

Health Alert and Medicine Remainder using Internet of Things

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Abstract- In today's life, human beings face difficulty to keep in mind the medicines they required to take. This paper proposes a model of automatic medicine reminder and apothecary system. This system can relieve unevenness in taking recommended dosage of pills on time prescribed by the doctor and switch from ways primarily reliant with the memory of the human being insignificant regulation, hence people can be freed doing wrong things due to human error like taking pill at different time with incorrect dosage. Various medicine boxes exist in the market. The proposed medicine box would help people who are under medication mainly for old persons to take the medicine on time without forgetting. It also continuously monitor the people's health condition like Blood pressure, ECG through the sensors kept at home and inform them to take necessary action. A person's life can be saved by this system. Human effort can also be decreased by this health alert and medicine remainder.

Keywords-smart medicine box; health care; meditation safety

I. INTRODUCTION

Now a days, monitoring healthcare by 24x7 and apothecary services needs a large cost and manpower. This, added with the intrinsic absentmindedness of human being can result in severe flaws, frequently leading to carelessness, dangerous situations and depression. Often we cannot understand the damage we impose on our body by not taking medicines on time, putting off intake or leaving in halfway on the whole, or wrongly taking the wrong quantity. Some of the key areas have been aided by automation and technology to eliminate human fault. A preferred level of efficiency can be attained by taking medicines on time. This is as yet not seen as a zone which could be facilitated via computerization and present day innovation.

The proposed medication update and gadget incorporate a few compartments for holding distinctive sorts of drugs, for example, tablets, containers and so on. The ideal opportunity for the following pill is shown in a LCD screen and messages are created when the time comes to, alongside LED flickering implying which compartment to open. At the point when a compartment is opened by the patient, this is identified by a sensor and light is reset, alert gets napped.

Regular medication containers could be updated into a programmed multi-pill update and gadget for simplicity of activity and ease of use. The proposed model of medicine box – an automated medicine reminder is designed with the help of

a micro controller. This micro controller is used to keep track of when a patient should take his/her pills.

II. RELATED WORKS

All patients face difficulty to adhere to the prescribed medication plan. This is particularly tough for elder people. Medication adherence needs a healthy connection between the patient and the medicine prescriber. The useful medical prescription should have i.e. the management plan, future advantages unfavorable effect and expenses. Elder persons are not adhering to medications commonly. The primary reasons differ among patients [1].

Automatically dispensing the pills is used where the patients will get the pills out of the storage compartment , twelve storage compartment are kept vertically with pre loaded medicine. It has pills to be taken for 24 hours automatically the pills will be dispensed and the patient will have the pills once it is dispensed [2].

An electronic device such as mobile phone any other portable device as a reminder to remains the medicine. Making use of the existing electronic gadgets the user will be alerted about their medicine . The electronic gadgets acts is used as a self care device [3].

The ineffective or wrong medication is the main cause for health failure, so a method is proposed like the hospital suggestions are given to the patients based on the heal condition and promotes the medical care by avoid giving wrong drug [4].

The current trend in the medicine remained with electronic medications were analyzed and discussed the use of new technology in the heal care challenges [5]. Use of mobile app for the medications were proposed where the mobile app is developed an automatic medication reminder is given to the patients mobile phone . This is mainly applicable for urban population .Because most of the people living their will not have time to take the medicine on time due to their busy work [6].

The SMS framework is utilized for wellbeing checking because of its colossal application in numerous organizations and it is additionally remote. The information gathered through sensors are changed over to advanced shape and sent to the microcontroller for further preparing from it subsequent

to handling the information is sent to a visual fundamental programming for graphical UI [7].

The heart pulsates are observed utilizing the sensors and alarms the client about the heart beat rate utilizing the IoT gadgets. The principle preferred standpoint of this framework is it spares the life of people. The sensor is associated with the microcontroller where the microcontroller is modified to check the heart beat rate and transmit over internet [8].

III. PROBLEM STATEMENT

This is a simple IOT device using a Micro controller to receive inputs and send outputs. In the proposed system IOT were used to intimate the patients to take medicine on time by using a buzzer sound and the name of the medicine is displayed on the LCD screen along with the dosage of the medicine. This system get the external input from the IOT devices and the system is used to relay the buzzer supply for informing the patients. This system also alerts if the body condition is normal to the user and their relatives or doctors for further action.

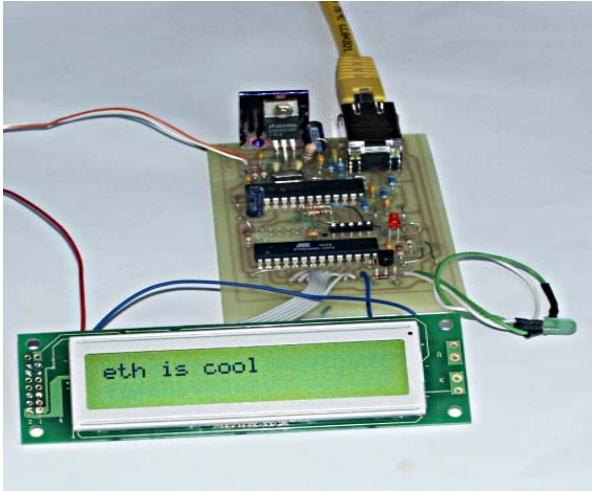


Fig.1. LCD Interface with MicroController

IV. HARDWARE DESCRIPTION

Arduino does the function of a computer where the hardware projects can be build using the software programmed on the micro controller. It is a kid for building the digital objects and make them to work in a real time application. Since the Arduino is a open source platform it is easy to used with less cost. It can be connected to other components like sensors, actuators and transmitters to receive and send the signals.

The LCD is a liquid crystal display. There are various sizes in the LCD. The display can be done based on the applications like 8X1, 8X2 and so on. The function of the LCD is to get the data from the micro controller and displays the information as programmed in the micro controller. Figure 1 represents the LCD interface with the micro controller.

A buzzer is used to give the alert symbol. It is also known as signaling device. It is embedded with all the system with the micro controller. The micro controller send the message to

Buzzer and alerts the user with a beep sound . They are the integrated electronic transducers.

A. Hardware Integration

The model for the proposed system has mainly the transmitter section and the receiving section . The transmitting section has the IOT devices placed at the house and gets the input through sensors and transmits the data to the receiving section.

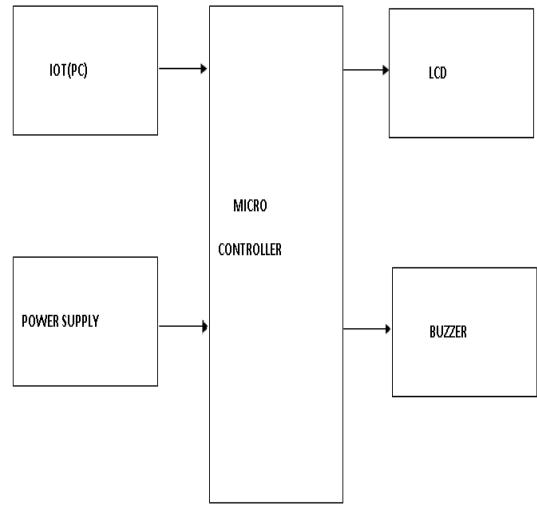


Fig. 2. Receiver Section

The receiver section is mentioned in Figure 2 where the micro controller receives the data from various sources.

V. SYSTEM IMPLEMENTATION

The sensor collects the data and store it in the data base. The data analysis is done on the data base to check if the symptoms are normal or not and intimates if the system is abnormal or reaches below the threshold. So the value are collected and stored. Each data a value is set for example the range of ECG and Blood Pressure capture to sensor is checked for the normal range. If it falls below the range it gives an alert to take the medicine or to consult the doctor.

Algorithm: Medicine Remainder and Alert

1. Start.
2. Get Medicine Schedule.
3. Check for the body conditions (by getting the data and 4. Checking with the data base).
- 5 If normal
 Notify the medicine schedule.
7. Else
 Notify for doctors consultation.

The above algorithm is coded and integrated into the micro controller where the micro controller gives instructions to the patients or doctors through the cloud. If the conditaion of the patient is normal it will be intimated through the buzzer in the medicine box.

Programming Modules

Using the code the system can be automated and customised in a way that the user needs. The database is a personal computer RDBMS product like oracle . The front end are designed using the VB. The data are stored in the table format.

A. Login page:

This is the first page that opens as soon as you click on run command. We need login and give your own credentials such as username and password and login to the account.



Fig. 3. Login Page

B. Process page :

Once the user logins, the connection should be established between the desired device and the software. After successful connection, the user an can either update or add the medicine to the database along with the desired dosage and time which the medicine should be taken.



Fig. 4. Process Page

C. Update page:

The user can add any new medicine to the database along with the time.



Fig. 5. Update Page

D. Modify Page:

Incase if the user want to change the dosage of medicine or the time which the medicine need to be take, the user can easily modify the specifications of the medicine.



Fig. 6. Modify Page

The programme coded in micro controller is in figure 7

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Done compiling.

Archiving built core (caching) in: C:\Users\achhil\appData\Local\Temp\arduino_cache_381390\core\core_esp8266_esp8266_nodeMCU_1.0 (ESP-12E Module), 80 MHz, 4M (1M SPIFFS), v2 Lower Memory, Disabled, None, Only Sketch, 115200 on COM4

Sketch uses 268276 bytes (25%) of program storage space. Maximum is 1044464 bytes.
Global variables use 35328 bytes (43%) of dynamic memory, leaving 46592 bytes for local variables. Maximum is 81920 bytes.

1 NodeMCU 1.0 (ESP-12E Module), 80 MHz, 4M (1M SPIFFS), v2 Lower Memory, Disabled, None, Only Sketch, 115200 on COM4
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Fig. 7. Arduino Compilation

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Uploading

Archiving built core (caching) in: C:\Users\achhil\appData\Local\Temp\arduino_cache_381390\core\core_esp8266_esp8266_nodeMCU_1.0 (ESP-12E Module), 80 MHz, 4M (1M SPIFFS), v2 Lower Memory, Disabled, None, Only Sketch, 115200 on COM4

Sketch uses 268276 bytes (25%) of program storage space. Maximum is 1044464 bytes.
Global variables use 35328 bytes (43%) of dynamic memory, leaving 46592 bytes for local variables. Maximum is 81920 bytes.

Uploading 373816 bytes from C:\Users\achhil\appData\Local\Temp\arduino_cache_381390\core\core_esp8266_esp8266_nodeMCU_1.0 (ESP-12E Module), 80 MHz, 4M (1M SPIFFS), v2 Lower Memory, Disabled, None, Only Sketch, 115200 on COM4

Report for 11.05.2018 Memory: 32 MB, 400 KB SPIFFS, 0 KB Lower Memory, Download Time: Long Sketch: 115200 at 80 MHz
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Fig. 8. Arduino Execution

VI. CONCLUSION

A model for the medicine remainder and also health monitoring for elderly persons at home is proposed using a simple electronic application. This systems can easily detect the abnormalities in the body condition and also reminds of medicine to take through the buzzer and the LCD display. The user relatives or doctors were also informed about the abnormal conditions. The advantage of this is it is a convenient way to use by people of any age and people busy with their work will not forget to take medicine. It also takes care of the people health by alerting during abnormalities.

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