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Automatic Medicine Dispense System

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ABSTRACT :

Medicine has a vital role in people's lives in all situations. An automated medical system is introduced to save manpower and energy. It works similarly to an ATM, allowing us to withdraw money at any time and from any location. The same principle applies to medications as well. Medicines for blood pressure, diabetics, colds, fevers, headaches, and first aid items such as bandages, cotton, ointments, and other commonly used tablets can be acquired. When an RFID card is inserted, the RFID reader reads and displays the individual user's information. After identifying the valid person, a list of medicines will be displayed on the TFT display, and the user will select the required medicines by inputting the appropriate number of selected medicines using the keypad. After inputting the needed list, the amount will be computed based on the medicine and its quantity. The sum will be deducted from the RFID card, and the transaction information will be immediately provided to the user over IoT Server. Following payment deduction, the selected drug is automatically provided from the system.

1.INTRODUCTION

Medical Informatics is a subdivision of Biomedical Engineering defined as "the scientific field that deals with biomedical information, data, and knowledge -

their storage, retrieval, and optimal use for problem solving and decision making" . An enormous leap has been witnessed in this field with the advent of the computer age and the booming era of computer science around the end of the twentieth century. Thus, to serve its needs, Medical Informatics has leapfrogged towards employing complex methods such as systems engineering, expert systems, artificial intelligence, neuralnetworks, database design, and applied mathematics and statistics. On the other hand, the advances in digital technologies have permitted the storage of massive amount of information on small electronic surfaces - relieving large areas within hospitals that were used as repositories to these medical records; hence, leading to the growing shift of medical records from being paper- based to electronic databases. Within the same context, the advancement and proliferation in healthcare, subsequent to the Second World War period, and the growing influx of patients requiring healthcare, particularly with the booming population, have acted as a hindrance to the management of such enormous medical records.

Health ATM will be one stop single integrated machine to provide diagnosis to all the basic medical problems. medicines like for B.P, diabetics, cold, fever, headache, and first aid required medicines like ointments, Here most commonly required cotton, bandages ATM machine and lifesaving medicines in case of emergency. It will do the same work for a Hospital as an ATM machine do for a Bank. Thus it will make easy to get diagnose medical problem for people where hospitals are not in easy reach and also provide a central platform for the patients to interact with the specialist of the fields through telemedicine(video conferencing). Health ATM will be having many benefits over the present system as it will be an integrated machine that will provide solutions to all medical problems, requiring very small space for installation and working. It will also help government hospitals such as AIIMS in providing their services to the people living in the different areas including rural India by installing their H-ATM countrywide so that people may excess the hospital information system from various remote locations.

For many years, there have been calls for interoperability within health care systems. The technology currently exists and is being used in business areas like banking and commerce, to name a few. Yet the question remains, why has interoperability not been achieved in health care? This paper examines issues encountered and success achieved with interoperability during the development of the Digital Access To Medication (D-ATM) project, sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA)

2.LITERATURE SURVEY

Shall Beg et al. proposed a FSM based programmed administer machine[1] which has an expiry date highlight utilizing VHDL, in this paper the creator portrayed Limited State Machine based programmed apportion machine utilizing Xilinx ISE 14.2. This machine acknowledges cash as a contribution to administer the items and returns back the cash without apportioning the item to the client in the event that the item is obsolete. In this manner, it tends to be valuable to guarantee the great nature of the item alongside amount and cost. Singh [2] proposed a touch screen based computerized clinical Candy machine and in this paper the creator portrayed

medication candy machine in light of IR Standard touch innovation as the contribution to choose different clinical offices like Emergency treatment office, rescue vehicle office, and direct calling office by means of GSM, dynamic GPS, brilliant card office and restocking medication alert. The product utilized is visual essential was modified to such an extent that when the patient chooses specific office, it will be served to that understanding. Accordingly it very well may be useful if there should arise an occurrence of sickness, little or huge mishaps thus can be set anyplace. Steven Woodbine, the Total Candy machine. Distributed on 18 May 2011.There are a huge assortment of medicine organization help gadgets for non--proficient clients. A large portion of them are manual, giving different compartments called pill plate. The pill plate has various compartments that can be loaded up with prescription. Every compartment can hold various sizes and blend of meds. The client is expected to take the medication from every plate every day for a limit of 28 days. It gives no alert to show the hour of taking the medication.

Anu Delight proposes RFID-empowered drug coin machines to address the popularity for medication in undeniable

wellbeing circumstances. This development guarantees fair estimating and simple admittance to medicine, permitting clients to effectively choose and buy their expected medications. With the capacity to apportion pills in view of client decisions, these machines save time, faculty, and exertion, making them reasonable for emergency clinics without the requirement for broad record-keeping. This innovation mirrors the quick development from hardware to nanotechnologies, adding to progressions in medication conveyance.

 P. J. K, R. K, S. N, and S. D. P presents an extraordinary idea combining computerization and simulated intelligence in medical care. By utilizing AI, mechanical technology, picture handling, and normal language handling, the framework offers a coordinated way to deal with conclusion and medication apportioning. Tending to scratch medical services difficulties like availability and cost-viability, the paper highlights the meaning of protection, security, and unwavering quality in its execution

3.PROPOSED SYSTEM

When an RFID card is inserted, the user's details are displayed. Following the identification of the valid individual A list

of medicines is displayed on the screen, and the user picks the appropriate drugs by entering the correct numbers. After inputting the required list, the money will be calculated based on the medicine and quantity of medicines selected, and the amount will be deducted from the RFID card. Once the payment has been deducted, the selected medicine will be provided automatically by the system. This project includes transaction details such as drugs dispensed, user details, date, time, and money deducted, which are logged and securely saved in the system. This rigorous transaction documentation assures accountability and allows for effective record-keeping.

Finally, the selected medications are automatically delivered from the system using a slider arrangement powered by servo motors. This integrated method not only streamlines medication retrieval, but also offers users a clear and dependable healthcare experience.

3.1 METHODOLOGY

The automated medical system is designed to make getting medicines easier and quicker for users. Similar to using an ATM to withdraw money, this system allows users to insert their

RFID card, which then shows their details on the screen. Once the system identifies the user, it displays a list of available medicines, including those for conditions like high blood pressure, diabetes, cold, fever, and headache, as well as first aid supplies such as bandages and ointments. Users can select their desired medicines by entering corresponding numbers on the keypad. After making their selections, the system calculates the total amount due based on the chosen medicines and deducts this amount from the user's RFID card, transaction details will be stored in IOT Server. Finally, the selected medicines are automatically dispensed from the system using a slider arrangement controlled by servo motors.

This project utilizes simple hardware components like RFID readers, keypads, and servo motors, along with a microcontroller (ESP WROOM 32) to automate the process efficiently. Testing, deployment, and ongoing maintenance ensure the system works reliably and securely for users. Health ATM will be one stop single integrated machine to provide diagnosis to all the basic medical problems. medicines like for B.P, diabetics, cold, fever, headache, and first

aid required medicines like ointments, Here most commonly required cotton, bandages Atm machine and life-saving medicines in the case of an emergency
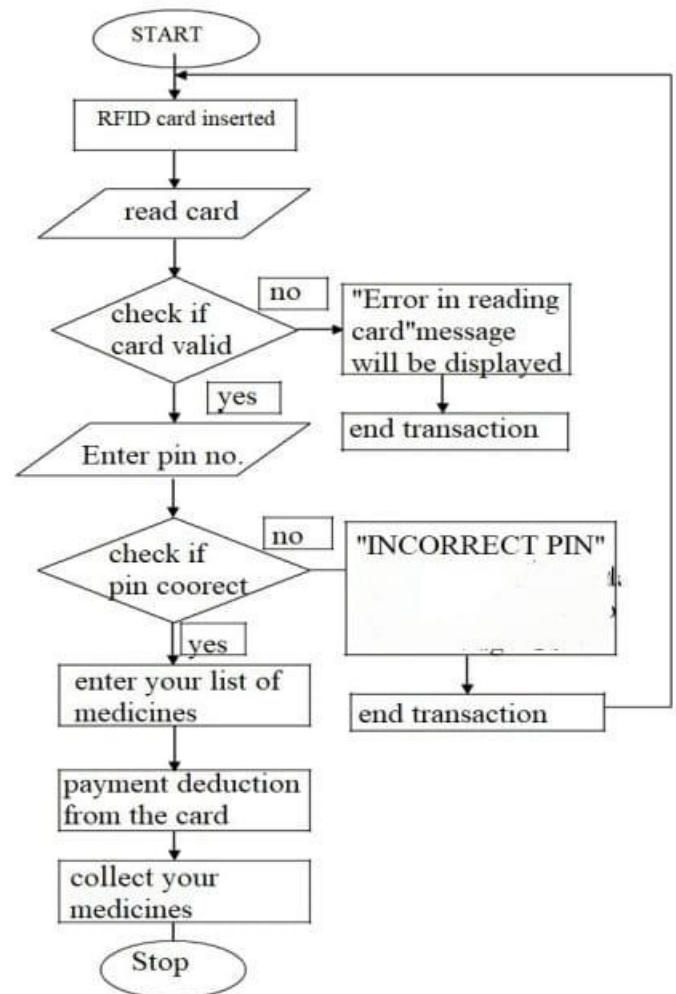
3.2 FLOW CHART:

Fig.1 flow chart

3.3 ALGORITHM:

Step 1: start

Step 2: RFID card is inserted.

Step 3: RFID card is read by the system

Step4: Determine whether the RFID card inserted is valid or not.If it is invalid then error message will be displayed.

Step 5: if it is valid then enter pin number

Step 6: if pin entered is correct list of medicines present are displayed on the display else it is invalid and the error message will be displayed.

Step 7: the list of items required and their quantity are selected using keypad.

Step 8: Amount is calculated and deducted from the card.

Step 9: required items are delivered out through the system.

Step 10: stop

4. RESULT ANALYSIS:

This paper has presented to our knowledge about the machinery and technology involved in the most common vending machines present all over the world. It helps increase efficiency by lowering dependence on manpower. The desired outcome is achieved as per the user's requirements in the form of medicines dispensed by the machine. How easier it would make people to obtain medicines from vending machines rather than waiting in queues for long hours.

We also learned about the functioning of various instruments. This includes the functioning of RFID, Arduino Microcontroller , Motor drivers etc. All these have contributed greatly in improving our knowledge about the functioning and performance of a vending machine.

By using this medicine dispense system, simple medical problems can be diagonised with an easy reach. This system will be having many benefits over the present system as it will be an integrated machine that will provide solutions to all medical problems and the system requires very small place for installation and its working has been implemented as a prototype.
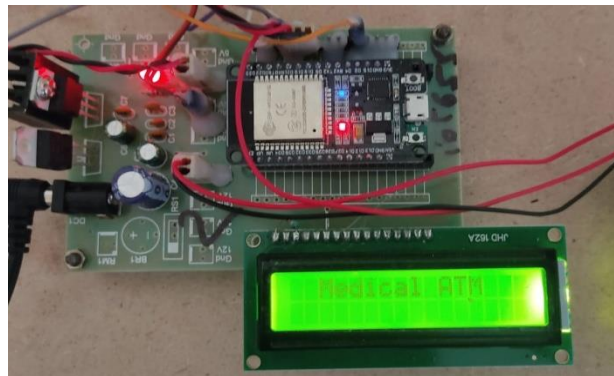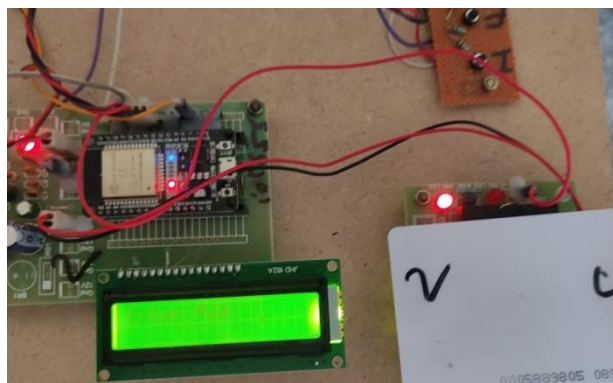
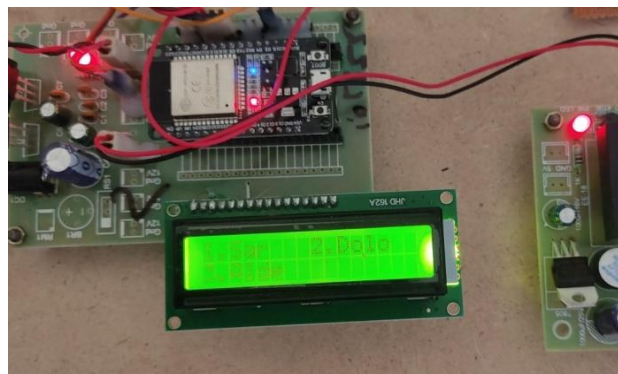**Fig.2 Supplying power**

Fig.3 Scanning of RFID card

Fig.4 Selecting Required Medicine

Fig.5 Amount Debited
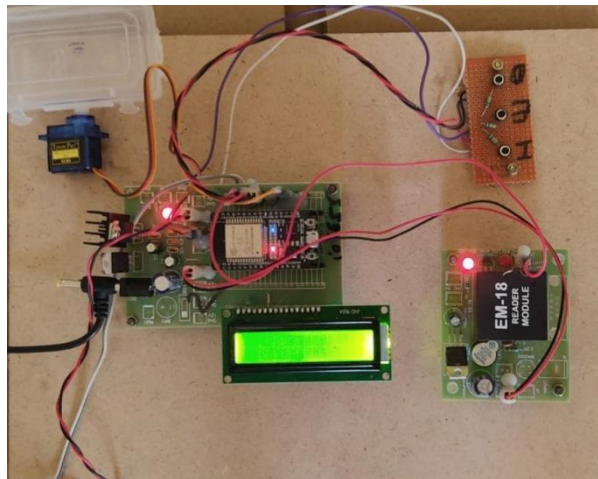
Fig.6 Top View of the model

Fig.7 Transactions details recorded in Iot Server

The specific user's details are shown when the RFID card is inserted. Once the legitimate individual has been identified The user chooses the necessary medications from the list of medications that is shown on the screen by entering the matching number of the related medications.

Following the completion of the necessary list, the amount will be determined based on the medication and the quantity chosen. The amount will be deducted from the RFID card, and the chosen medication will be provided automatically.

By using this medical ATM system, simple medical problems can be diagonised with an easy reach. This system will be having many benefits over the present system as it will be an integrated machine that will provide solutions to all medical problems and the system requires very small place for installation and its working has been implemented as a prototype.

5.CONCLUSION

Automated medical ATM systems are widely used in hostels, railway stations, airports, and rural locations. Implementing this technology reduces manpower and time usage for 24 hours of service availability.

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