SMART MEDICARE USING RFID TECHNOLOGY

Dr.B.Srilatha[1]Triveni.V[2] Sushmitha.S[3] Swathi.H.B[4] Pooja Mattikatti[5]

Assistant Professor, ECE
Sri Sairam College of Engineering
Anekal

Students, Department of ECE
Sri Sairam College of Engineering
Anekal

Abstract- This paper proposes a novel idea to get the medicine easily by smart medicare machine using RFID technology and coin operated system. As there will be chances like patients need the medicine immediately and sometimes it may not be available under certain circumstances. In such conditions, instead of depending on the pharmacies, this machine works just like ATM Machine to dispense the pills for the patients rather than money. It works with Arduino board, LCD, Buzzer, IOT, GSM, RFID reader, and keypad. So the proposed system can be used in emergency conditions to avoid the unavailability of medicines. This system can be placed nearby ATM machines, in remote places where the pharmacies are not available and in individual units of the multispecialty hospitals.

Keywords: ATM- Automated Teller Machine, LCD- Liquid Crystal Display, IOT- Internet of Things, GSM- Global System for Mobile, RFID- Radio Frequency Identification, IR- Infrared.

I. INTRODUCTION

The unit is an outsized type of medication administration help devices for non-professional and professional users. Most of them area unit manual, providing multiple compartments referred to as pill trays. The pill receptacle includes a range of compartments that may be crammed with medication. Each compartment will hold completely different sizes and combination of medicines. The automated teller machine (ATM) is an automatic banking machine (ABM) which allows customer to complete basic transactions without any help of bank representatives. There are a unit 2 kinds of automatic teller machine (ATMs). The basic one permits the client to solely draw money and receive a report of the account balance. Another one could be a lot of advanced machine that accepts the deposit, provides master card payment facilities and reports account data.

It is Associate in nursing device that is employed by solely bank customers to method account transactions. The users access their account through special variety of plastic card that's encoded with user info on a magnetic strip. The strip contains Associate in nursing identification code that's transmitted to the bank's central laptop by electronic equipment. The users insert the cardboard into ATMs to access the account and method their account transactions. The automated teller machine was invented by john shepherd-Barron in year of 1960.

By using the ATM concept we are introducing the automatic pills dispense means immediately we can able to take the tablet in 24/7, it will helpful for the people, we are introducing the RFID concept which consists of RFID card and motor acts as a input section to retrieve the user information and to dispense pills automatically with the input identification.

Hospitals Domestics:

The automatic pill dispenser will change pill dispensing for hospitals with little to giant capacities. With the presence of a pill dispenser, nurses and doctors will considerably cut back the quantity of your time for homework work and doing rounds, this manner a lot of attention are often given to patients that are in greater need of medical attention. Medical professionals can also be notified by means of a simple database on whom and when dispensed

Domestics:

The increased use of daily vitamins and dietary supplements that need to be taken before or after meals can also become a great area of interest for

the use of an automatic pill dispenser. An individual keychain key will initiate the pill dispensing for the user's personal diet regime and a buzzer will inform them once the supplements ought to be taken.

This pill dispenser may also management the access to pills that may be sensitive for young youngsters and teenagers, they're fastened and solely is retrieved by the person who has the key on their keychain, and only when the right time of day is of a home is just the beginning of some of the basic functions an accessed controlled pill dispenser could achieve.

II. PROPOSED SYSTEM

Problem definition:

According to a survey carried out by patient's safety authority of India, 74% of total death count in the hospital is caused due to overdose or under dosage of the medicines.

Clinical analysts reviewed 479 event reports submitted to the Indian Patient Safety Authority from June 2004 through the end of November 2008 that specifically mentioned medication errors resulting from breakdowns in the process of obtaining, documenting, and/or communicating patient weights.

The shocking news from the statistics is that of the 479 reports, 448 (93.5%) represent the five most common medication error event types, with the most commonly reported event type being wrong dose/over dosage (43.4%) and wrong dose/under dosage (21.3%).

So to avoid all these types of medication errors and make the people to be available with all the primary medicines for the frequent imbalances in them.

III. METHODOLOGY

Block diagram:

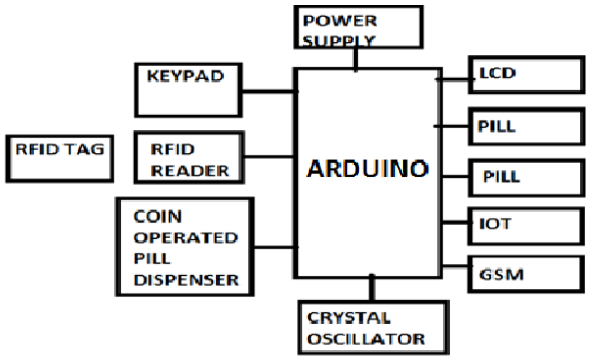

Fig1: Block diagram representation of the proposed system.

Hardware idea design:

The Fig1 represents the overall block view of the proposed system and its detailed explanation of each block is as follows:

A. Power Supply: the facility offer circuit can give necessary power necessities for the SMD controller. In addition, 12V is important for the motor. Current necessities are going to be settled principally by the motor controller style demand is 5 VDC for the microcontroller and motor; whereas this demand for the microcontroller is within the range of 100mA.

B. Keypad: The keyboard input could be a commonplace sixteen key alphanumeric keyboard. It allows the user to program the system. The alpha numeric show unit is for the user to look at the time set or reset operation. It provides the user visual illustration of the contents of the instrumentation. A similar unit is also used for providing the warning once it's needed.

C. Alphanumeric display: LCD (liquid crystal display) is that the technology used for displays in notebook and alternative smaller computers. Like diode (LED) and gas plasma technologies, LCDs permit displays to be abundant diluent than electron beam tube (CRT) technology. LCDs consume abundant less power than junction rectifier and gas-display displays as a result of they work on the principle of obstruction lightweight instead of emitting it.

D. IOT: the net of Things (IoT) is that the network of devices like vehicles, and residential appliances that contain physical science, software, actuators, and property that permits this stuff to attach, move and exchange information. The IoT involves extending web property on the far side commonplace devices, like desktops, laptops, smartphones and tablets, to any vary of historically dumb or non-internet-enabled physical devices and everyday objects. Embedded with technology, these devices will communicate and move over the net, and that they is remotely monitored and controlled.

E. GSM: GSM (Global System for Mobile) could be a common place developed by the Telecommunications Standards Institute (TSI) to explain the protocols for second-generation (2G) digital cellular networks utilized by mobile devices like tablets. It absolutely was 1st deployed in Suomi in Dec 1991. As of 2014, it's become the worldwide commonplace for mobile communications – with over ninetieth market share, operative in over 193 countries and territories.

F. ARDUINO: Arduino is associate ASCII text file physical science platform supported easy-to-use hardware and computer code. Arduino boards square measure ready to browse inputs - lightweight on a sensing element, a finger on a button, or a Twitter message - and switch it into associate output - activating a motor, turning on associate junction rectifier, business one thing on-line. You'll tell your board what to try and do by causing a collection of directions to the microcontroller on the board. To try and do therefore you utilize the Arduino programing language (based on Wiring), and therefore the Arduino computer code (IDE), supported process.

G. BUZZER: A buzzer or electronic device is associate audio signaling device which can be mechanical, mechanical device, or electricity (piezo for short). Typical uses of buzzers and beepers embody alarm devices, timers, and confirmation of user input like a depression or a keystroke.

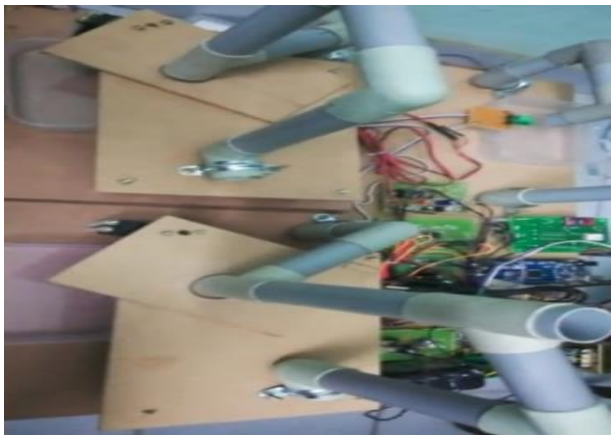

Fig2: proposed model

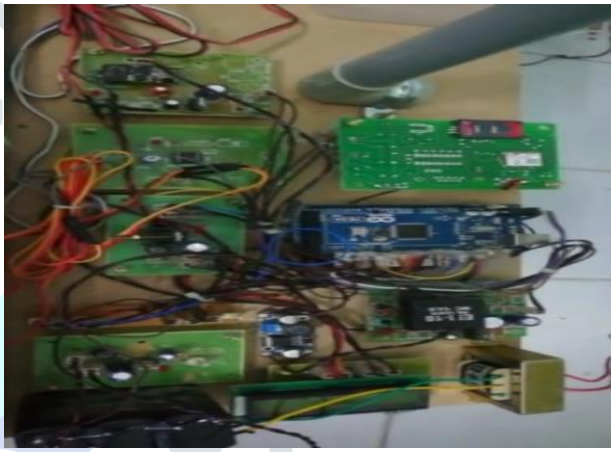

Fig3: Circuitry model

Fig2 depicts the dispensing part of the system in which the pills are at the user end.

Fig3 depicts the circuitry model of the proposed system.

This model can be used to implement two applications, namely pills dispensing using RFID card and coin operated system.

Using RFID card: Initially the GSM module of the system is to be connected with internet (hotspot) and send the number to which the transaction details has to be sent. This can be ensured with the message "connected" displayed on the LCD screen and the registered message is sent to the number.

Then the RFID card is scanned by the RFID reader module which initiates the further procedure. The type of pill to be dispensed and its quantity can be selected with the help of switches provided. With this pills are selected and it is dispensed evenly using servo motor.

Once this is done, the message is send to the registered number with tablet name, quantity and remaining balance in the card details.

Coin operated system: If the user is not holding the card, with the help of the coin user can get the pill in which the coin is detected using IR sensor.

IV. CONCLUSION

This proposed system made easy for people, if the emergency is there to take the pills and if we tend not getting it done in a shot, we can use this smart medicare system, to produce pills automatically with known quantity and prescription using the RFID card. This is also used effectively to test the effectiveness of the automated pill dispenser in supporting people towards better self-medication. We will get the pills after selecting the quantity and required product and amount is deducted from their account using the RFID card. This automatic pill dispenser saves nursing time and helps to increase the patient safety in turn helps in making digital transformation.

V. FUTURE ENHANCEMENT

With the interface of various biomedical instruments such as glucometer, pulse meter, temperature sensor etc., we can make this machine more effective by testing the preliminary conditions of the human being. Some basic symptoms can be loaded to the machine, based on this corresponding medicine can be prescribed using the information stored in the database or fog and the same can be made available to the customer. If the user having the printed prescription, we can scan and get the required medicine. Using the database stored, user can check the availability of particular medicine or tablet with exact dosage through GSM or IOT, it is possible to display the medicines available in that particular machine and get it with the automatic dispensing from the machines.

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