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Review Paper for Smart Medicine Kit

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Abstract: Due to changing lifestyle, health has become a major concern for us. Most of the people have to take medicine to survive and because of their busy life they often tend to forget to take their medicines. Therefore, in order to remind a person to take medicine regularly on time, we have made 'a smart medicine box'. This device reminds the user to take medicine on time, in addition to it the other special features are reminder when the medicine gets over and a panic button that can be used in case of emergency.

Keywords- Smart medicine box, health monitoring, old age patients.

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I. INTRODUCTION

This project is microcontroller based smart medicine box. The smart medicine box is having seven separate sub-boxes. So that the nurses or users will have the information of medicine for seven different day. As the box is programmable, the user can set information of timing and the name of medicine to take at a particular time. When the quantity of the pills and time to take it have been set, this medicine box will remind patients to take pills using signals of sound and light.

The required specific pill to be taken will be displayed on the LED segment. As compared with the traditional box which is required to load the box every day or every week. Our smart medicine box would provide the comfort to nurses or users, as they are not required to load the kit frequently for users.

II. ARCHITECTURE AND WORKING THEORY

The five major components are used for this device, including a pill box containing seven separate small boxes; a speaker module; a keyboard; an ARM microcontroller; seven segment LED display (7 units); and a 2*16 characters LCD screen.

HARDWARE USED

- Raspberry pi
- Medicine box
- Keyboard
- 2*16 LCD display
- Speakers
- Wires
- LEDs
- USB cable
- Buzzer

Keyboard: It is used for entering the name of medicines, its dosage.
LCD:

- Pin 1 of the LCD module is connected to the ground.
- Pin2 is connected to the power supply of the MCU.
- Pin 3 connects to the wiper of the 10k trim pot.
- Pin 4 is the register select, which is connected to the C.I.
- Pin 5 is the data read/write, which is connected to C.1.
- Pin 6 is the enable signal, which is connected to C.2.
- Pin 11 to pin 14 are the data bus, which are connected to C.3-C.7.
- Pin15 and pin16 are the LED power and ground for the backlight.
- The optimal power and current for the led backlight is 4.2V and 20mA.

Microcontroller: We have used Raspberry pi 3 (model b). Chipset: Broadcom BCM2837.

CPU: 1.2 GHz quad-core 64-bit ARM cortex A53. Ethernet: 1O/1OO (Max throughput 100Mbps).
USB: Four USB 2.O with 480Mbps data transfer.
Storage: MicroSD card or via USB-attached storage. Wireless: 802.IIn Wireless LAN (Peak transmit/receive throughput of 150Mbps) Bluetooth 4.l.

Graphics: 4OOMHz Video Core IV multimedia.

Memory: 1GB LPDDR2-9OO SDRAM.
Expandability: 4O general purpose input-output pins.
Video: Full HDMI port.
Audio: Combined 3.5mm audio out jack and composite video. Camera interface (CSl). Display interface (DSl)

III. BLOCK DIAGRAM

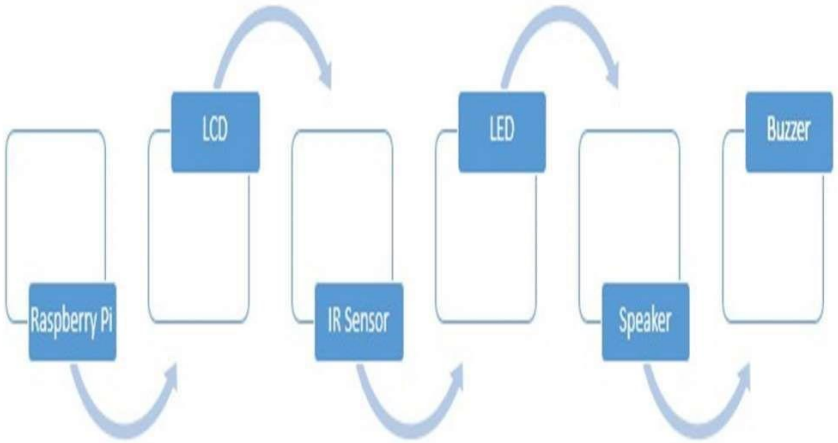

Figure 1: Block Diagram of Smart Medicine Kit

IV. WORKING

First of all, the IR sensor will check for the availability of medicine in the box. If the medicines would not be present in the box, the LCD will display the unavailability of it. Then the user will put the medicines in respective columns. If the medicines would be available, the LED of respective column will glow so as to remind to have that particular medicine and the buzzer will beep for one minute. After every six hour, the IR sensor will check the availability of medicine. All the instructions would be displayed on the LCD and the same would be heard by the user as the instructions would be translated into speech by the E-speak software. The LED will glow along with the beeping of buzzer. The options are selected by the keypad present in the medicine box. The software will run automatically in the kit. The software is VNC Viewer. It enables us to transmit a duplicate of remote computer's display screen to the viewer. Thus, whenever we have to select an option we do it by selecting our desired key from the keypad and the command will be executed.

V. FLOWCHART

Figure 3: Flow Chart

VI. ACTUAL FIGURE

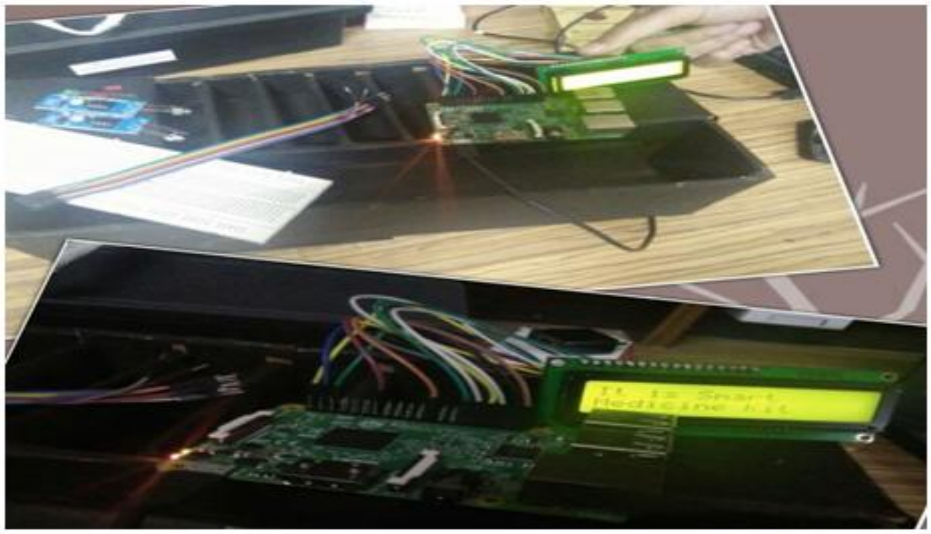

Figure 2: Actual Figure of Smart Medicine Kit

VII. CONCLUSION

We presented an interactive embedded measurement of daily activities through usage of sensor data. Thus, our goal is to provide a hassle-free life to the users who take medicines regularly and to provide this product at the affordable price also. It ensures that the patient consumes the correct dosage of medicine at the correct time, provided he/she accepts this new, unusual method of medication.

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