig four is of Bluetooth which has very own GPIO'S port. The identical module is primarily based on Nrf51822—the multiprotocol Bluetooth four.0 low power 2.4 GHz wireless software. Through this module the principle device get connected to the query which comes from the patient at once.

4. Software design

In this proposed system, we are using LPC2148 microprocessor and need to use the Keil μ vision 4 and Flash Programmer software equipment to program for it. The Keil micro Vision is an IDE Embedded C Programming Language In this IDE, we need to import all the utilities and libraries in accordance of the controller. This IDE could be very less tough and is person pleasant manner to use. It includes all of the C/C++ compilers, assemblers and debuggers in it. Here we need to generate a hex record to run the processor. The hex document includes best binary numbers which is dumped in to the microprocessor. The flash magic is the programming software. The C/C++ software is written in IDE may be processed into Hex documented i.e. Hex report. By using the identical hex record into the microcontroller and perform the undertaking with software.

5. Working description

In this project an cell app has advanced in which the person can repair the date for the appointment and get medication consulting from the health practitioner. The complete question list is ship to the principle machine thru Bluetooth. At the principle gadget quit the question listing is up to date and relying upon the privileged precedence of the message the message is send to the involved character. The privileged priority listing is up to date by means of the affected person via a few choices inside the cellular app through simply selecting to whom he desires to ship the message, For example message can be ship to nurse with a view to fix appointment and to hold appointment file. Also the patient can at once get linked to his concerned physician for consulting purposes. Even he will have

medicine consulting form the medical doctor in which the prescription may be directly transfer to the drugstore save.



Fig. 7. Working description

6. Result

Thus the entire project is a prototype for the product primarily based system. In this device an attempted is made to make the machine whole computerized and most trying to limit the verbal exchange gap between health practitioner, health center and pharmacy. The consumer must experience complete pleasant gadget and easy to use with less interconnection in the cellular application.

7. Conclusion

The similarly development can be done inside the mission is that the entire undertaking can be uploaded on net wherein in emergency situations the patient can without delay worried with the nearby physician not simplest the physician he concerned often. Thus improving this assignment extra exactly the person could have returned assist when he is going out on huge tours. Because from his cellular he is connected to his physician and take health practitioner suggest in harsh conditions

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