

Automatic Medicine Dispenser

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Abstract— The Medicine Dispenser is a machine which dispenses or gives the medicine based on the authentication of the user with the help of the user name and the password which was registered by to user in machine. This machine will give medicine which is written in user prescription which was provided by the user's doctor and also the quantity of medicine is also determined by the user's choice. In the user card having digital point which was filled by administrator when user give money the it will convert into digital points So user can restore the points by taking to the administrator of the card. Then it is used for his identification to add the digital points to the card. The main target of this dispensing machine is to provide the medicine to the peoples at every time so it can help the village people who are far from the hospital or the clinic for them the medicine and also it can be installed like an ATM machine so it is easy to use by the people which are illiterate. The medicine will be filled by the administrator of the machine at particular time based on the expiration date and also if it is empty the machine will alarm the administrator to refill the machine through SMS or telecom messenger. The automatic medicine dispenser wireless data transfer tool which uses national care card to store the data. In this setup using RFID tag for person identification rather than of cash payment. RFID technology uses ID system that which having small radio frequency identification devices to identify and tracking purposes. An RFID technology having the tag itself, a read/write device, and also a host system application to collect the data and for proceed it, and transmission. RFID comes from the group of technologies which are Automatic Identification and Data Capture (AIDC). AIDC technology automatically identify objects, collect data about them. Then it enters those data into computer systems with little or no human intervention. FID use radio wave for the technology processes.

Keywords: RFID-Radio Frequency Identification, AIDC-Automatic Identification and Data Capture

I. INTRODUCTION

In a simple word we can say that machine which dispenses items such as snacks, beverages, alcohol, cigarettes, lottery, tickets, consumer products and gold to customers automatically, is called vending machine. When the customer inserts coin or credit into the machine. Then it will give us desired thing which you want. Similarly, The Medicine Vending Machine as seems in name it is a vending machine that will dispense the required medicine depends on user's choice. It is beneficial to person who wanted immediate relief from pain to helps to an economical solution ultimately to trivial health. It can even decrease the present prices of open medication cupboards. By having Associate in Nursing over-the-counter coin machine within the geographical point, worksites while not clinics or pharmacies will get pleasure from accrued work potency and avoid underperformance of unwell workers. Moreover, by using this we save our time to

stand in queues even if you having trivial problem as like viral, cold or headaches. As you seen in pandemic situation also, we have not permission to gather 4/5 people so that time such machine is very beneficial by this our time is reduced also infection chances reduced because we not caught in any person contact also, we buy medicine.

II. LITERATURE SURVEY

The system has shown high performance, but there is many situation have to improve. We need to maintain prescription and camera for the system also one person can take prescribed medicine more than one time from different system. There is no rule to collected patient data. If the problem occurred in the system, is it affect in sensor reading also. If the sensor reading is not accurate it will display wrong reading and hence will give wrong medicine. The main drawback of this system is medicine not prescribed. The medicines which will be dispensed from the system are not prescribed by the doctor.

III. PROBLEM STATEMENT

To design and develop a distributor machine which uses RFID tag as an authorization card and which display the user data with prescription of doctors. The machine will automatically send message to the administrator if the medicine storage box is empty.

IV. PROPOSED SYSTEM

RFID tag system with an Arduino mega board that uses nodemcu, LCD, RFID and Wi-Fi Module. Embedded system which will can offer all the perform required to satisfy the goal to making the medication dispense.

V. DESIGN AND METHODOLOGY

When the users will insert the health care card in this case the RFID slot into the system. The system will scan the card using RFID reader by radio identification and show user's name and tell to enter the password to continue. Then the system can browse the cardboard information and show the prescription and can fire user's input. The users should choose the to prescribed medicine from the drugs displayed on the LCD and conjointly should choose the quality of medicine needed. Once the input has been taken the system can check the number of pills is available or not. If it does, system can check the users balance and can dispense the medicine and if the user does not have that which is required it will show a message stating not have sufficient balance, then asked the user for recharge of card

A. User Authentication:

During this process the user authentication is finished by scanning the RFID tag with the RFID reader of the system and getting into the password given to the user if the password

is correct then the authentication is complete if not the machine can tell user to check the password.

B. Medicine Dispensing:

If the authentication is complete then the user might choose the medicine needed and also the amount of medicine needed for the machine to dispense.

C. Database Updating:

when the pill has been dispensed the information of the user's digital points and the number of medicines available in stack is updated in database.

D. Inventory Control:

Controlling the number of pills present is critical to functioning of machine. If the medicine not in stack, the system will send message to fill it.

A flowchart will represent an algorithm, workflow actual process. First step is RFID card needs to be scanned. Then the system will ask the user to enter the password. If the user is authenticated, then the system can display the prescription of that user i.e., the list of medicines. The utilization needs to choose use the medication from the list of medicine displayed and need to choose the amount of medicine needed for the user then the medication is dispensed if the medicine is smaller in amount than the message is showed to the user the medicine is not out form there the message to fill the medicine goes to administrator. Then the database of the user which having digital points is corrected and the remaining balance points message is sent to the user.

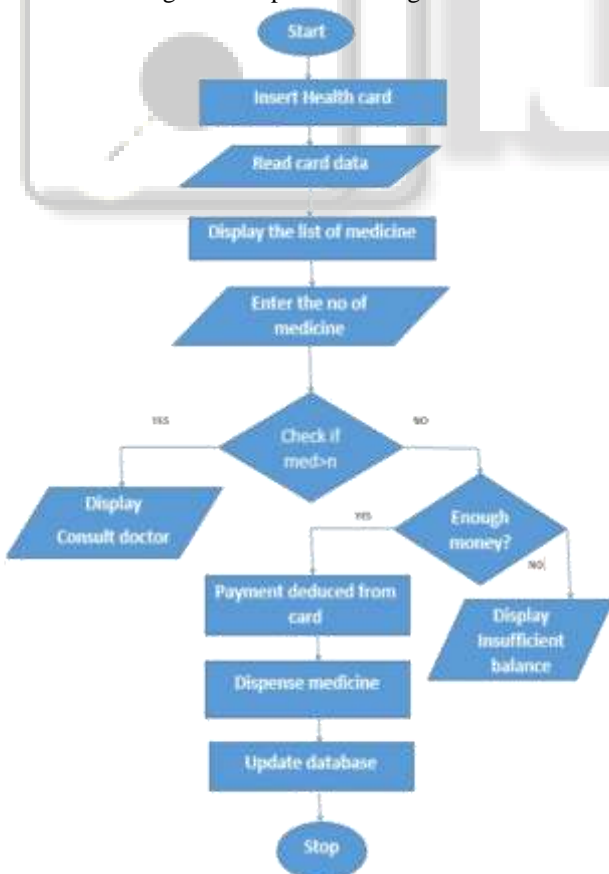


Fig. 1: Flowchart of system

VI. SOFTWARE COMPONENTS

- 1) Embedded C
- 2) Arduino Software - The Arduino integrated development environment (IDE) is a cross-platform application for Windows, macOS, Linux that is written in the programming language Java. It is accustomed write and transfer programs to Arduino compatible boards, but also, with the help of 3rd party cores, other vendor development boards. The Arduino IDE of code structuring.

VII. IMPLEMENTATION

The steps involved in assembling all the devices and implementing the project:

1) Step 1: Configuring the Programmable Devices

The module we are using are the Arduino mega as the main controller module and this is connected by

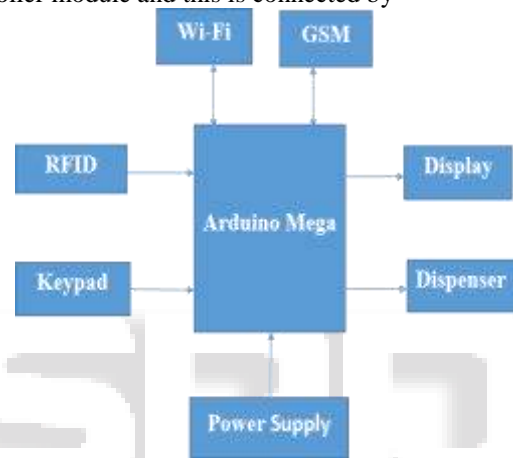


Fig. 2: Block diagram of the model

LCD display for the user interaction, keypad for entering the user need relay that is used for depending the medicine the message is distributed with Nodemcu module by using telegram to the authority of the system RFID reader is used for reading the care card for giving the authentication to the user.

2) Step 2: Setting up code in Arduino Mega:

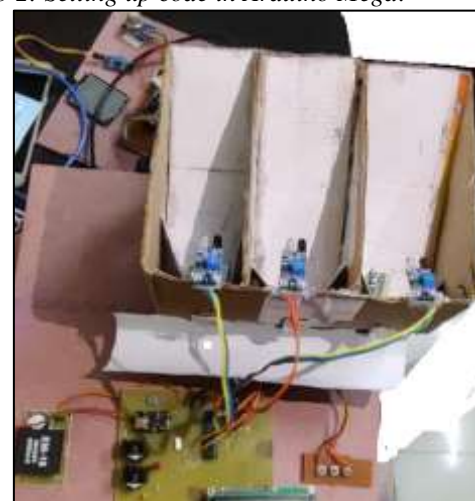


Fig. 3: Setup with components

The RFID module code should be dumped to the Arduino Mega board which is installed in the patient section.

3) *Step 3: Integrating the hardware modules*
Arduino Mega should be connected to all the module like RFID reader, Wi-Fi module, LCD and relay.

4) *Step 4: Connecting the NodeMcu module*

The message is sent by using the Nodemcu module which is get connected with the mega module.

5) *Step 5: Powering up all the devices*

In this system it is connected to the power supply and also voltage converter which convert the voltage to 5v-2.5v power supply. By using this power supply the system can work without any problem

VIII. SYSTEM ARCHITECTURE

- 1) The system has microcontroller Arduino mega which is an 8-bit RISK microcontroller board which controls the functionality of all the component in the system. The system relates to the hardware components like RFID module, Keypad module, LCD module, Nodemcu module, Wi-Fi module and Dispense system which is used to dispense the medicine.
- 2) As we can see in the figure4 the block diagram shows all the modules connected to the main controller by which we can see the overall view of the system this conceptual model is used as a base to construct the main system.

IX. ADVANTAGES

- It is very much portable that it can be installed in very less area. No Individual person needed for maintenance.
- Easy to use and Provides 24/7 medicine facility.
- Since online transaction involved no fear of robbery.
- The dispenser can dispense the drug automatically for that disease.
- The message system is automatic that the refill of the system message is directly sent to the care taker of the system.

X. DISADVANTAGES

This technique won't work while not the ability offers since some rural area has less time of electricity. Intelligent medical dispenser can depend one only tablet at a time. It only dispends medicine not syrup

XI. CONCLUSION

The medical dispenser offers a versatile and easy solution for extending basic tending to all places as like remote places, at a very less amount of money. The machine will dispense prescribed drug. The machine adds an intelligent medicine unit that sends a refill notification message to the authorization the system given to the person to refill the pills. The medical dispenser is technically possible to all peoples. The system additionally provides the desired user authentication for the user by using RFID tag and the RFID reader.

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