Intelligent Medicine Box

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ABSTRACT

We are connecting some patient monitoring sensors to monitor the health of patient continuously. The patient data is sent to Doctor PC. On Doctor PC we are displaying the data .If any of the parameters exceed Normal set points then the doctor will update / change the Medicine and send it to Medicine BOX. The accelerometer is used to measure the tilt of Medicine box. The user can set the medicine time at which the patient is supposed to take the medicine. The μC will continuously compare the current time with the set time. We are interfacing the fingerprint sensor to μC for security purpose.

Keywords: ARM7, Patient Monitor Sensor.

I. INTRODUCTION

Most of the people, from young age to the old age forget to take medicines on time. The elder people also forget which medicine to take at particular time. There should be a means to always remind such people to take medicines on time. This paper presents a intelligent Medicine box [1] to users who regularly take drugs or vitamin supplements, or nurses who take care of the older or patients. Our medicine box is programmable that reminds the nurses and users which specific pill to take at particular times of day and serves at those times each day. It contains three separate boxes. Therefore, nurses or users can set information for three different pills. When the pill quantity and time have been set by making use of the keys provided, the medicine box will remind users or patients to take pills using sound and light. The specific box from which the pill needs to be taken will be displayed by a led placed on the corresponding box.

II. PROPOSED SYSTEM

The block diagram of this system shown below.
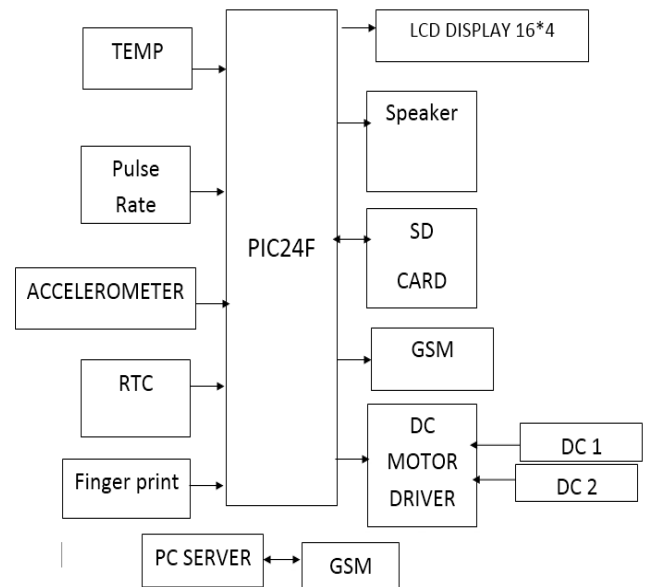
Figure 1: Block Diagram of Intelligent Medicine Box

The system basically consists of:
1. Patient Monitoring
2. ARM7 Microcontroller
3. LCD Display
4. Accelerometer based Tilt sensor
5. Real time clock (RTC)
6. Fingerprint module
7. Drawer model
8. Visual Basic Server

1. Patient Monitoring:

Here we are connecting some patient monitoring sensors to monitor the health of patient continuously. The patient data is sent to Doctor PC (GUI). On Doctor PC we are displaying the data. If any of the parameters exceed Normal set points then the doctor will update / change the Medicine and send it to Medicine BOX. The medicine BOX will then change the medicines to be given.

2. ARM7 Microcontroller:

LPC 2148 belongs to ARM7 (Advance Risc Machine) family. It has high clocking speed and provides enhanced interfacing features with external devices. It needs low power for its functioning thus suiting for this project.

3. LCD:

Liquid-crystal display (LCD) is a flat panel display, electronic visual display, or video display that uses the light modulating properties of liquid crystals. Liquid crystals do not emit light directly. In our project 20X4 LCD is used to display the information about Medicine box such as the Number of medicines in each sub-box and Remaining medicines in sub-boxes after consumption of medicine.

4. Accelerometer based Tilt sensor:

The medicine Box should not be tilted beyond a certain angle otherwise the medicine may get mixed. The accelerometer (tilt sensor) is used to measure the tilt of Medicine box. If the tilt is more than a certain limit then a we are announcing it via speaker via SD card.

5. Real time clock (RTC):

Here we are using the RTC clock for real time. The user can set the medicine time at which the patient is supposed to take the medicine. The µC will continuously compare the current time with the set time. If the time matches then we are announcing it via speaker via SD card and the corresponding medical drawer is opened for patient. The number of pills to be taken is displayed on LCD.

6. Fingerprint module:

Here we are interfacing the fingerprint sensor to µC for security purpose. The medical box will open only when and valid Finger print is shown. Since we are using a Biometric sensor it is highly secured.

7. Drawer model:

In the project we are building our own robotic Drawer model which can move forward (Close) and Reverse (Open) using 2 separate DC motors.

8. Visual Basic Server:

We are developing our own server in which the doctor can see and change the medicine to be taken. The server and Medicine box will communicate via GSM modem (SMS).

III. CONCLUSION

There is a great need for timely intake of medicines which is often skipped by many people. Our Smart Medicine Box helps to remind us to take medicines regularly and also which medicine to take. Thus this implementation, though small and simple, will be a very great and useful step in the field of medicine.

IV. REFERENCES

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