ADVANCED MEDICATION REMINDER DEVICE

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ABSTRACT: The main objective of this article is developing Advanced Medication Reminder Device, Whichis mostly benefitedand advanced to use irrespective of age.As there are so many medication reminders in the market but as the technology changes the way of life living with technology changes. Keeping the advanced technology in mind this project came in to picture.Advanced medicine remainder system operates with mainly IOT Server based android application. It is integrated with all input and out modules to Raspberry pi processor. Internally integrated with RTC (Real Time Cock) timer and IOT module, externally integrated with LCD monitor, LCD display and Speaker modules to implement proposed system. In this proposed system it uses wireless IOT server based android application to give input timings and message content to voice over through speaker. Raspberry pi processor used to process the data and use internal RTC timer, as per the preferred timing scheduled in the system, Itgives alert to as a medicine remainder. This system helps to prevent life-threatening mistakes, Store their medication dates and time and giving alarm when needed according to input.

Keywords: Medication Reminder, Python, RTC, Raspberry Pi, IOT, Speaker, LCD.

I. INTRODUCTION

In today's culture, most people keep busy with their everyday schedules. It is true that they prioritise their work over caring for their health. Blood pressure and other illnesses, such as diabetes, are becoming quite prevalent. For elderly folks, taking regular medications becomes exceedingly challenging. Sometimes younger people are dealing with the same issues. Since so many individuals require ongoing assistance, it is not always possible to always remind them to take their medications as prescribed. There must be a centre that monitors patients for this reason. A smart medication reminder system is intended to assist elderly people in taking care of themselves by making sure they take their meds in the right quantity and at the right time. This is used to modern technology-based living. This technology will be useful in some way. Cell phones are best used for making calls, but they might also be used as a collection of embedded sensors to enable new services including social networks, environmental tracking, healthcare, and human services. The use of mobile devices is becoming increasingly important in today's medical care systems.IoT may be useful for tracking current events, and it may also be a practical and efficient paradigm for storing sensor device data in the cloud. The complete monitoring system will be controlled by an IoT-enabled device in this project, and an android application was created to assist patients by reminding them when to take their medications and other things.To remember patients, there are numerous mechanisms available, including alarms and reminders. The Pill Reminder will make it easier for consumers to take the proper prescription when they need it. This

technology offers a real-time monitoring system that enables connected individuals to remotely see the patient's activity. The Medication Management Concept proposes a medication reminder system that allows patients or chemists to specify the scheduling time and up to eight medical doses worth of pills. The microcontroller's real-time clock serves as the foundation for the programmed time and dosage for a certain medication. Their Smart Medicine Planner and Voice Box are connected via a Raspberry Pi3 with IOT connectivity. Finally, this system can resolve the issues after a thorough analysis of the current problems and techniques.

II.   EXISTING SYSTEM

Patients frequently neglect to take their medications, either because they forget, take them at the wrong time, or even take too much of them. As a result, there are numerous methods, including reminder and alarm systems, to remember patients. The Pill Reminder will make it easier for consumers to take the proper prescription when they need it. This technology offers a real-time monitoring system that enables connected individuals to remotely see the patient's activity.The major goal of this study is to create an android smart phone application that helps seniors live independently according to their preferences.Patients can establish their medication timings in this application so they won't need to remember them.

III.   METHODOLOGY OF PROPOSED SYSTEM

A smart medication reminder based on IOT and RTC is now being introduced. A reminder system that plays an alarm as a voice message when it's time to take your medication has been implemented for this system. Additionally, a user can specify their

medication timing using an IOT Android application. There will be several features in the programme that allow the user to learn more specifics about their medication. It keeps track of the medications, allowing the amount of medication a person needs to take to be set in the programme.
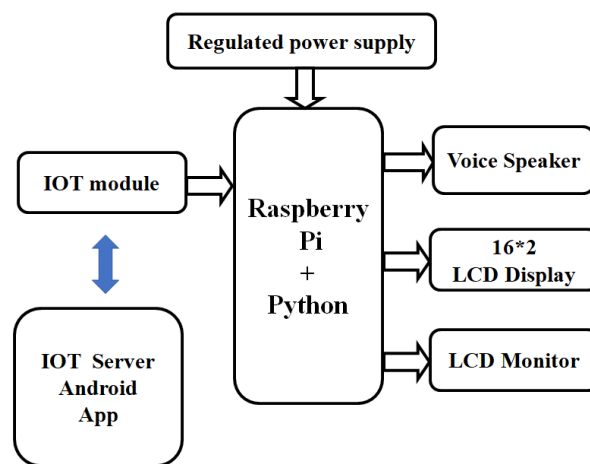

Fig.1.Block diagram

Advanced medicine remainder system operates with IOT Server based android application. It is integrated with all input and out modules to Raspberry pi processor. Internally integrated with RTC timer and IOT module, externally integrated of LCD monitor, LCD display and Speaker modules to implement this proposed system. It is designed as an Android application, in that it need to be register the medicine content with different time slots. It is provided with activation as well as deactivation of different time slots. If user doesn't want this alert then can select de-activate mode. Complete information which is provided in application it automatically read by microprocessor using internet based Ib server. Microprocessor read the time slots according to that specific time it turn on the speaker to execute voice commands along with medicine information. Everything status will be displayed on LCD module as well as LCD monitor. This instruction will execute every day until change in the commands by using IOT
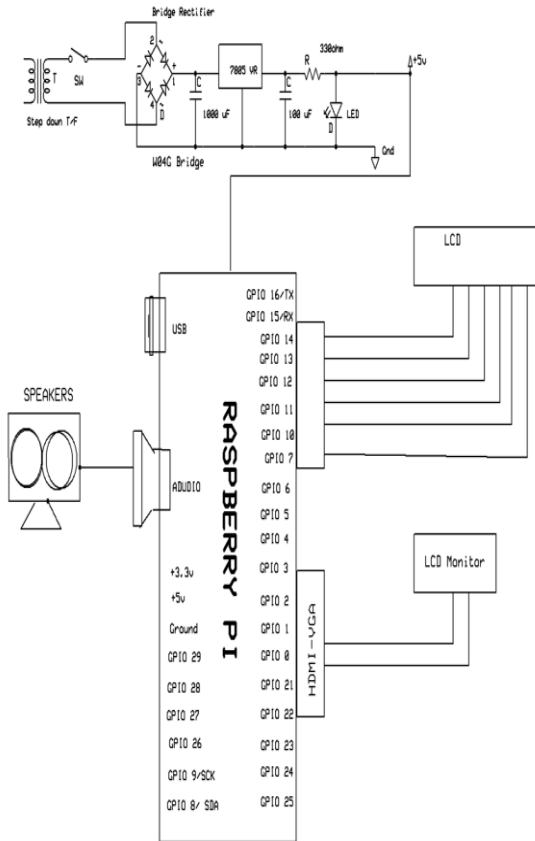
Android Ib application.

Fig.2. Schematic diagram

Fig.3. Flow diagram

In this proposed system it uses wireless IOT server based android application to give input timings and message content to voice over through speaker. Raspberry pi processor used to process the data and use internal RTC timer, as per the preferred timing schedule the system will give alert to as a medicine remainder. This system helps to prevent life-threatening mistakes, Store their medication dates and time and Giving alarm when needed according to input.
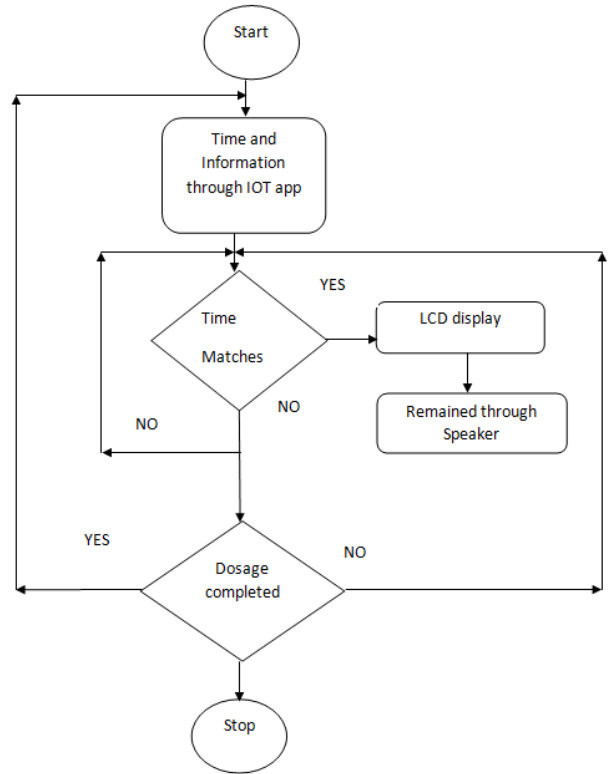
V. FUNCTIONAL MODULES

A. Regulated PoIrSupply

Aim of regulated poIr supply is generate required poIr to execute all small scale electronicsin our project. Raspberry processor, input sensors and output modules need 5V dc poIr supply. In general all areas it uses 230V AC supply for home consumers. This section is proposed to convert 230V ac to require 5V dc using supported components called step-down, transformerbridge rectifier-capacitor, filter-voltage, regulator setup.
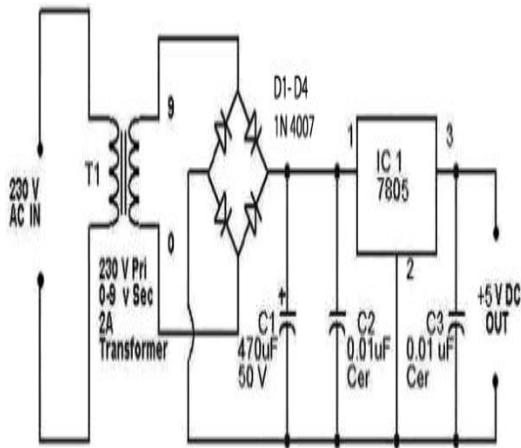
Fig.4. Regulated PoIr Supply

B. Raspberry Pi

Processor on the RPI for this next application. RPI is an ARM 11-based device having 40 GPIO pins that can be used for both input and output. This processor has a 16 GB HDD slot and 1 GB of RAM. Rasberian operating system was employed for the application's development. The best performance of the remaining controllers is this.
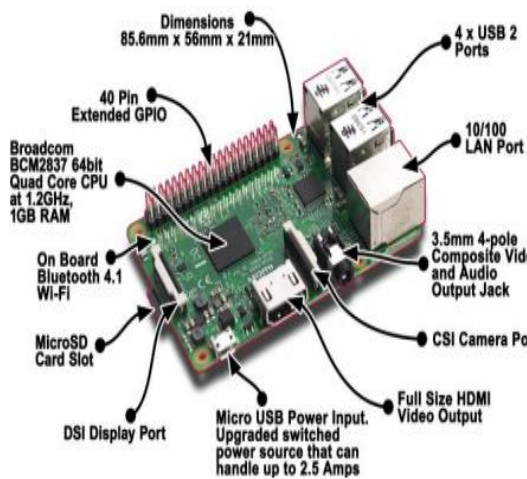

Fig.5. Raspberry Pi

C. LCD Monitor

Computer LCD monitors used here to run the python commands and embedded python programming applications.32 inches Liquid

Crystal Display monitor used to execute all programming things and show the output parameters. In this projectthe output with specific time along with specific medicine content using this LCD monitor. This LCD monitor is connected to Raspberry Pi processor using HDMI to VGA connector. It takes 230V AC supply to run this monitor.

Fig.6LCD Monitor

D. Audio Speakers

It is integrated with 3.5 mm audio jack speakers to raspberry pi processor to execute voice alerts. This speaker modules need 5V external po Ir supply to operate. In the programming it takes text based commands. When the program executed depends on the input time according voice will generate, Text commands are converted to voice based alerts done by processor. This voice commands are executed by speakers with sound amplification features.

Fig.7. Audio speakers

E. IOT- Module

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Internet of things module or ESP8266 module is used to control the agriculture robot with local server design. Wi-Fi frequency based will operate this agriculture system. This IOT module can transfer the data upto 200 meters. Using local server, controls this IoT based agri system which is internally inbuilt in raspberry pi 3 module.
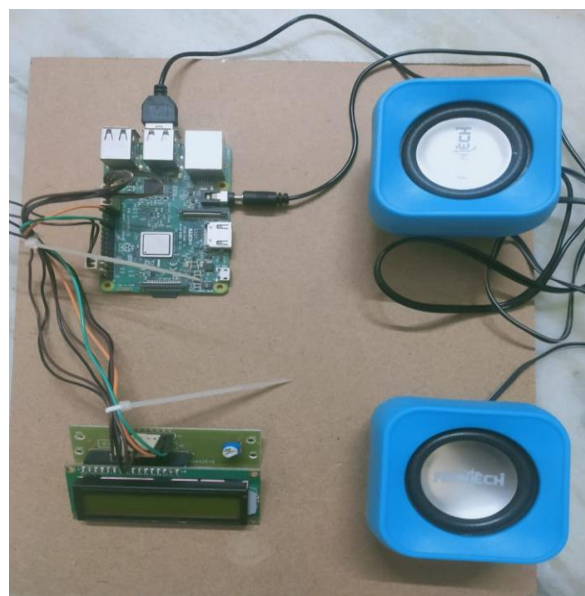

Fig.8. ESP 8266

Fig.9. Hardware setup of Advance medication reminder

F. Software

Software will play half of role in all automated applications in embedded system. Here it is proposed with very efficient IDE programming called python IDE,Written all embedded programming commands using Python IDE tool with the help of Raspberian operating system. Editing, compiling and uploading embedded python applications are done successfully using this proposed software tools.

V. RESULTS AND DISCUSSION

In this project Automatic medicine remainder system is built using Raspberry Pi, real time clock and IOT server based android application. All the input RTC, IOT and out modules are LCD and Speaker are integrated to Raspberry pi module as shown in the image below. When compare to existing and proposed system we have combined both hardware and software and taken as one project. As in existing method we has to give input either in hardware or software but in proposed system if once input is given the hardware works until we change input.

Itis provided with medicine time and medicine information through input module IOT through android application which works as input. User as to set the dosage time and medicine description.
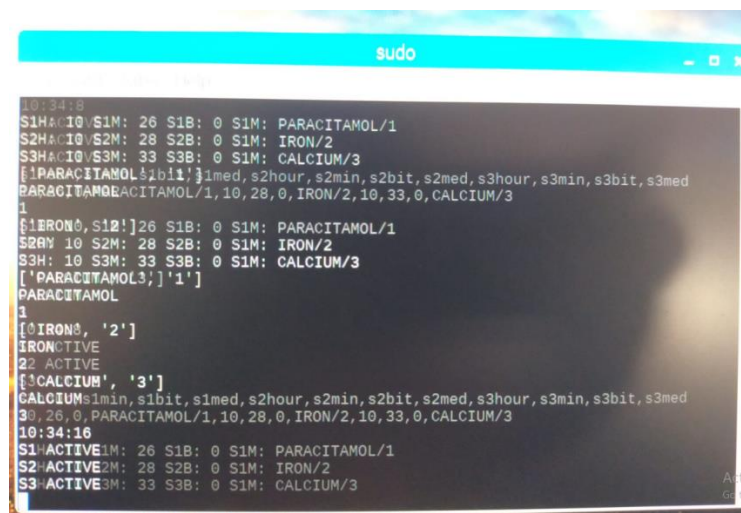

Fig.10.Data Displayed in LCD

Once the time reaches to setting time then immediately medicine description will be displayed on the LCD screen with medicine drug description then stop. This process will be repeated for a while until change in the input time and drug content.
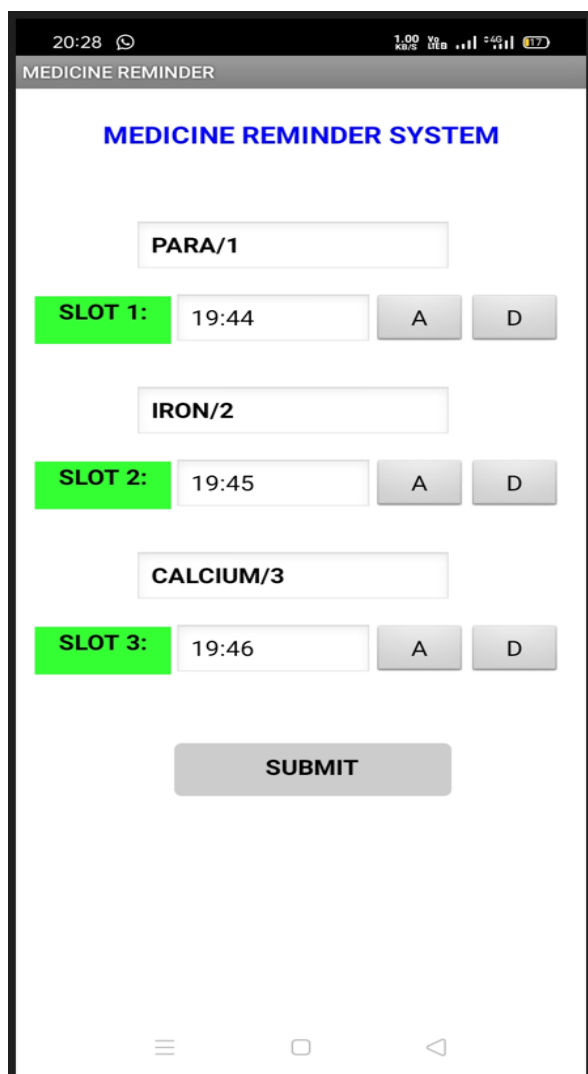
Fig.11. Android app based alerts
monitoring through IOT

still take their daily medications. This structure guarantees the patient's protection, helps to avoid incorrect dosages, and encourages drug adherence. Future development could include adding more features via mobile applications and integrating other medical services to strengthen the drug updating system. Additionally, a facility for data exchange between patients and medical experts will be created. As part of the ongoing research, voice-alert notification is being examined; this system will read the alert's content aloud to the patient as well as transmit notifications.In the end, this technique provides precise audio alerts that are helpful.

III. FUTURE SCOPE

In future of medicine reminding system It can add GSM module, which can send throughout the world through short massage to remind the medicine consumption time and details of the medicine.In future it can be integrated in this system to automatically correct medicine dispensing system depends on the input given as time and medicine type.

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VI. CONCLUSION

Advanced Medication Reminder Device is designed and implemented fordevelopment for the elder people using IOT server based android application. It is integrated with IOT module, internal RTC, LCD monitor, voice speakers and LCD display to Raspberry pi processor to execute required output.   It mainly focus on helping patients and improving the monitoring system. Medicare is an application that is simple to use. Using a sensing system in combination, we can determine in real-time how ill a patient is and

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