Smart Medicine Reminder with Smart Watch Using Arduino Nano

Ranjitha¹, Shefali Shetty², Srilaxmi Upadhyaya³, Teena Lobo⁴, Prof. Santhosh S Nayak⁵

¹,²,³,⁴,⁵Department of Electronics and Communication, Alva’s Institute of Engineering and Technology, Moodbidri, Karnataka, India

Abstract: For elderly people, there is a need to design appropriate product and medication is one of the important component related to them. Management of medication is very important for acute illness and long term conditions. In Aged people, due to physical and mental function decline, they need to take number of drugs. In such scenario, management of complex medication is required for avoiding before it seriously affects health. Forget to take prescribed medicine is one of the problem, so there are several products designed for solving problem, such as electronic medication reminder device, smart phone reminder applications and many more. However, it is not possible for all elderly people to make use of smart phone. This paper proposes a system that will help not only elderly people for medication reminder but also person who is suffering from Alzheimer disease. Proposed system is combination of Smart watch and pillbox which will help user to manage complex medication regimes. Patients need not remember their medicine dosage timings as they can set an alarm on their medicine dosage timings. A led is placed in pillbox which blinks at particular time to take medicine. The alarm can be set for multiple medicines including time and medicine description.

Keywords: Smart watch, Pill box, Arduino IDE software, GSM technology

I. INTRODUCTION

In-taking of genuine estimations at proper time is an obligatory thing of every patient on the planet. The patients may incorporate kids, understudies, businessperson and matured people. They are constantly occupied with their everyday work. If they would encounter the evil impacts of any afflictions or sickness, by then it is critical to take their correct portions gainfully, especially senior individuals. If there should be an occurrence of senior residents, relatives are the person who should help the patients however because of their bustling calendar this isn’t conceivable. Because of this distinctive issue emerge, for example, taking unpredictable medications because of patient’s bustling calendar and absence of information about the drug. By then it is essential to take the best possible prescriptions for their extraordinary prosperity.

As the expense of the in-home restorative consideration rises, every individual search for a productive contraption to manage their medications fittingly. Despite the fact that there are diverse medication remnants it has been hard to work by elderly individuals. To maintain a strategic distance from such circumstances brilliant drug leftover portion is produced to assist the patients with taking appropriate measurements adequately. The fundamental preferred standpoint of this framework is that elderly individuals can work this framework effortlessly.

II. LITREATURE SURVEY

Gomathi et al [1] introduced a paper, the objective of this undertaking is to help the patients for the confirmation of prescriptions at the ideal time. In this paper the time and drug names are changed by the patients through the keypad associated. The rundown of medications must be taken by the patient at the endorsed time is shown on Character Liquid Crystal Display (LCD) and the time is shown on seven segment show. So in this manner the status of the patients can be effortlessly observed by the doctors. This is actualized utilizing Unified Technology Learning Platform. In this framework, Advance Risk Machine (ARM) cortex processor is utilized which depends on ARM form 7 engineering the fundamental purpose for utilizing this processor is because of elite and power proficiency.

Priyadarshini et al [2] proposed a paper on automatic medication reminder, this novel idea provides information to patients to take the right dosages at right time. It is necessary to the patient to take correct medicines at right quantity and time. A novel Automatic Medication Reminder (AMR) system is proposed in the paper. The proposed system is used to give information to patients automatically for taking proper dosage at accurate time which is mentioned in the prescription schedule. All the above details are done with the help of Master IC, keypad, LCD display. After that the controller is interfaced with RTC module to track the current time. All the three commands including Number of Tablets, Set time, Current time are displayed with the help of LCD display. LED indications and beep sound will be happened at corresponding medicine (tablet) container boxes. Similarly it can give the information for noon and night time also. This novel device is economical, smaller in size, better accuracy and less complexity in operation.

Lavima et al [3] presented a paper in which an embedded system is capable of taking care of the patients from all aspects. This project gives an experimental idea of patient’s health condition and monitor environmental conditions. This system is designed using Zigbee and wireless sensor network...
to monitor and evaluate patient’s health condition. The Wireless Sensor Network (WSN) setup used for monitoring smart home consists of fabricated electrical sensing units. These are installed at an elderly home to monitor patients daily activity in terms of object usage and execute effectively process. The electrical sensing units connected to various household appliances in this proposed system implemented a health monitoring platform such as temperature heartbeat fall occurrence and in addition to these gives an alert message to caring person or hospitals by using GSM technology.

Sharma et al [4] presented a paper on Medicine Reminder Application using Android. This paper focuses on the development of a mobile application to help to provide an effective healthcare system. This is an android based application in which alarm is used which may be closed by tapping the close alarm button under the image of the medicine which is to be taken at that particular time. In this Android application named Salburity, whose objective is to remind the patients of their dosage timings through alarm ringing system so that they can be healthy. Through the image popping with the alarm, they may remember which medicine is to be taken. It allows users to set an alarm along with the fields of date and time which allow them to set alarm for multiple medicines at different intervals. Android is Linux-based operating system designed mainly for touch screen mobile devices. The application intakes the input to the system as a information entered by the patient which includes date, time and medicine’s image. The output of the system focuses on “Medication Adherence”. Medication adherence usually refers to whether the patients take their medications properly. After saving the name of medicine, alarm rings on its respective time. The application also provides the health related quotes and the list of doctors along with their names, their specializations and their contact details.

Pande et al [5] presented a paper on Medicine intake schedule and reminder. In this paper mobiles are used for communication using GCM. In GCM the messages are sent as push notifications. This alarm action sends an emergency message to the user’s emergency contact which is registered and family and doctor. To locate the user this message can contain the location information of user. The smart phones nowadays provide internet service. This allows doctor to send the new/modified prescriptions on the patient’s smart phone. This in turn updates the user’s reminder schedules automatically. These updated prescriptions will be sent over the internet using Google’s service known as Google cloud messaging. This system will provide the accurate information of medication timing and quantity to be ingested. In the future using other applications can be need for better performance and easier access for the users. OCR will be introduced to scan the details of medications. It will also focus on more ways for achieving medication adherence.

Wu et al [6] presented paper on smart pill box. Smart pill box is equipped with a camera and based on the medicine bag concept. The matrix bar codes printed on the medicine bags are used to interact with the pill box in order to perform pill remind and confirm functions. The camera is placed on the inner side of the cover to detect the matrix barcode and the medicine bag. A user interface on the surface of the cover is used to provide pill remind and alarm functions. After visiting a doctor and returning home, a patient need only scan the matrix barcode using the camera of the pillbox, and all medicine related information will be loaded into the pill box. After the matrix barcode is scanned, the patient places the medicine bags in the pill box without dispensing the medicine in to the cell. This method is suitable for the elderly who do not have access to the internet as well. To improve medication safety among the elderly, this paper proposed a smart pill box which remind and confirm functions. The proposed pill box can reduce family member’s responsibility towards ensuring the correct and timely consumption of medicines.

Sonawane et al [7] presented a paper in which a new kind of device is proposed to make an automatic medicine reminder for the health context. In this paper system which reminds medicine through automatic process. The proposed system consist of Raspberry Pi Module, GSM Module, Secure Digital (SD) Card, RTC, power supply, Ethernet interface for Internet access, and smart phone. The proposed system is implemented around Raspberry Pi processor. In this system, the user has to set the timer by means of a processor. The proposed system is very useful for older persons who suffered with chronic diseases like Diabetic and also different types of cancer and for pregnant women as well. This project can implement using the Raspberry Pi and GSM module. By using this system text message as well as Broadcast message can be sent.
particular coloured compartment of pillbox, the smart watch alarms by blinking an rgb led of that colour. A buzzer placed in pill box also beeps for some time and if the patient does not open the pill box then a message is sent to the relative or friend. A GSM module is interfaced with the arduino microcontroller in order to achieve this objective effectively. Date and time of the smart watch is set using a RTC module.

IV. CONCLUSION

The proposed system is a Smart Medicine Reminder which is simple to use, affordable and have better accuracy. This system is cooperative for old age people and Alzheimer patients. Project comprises pillbox which can be carried by patients and also a Smart watch which reminds the patient by alarming on dosage time. If patient do not take medicine even after alarming then a message is sent to the family member through GSM. This system will definitely reduce the bad effect caused due to wrong intake of medicine. This project in future may be more desirable by adding more languages and adding buzzer to it.

REFERENCES


[7]. Nitesh P. Sonawane, Vijay D.Chaudhari, Dr. K. P. Rane, "automatic medicine reminder with rtc interface through mobile &whatsapp", international journal of innovative research in technology August 2016.