



# **Artificial Intelligence Based Patient Medication Reminder System**

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**ABSTRACT:** Elderly people usually forget to take their drugs because of their age. The objective of this project is to remind people who forget to take medicine on time. This project will help to remind the patient to take his or her medicine at the time specified. The proposed system is best suited for old persons and those who are busy in their day today's life, as this device will now most effectively remind them of their drug treatments with a voice command however also shows the call of the medication to be taken at that time. The patient can store the time of the unique medicine using a keyboard. Raspberry pi is the microcontroller used for this project. In conjunction with a voice command, the programmed time for medicine is displayed on the LCD to alert the patient about the best medicine.

**KEYWORDS:** Raspberry pi, LCD, Microcontroller, Keyboard, Speaker.

## **I. INTRODUCTION**

With the enormous increase of medical technology, many terrible diseases are cured by the intake of several new medicines. The number of medicines each person has taken has increased. It has become difficult for us to remember to take medicines at a given time. Our intelligent medicine reminder system is designed to help elderly people take care of themselves at the right time and in the right amount. It was observed that people generally neglect their health and prefer to take their medicine. That is why they forget to receive their prescriptions on time. Many healthcare organizations, healthcare professionals and medical researchers have realized that increased use of patient reminders can significantly increase chronic disease treatment and the provision of medical services to patients in need. Several organizations have themselves started implementing the patient medicine reminder system in the health care field and it is currently being implemented in several hospitals in the western countries to see if the method reaps any benefits. Many patients and particularly the elderly do not take their medicines in the right time. They either take overdose of medicines in order to heal them more quickly, or they fear that the doctor has prescribed a larger quantity than is required and takes them under dosage.

In addition, some patients are so busy with their daily activities that they simply forget to take their medicines. This applies especially to elderly patients who need to take more than one medicine more than once a day. Alarm clocks are a tedious task that patients are too lazy to set up over and over again. When asked what time people have to take their medicines, many forget to answer the right times or remembers if they already took the medicine during the day. Elderly people face this problem in particular because of their degrading memory and in severe cases forget that they have already taken their prescription 2 or 3 times in the same duration. This may not be harmful to lighter medicines, but it may have further harmful effects on the body for some strong and concentrated medicines. This is exactly where our system of medicines can help. Our system can also be useful in hospitals where numbers of patients are present and medicine and staff dosage are sometimes difficult to remember. This system can also be used in hospitals with some updates. The problem such as 1) maintaining the regularity of the prescribed dosage is difficult to remember in busy schedule 2) remembering the name of the medicine to be taken is really difficult 3) the patient's life can become more complicated due to two reasons above. These problems are caused by non-adherence to medicinal products. There is



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therefore urgency for in-house medical devices and technologies to provide patients with electronic tools to support the self-management of medicines.

## II. OBJECTIVES

- 1) To provides fast curing of patient health by using our advantageous system.
- 2) To help peoples to take their medicine on time.
- 3) To help patients to take the required medicine in the right proportion without failure and to make daily medication simple and efficient.

## III. LITERATURE SURVEY

Mei-Ying Wang et.al, introduced Wedjat, which can be used to remind its users to take the correct medicines on time and to keep the medicine record and other things for health professionals to review [1].

Guanling Chen, et.al, Proposed Patient compliance system (MPCS) based on mobile phones that can minimize the time-consuming and error-prone processes of existing self-regulation practices to facilitate self-reporting, non-compliance detection and compliance reminders[2].

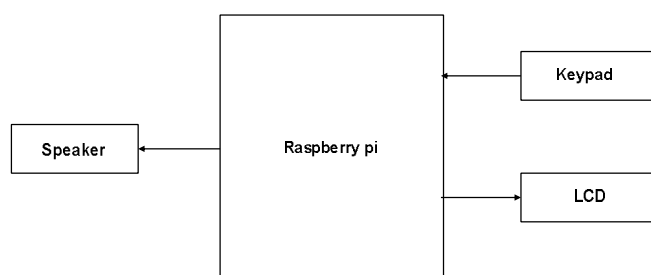
Mark Donnelly et.al, Developed such a system in which reminders can be delivered at different times of the day as a series of static audio messages such as lunch and a doctor's visit.

This system is designed to offer support through control for the environment as well as delivery of reminders via touch-screen device embedded in the home [3].

Chihwen Cheng et.al, designed prototype of a Sickle cell disease Reporting as well as Monitoring Telemedicine system (Sickle REMOTE), focusing to resolve limitations of conventional monitoring diaries [4].

Mobile health (mHealth) is an innovative application of space information technology used in the field of health as one of the important developments for eHealth.

## IV. PROPOSED SYSTEM



The proposed prototype system consists of raspberry pi-zero microcontrollers, LCD, keypad (push button), .The brain of the system is raspberry pi microcontroller which controls the function of the system and performs all the tasks. No external peripheral devices and memory devices are required. Initially the raspberry pi interfaces with keypad and LCD display. Basically two processes is required to be done

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1) Enter the name of medicine to group 1 and if the system is used for more than two people then we can also use group two.

2) By using the keypad enter the time for the dosage as prescribed in the prescription. The name of medicine and the is displayed on LCD display unit and voice Module gives the voice command on time at which medicine is required to be taken.

Fig .1 shows the prototype of automatic medicine reminder system which can be handled easily and simple to use. This system makes the work of patient very easy. The user just to need to update the system once and after that system will perform all the tasks itself. This system just not reduces the complexity but is also reliable for use.

**Keypad:** This is keys which respond to specific row and column. In case of keypad both the ends of switches are connected to the port pin. The design has demand for a  $4 \times 3$  keyboard i. e. four rows and three columns, altogether 12 keys, where ten keys used for numeral input and remaining two used for adjusting the real-time parameters.

**C. Liquid Crystal Display (LCD):** This  $16 \times 2$  LCD display in the proposed system is used to display the current time, time of intake of medicine and the name and group of medicine. A liquid crystal display is a flat panel display or other electronic visual display that uses the light-modulating properties of liquid crystals.

**D. Speaker Module:** The speaker module is used to play the synthesized sound to remind the user to take medicine.

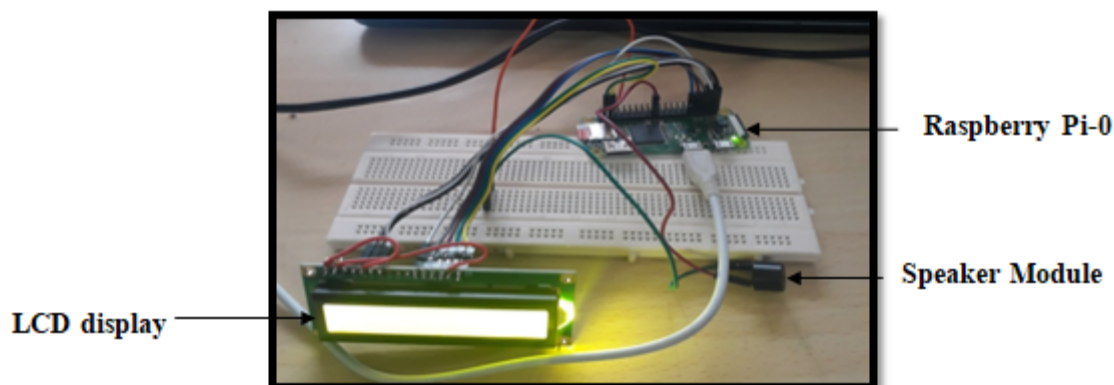


Fig. (1)

This figure shows the actual connections of the system which consists of Raspberry Pi-0, LCD display ( $16 \times 2$ ) and speaker module for the voice assistance.

The patient will get regular reminder about the medication through voice assistance as well as buzzer.

### V. CONCLUSION

There is a great need for the timely intake of medicines, which many people often miss. Our intelligent medicine box reminds us to take regular medicines and which medicines to take. This implementation, however small and simple, will therefore be a very important and useful step in the medical field.

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## VI. RESULTS



Fig. (2)



Fig. (3)

Above mentioned fig. (2) Represents the result for Moxikind tablet which was given as an input, at the same time it gives the voice assistance (take medicine) to the patient for the same medicine at regular interval. Fig. (3) Represents the result for Aricept tablet which was given as an input.

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