

Motion based Voice Announcement and Medicine Reminder for Abnormal Person (Smart Homes for Elderly Healthcare—Recent Advances and Research Challenges)

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Abstract: Schools are obliged to provide a safe transport system for kids so they can focus on their studies. Parents are as concerned about the safety measures a school has in place as they are about the level of education they expect the school to impart on their child. One way schools can ensure protection for their students is by using a Bus GPS tracking system. A high end GPS system is installed in the school vehicle all the signals from the vehicle are routed to an integrated central server for real time monitoring Information from the server can be transmitted via message alerts and Emails, or can be checked on the web or using mobile apps. What are the features of School Bus GPS Tracking System. The parent is informed estimated arrival time of their child's bus before it reaches the stop before/after school. Guardians can track the area of the transport progressively utilizing the application. Parents without smart phones can use the know your bus feature to receive a text message which informs them of the current location of their child's bus. In case there is a traffic jam, natural calamity or any other problem, a text message is immediately dispatched to the parent informing the reason for delay Benefits of GPS Tracking for School Buses. The advantages of using GPS tracking systems in school buses are plenty. The most important benefit is the peace of mind it provides parents as they are continually updated of their child's where about. School management will have access to detailed reports such as distance moved by each vehicle, time of arrival at each stop etc which can prove to be in valuable. The school admin can review routes to ensure that the drivers are sticking to planned routes and aren't missing any stops. The transport manager is also informed via alerts if the drivers over speed or if the vehicle has been in an accident.

Keywords: School Buses, Child Safety, GPS Location Tracking, RFID Tag Reader

I. INTRODUCTION

Sometimes patients forget to take the medicine at the required time of medicines. And sometimes patient also forgets which medicine He/She have to take at required time. And it is difficult for Doctor/Compounder to monitor patients around the clock. To avoid this problem, we have made this medicine reminder system for patients using MICROCONTROLLER.

The aim of this project is to remind people who forget to take their medicines on time. Elderly people because of their age usually forget to take their medicines. This project will help to remind the patient to take his/her medicine at prescribed time.

The proposed system is best suited for elderly people and people who are very busy, as this device will not only remind them of their medicines with a buzzer sound but also displays the name of the medicine to be taken at that time.

The patient can store the respective time of the particular medicine through a matrix keypad. Based on an RTC (Real Time Clock) interfaced to the microcontroller, the programmed time for the medicine is displayed on the LCD along with a buzzer sound to alert the patient about taking the appropriate medicine.

The programmable microcontroller used in this project is of PIC16F8 family. RTC used maintains an accurate time as it is supported by a crystal.

This project in future can be enhanced by integrating it with GSM technology, so that the patient receives a reminder about the medicine he has to take via SMS on his/her cell phone. Also a provision to change the name of the medicine can be incorporated by interfacing the device with a PC or EEPROM (non-volatile memory).

The main aim of the project is to implement a low cost reliable system which will help to establish communication between paralytic or disabled patients and a nurse. A patient can easily send messages to the nurse by just tilting an accelerometer connected to a body part capable of movement. This angle of tilt is sent to a central controller which then initiates communication between the patient (transmitter) and nurse (receiver) and also decides which message is to be transmitted based on the tilt angle. Each patient will have such a device installed on or around his body and all such patients will be centrally linked to the receiver at the nurse side. Along with this a real time medicine reminder and an emergency buzzer to simplify the work of the nurse was implemented. Our project provides a reliable, effective and simple yet important solution to various issues faced by nurses in traditionally communicating with disabled patients.

II. LITERATURE REVIEW

In this paper [1] the creator portrays Geriatrics depends on care and prescription with the goal that they can be solid, yet once in a while the mind boggling drug may prompt slip-ups like taking inaccurate measures of medication, or missing dosages or taking meds at inappropriate occasions. Such errors may prompt superfluous visits to specialist and in medical clinics, or can prompt ailment and passing. Consequently it is required to structure a Medication Dispensing Device that can assist Geriatrics with taking prescription on plan. Raspberry pi utilizing picture handling is structured explicitly for clients who take prescriptions without close supervision. The programming language utilized for picture preparing is python. The framework additionally thinks about physical handicaps of visually impaired and hard of hearing individuals. Subsequently it incorporates visual just as perceptible sign for them. The administering unit is only a framework which will control apportioning of meds at endorsed time. Being financially savvy and conservative this framework maintains a strategic distance from costly in-home medicinal consideration.

In this paper [2] the creator portrays Medication adherence is an issue plaguing multiple populations such as the elderly or hard to reach populations such as those with HIV. Medication reminders are often employed to improve medication observance. Literature demonstrates that generic reminders are ineffective and often ignored. This study illustrates how to build a custom medication reminder system to determine the effect and impact of customized medication message reminders over generic reminder messages. Results show customized messages are statistically favored over generic messages. This work serves as an important step toward customized medication reminders to improve medication compliance.

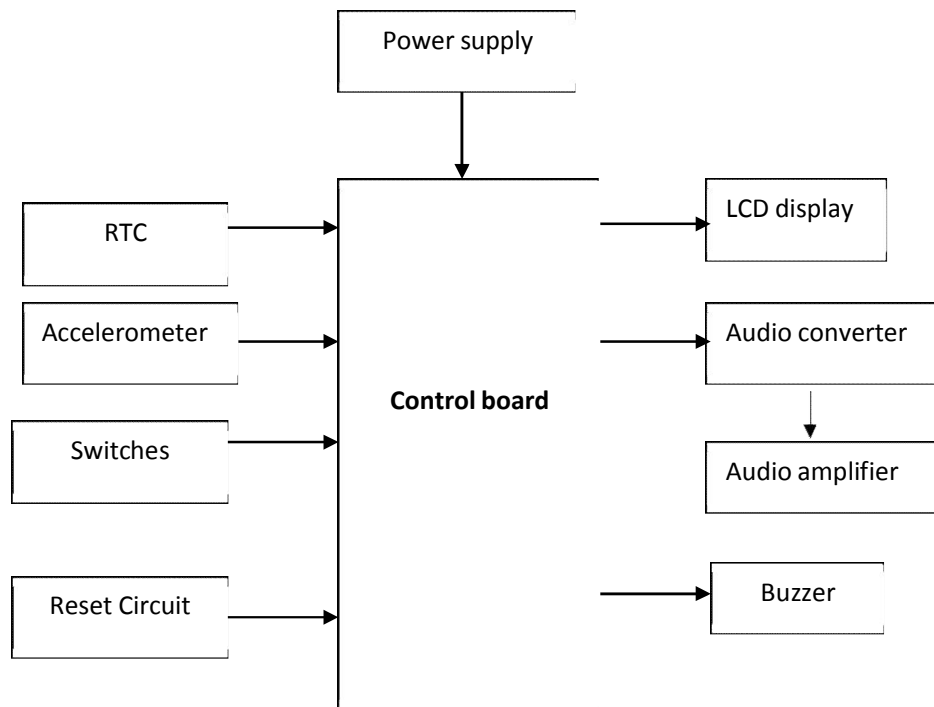
In this paper [3] the creator portrays the fields of medication and pharmaceutical sciences, an expanding number of medications are being developed to fix numerous lethal maladies and this has empowered individuals to live more beneficial and more. Thusly, the pace of medicine use is expanding, especially among the older. It is significant that the prescription endorsed by specialists is taken at the right occasions of the day and in the right measurements. The oddity of the created application is the utilization of a Cloud administration to give two-path correspondence as criticism between the more seasoned patients with incapacities and the specialists so the prescription adherence of the patients can be observed. Versatile application engineers should locate the created cell phone based drug update application for more established individuals with incapacities a valuable model application, and it should help them in creating other portable applications for more established individuals with handicaps.

In this paper [4] the creator portrays advanced mobile phones have arrived at each hand and each home. Accordingly, individuals are utilizing the valuable portable applications to make their regular daily existence simpler. This paper centers on the advancement of a portable application to give a powerful medicinal services framework. This is an android based application in which caution is utilized which might be shut by tapping the nearby alert catch, under the picture of the drug which is to be taken at that specific time. It might even have the contact quantities of the specialists for a crisis. This application will help hand for the individuals who are occupied in their everyday life or mature age individuals who overlook which drug is to be taken and when. Numerous such prescription update frameworks have been created where equipment is required yet in our work, we have made an endeavor to build up a framework which is liberated from cost, efficient and bolsters medicine adherence with no additional equipment.

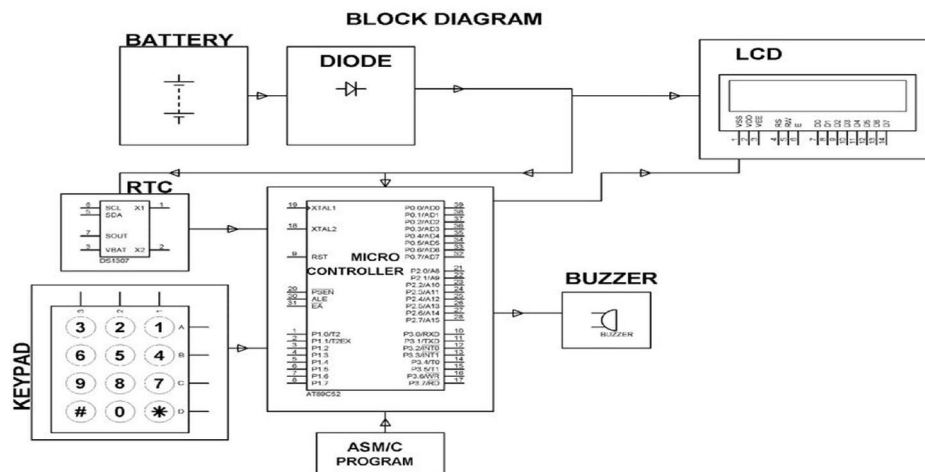
OBJECTIVE

Medication reminders help in decreasing medication dispensing errors and wrong dosages. The Reminder system consists of two parts –setting Alarm and getting notification. Set Alarm module- It helps in reminding about the medicines. User can add details of his dosage schedules.

BLOCK DIAGRAM:



PROJECT BLOCK DIAGRAM



Working of Project

- The project uses one RTC (Real Time Clock) for Real Time Reference interfaced to Microcontroller pins.

- A Matrix Telephone keypad is used to enter multiple Timings for multiple medicines as per the program displayed on the LCD.
- Enter /set the time for RTC,after that set the medicine times.
- When the programmed times of the clock reaches the set time and o/p is logic 1 ,sound a Buzzer which is to draw the attention of the
- person to view the name of the medicine on the LCD for taking the same in right time.

According to the proposed methodology, the following block diagrams were proposed to meet the requirements of the system. The heart of the transmitter unit is the accelerometer. This can be a two axis or a three axis static accelerometer connected to the analog inputs of the controller. It is interfaced with the controller to sense the acceleration. The controller is the second stage of the transmitter. The controller processes the data from the accelerometer and if the conditions are satisfied it sends the data to the next stage that is the transmitter. We have proposed and implemented an RF transmitter for its simplicity.[1] Another input to the controller is from push button which is used for emergency.

List of Hardware and/or Software Tools Hardware:

- PIC 16F886 microcontroller
- MEMS sensor
- PCF 8563 RTC
- Voice Module APR33A3
- Amplifier
- 16*2 LCD Display
- Keypad
- Regulator
- Resistor,Capacitor
- Alarm
- Transistor

Software Tools:

- PCB wizard for PCB designing
- Protel SE99 for Circuit designing
- MPLAB IDE software
- EMBEDDED 'C' language

APPLICATION

- The system is very useful in hospitals as well as in house as it can be installed anywhere very easily.
- It can be used in the hospitals to remind patients about their medications .
- To monitor health of the elderly people.

III. CONCLUSION

Hence an attempt is made to design a device which not only acts as an alarm system but also can measure the parameters of the body and the attempt is successful. We conclude that this device can be used for better medical monitoring and medication. The voice module gives perfect reminder for the medicines so that we will not forget at any time to take our medicines. And the addition of heart rate sensor and temperature sensor provides better health monitoring for elderly people

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