IOT BASED AUTOMATED MEDICAL RACK SYSTEM

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Abstract--

For decades, it has been suggested that pharmacists are under utilized and could better apply their knowledge and experience to improve medication use. Pharmacists' traditional roles have been to prepare and distribute medicines, but this has limited both the location where they kept the medicines in stock rooms.

The proposed system's prototype is built on node MCUs and employs IoT to enable medicine identification. The proposed model eliminates the need to spend time searching for the specified medicines in the medical shop. I used a Node MCU board, LED bulb, and Relay module in this IoT-based automated system. I created an admin panel for the user to use in order to organize (store) the names of medicines in the network-connected system.

The concept of an automated medicine identification system in medical stores aids in the easy acquisition of medications. This application includes an admin panel for storing medication information and entering rack information. The SQL server is used to create the centralized database, which stores all of the information. The main languages used here are ASP.Net and SQL Server, as well as the Arduino IDE.

Keywords: Medical stores, IoT, Racks, Medicines.

1.INTRODUCTION

In today's world, the medical field is extremely important. Every day, there was a line at the medical store. The seller is solely responsible for providing not only the appropriate medicine but also in a timely manner. In the traditional medical system, medication is administered by recalling the location of the medicine[1]. As a result, he frequently fails to locate the required medication in a timely manner. As a result, there is now a need to develop a new system that will overcome all of the problems mentioned above while also reducing the burden on workers. As a result, a new automatic system called "Automated Medicinal Rack Identification System" is being developed, which is purely embedded and will be used to implement a "automatic identification system of medicines. "This requires preparation of medicine data with its rack address by using visual basic software.

Smart shelves are one of the most promising next-generation retail technologies. Smart shelves, also known as "intelligent shelves," are electronically linked shelves designed to automatically identify medicines. Smart shelves use a combination of sensors and digital displays to provide detailed product information, marketing and cross-selling suggestions, and invaluable insights into customer preferences and shopping patterns to retailers.

One of the most significant challenges the retail industry is currently facing is a lack of stock items in retail stores, which causes customer dissatisfaction. Smart shelves technology allows for automated medication tracking.

2.LITERATURE REVIEW

Cloud computing services offer a wide range of services for healthcare applications. It has several advantages over other computing techniques, including large storage capacity, flexibility, and low cost. Cloud computing techniques are expanding healthcare options for those who are afflicted.

Lidong Wang et al. (2014) classified the various cloud computing services in the medical domain. The authors discussed privacy and security issues related to healthcare

applications. The cloud computing concept allows users to access various services based on their own needs. The main advantages of cloud computing systems are their low cost and flexibility. Users can pay for cloud services based on how much they use them. Cloud technologies are rapidly delivering health-related information to patients. The patient's information is kept secure. The main advantages of cloud computing services are that they reduce work load and save money. The user can easily communicate with healthcare professionals, pharmaceutical personnel, clinical labs, and other entities using wireless communication. During critical situations, healthcare professionals use the cloud concept to send medicine details, bill patients, monitor their conditions, and review their disease history.

Fingerprint recognition and palm verification methods improve data security and authentication [2]. Cloud computing is one of the most rapidly growing technologies. It can be used to store and manage data in a variety of business organisations. Cloud computing is also used in the healthcare sector to securely store patient data and medication details. This concept provides various services on an as-needed basis[3].

Lena Griebel et al. (2015) reviewed numerous papers in order to identify the most important current research topic on healthcare in cloud concepts. [4] Every organisation generates a large amount of data on a daily basis in this digital age. A large volume of information is generated in the medial domain about patient details, medication prescriptions, clinical test results, employee details, and so on. As the amount of data grows, new techniques for analysing it in real time are required. Approaches to cloud computing provide a variety of techniques

for analysing healthcare data[5]. It has several advantages, including low cost, large storage space scalability, and so on.

Sobeslav V et al., 2017 investigate the new cloud computing technique in the field of biomedicine. The primary goal of this research is to apply cloud computing techniques in the field of biomedicine [6]. In today's world, the terms IoT (Internet of Things) and cloud are commonly used in a variety of fields. Several researchers are conducting research in these areas.

Luo S et al. (2016) investigate the use of loud and IoT in the medical domain. These two techniques are used to handle and manage medical data. The authors created the RMCPHI (Remote Monitoring Cloud Platform of Healthcare Information) framework to manage medical data. Finally, the authors proposed a new PSOSAA concept for tracking health-related data [7,8].

3.PROBLEM STATEMENT

The process of managing the medicine stock and selecting the appropriate medicine for the illness prescribed to the patient or customer is known as pharmacy management. In the current situation, pharmacists working in medical stores are looking for the medicines prescribed by the doctor in the traditional way, such as looking for racks or shelves where the medicines are stored. Searching for prescribed medicines for specific illnesses usually takes time and leaves the patient or customer waiting in the event that they are unavailable. The pharmacist manually checks the medicines stock for management, which takes a long time.

4.PROPOSED METHODS

The Working Group was charged with assisting the Medical Products Agency in developing a guideline for classification of medical information systems used in health care, based on Medical Device directives and applicable standards. The classification system implicitly describes the role of the notified bodies and when they should be consulted.

The proposed system solves the aforementioned problem. This paper can assist in locating and identifying the medications stored in the various racks. Here, the administrator or user must enter the names of the medications as they appear on the racks in the medical store. They must enter the names of the medicines in accordance with the racks entered in the arranged format. When they go to search for medicines after storing the data, they simply enter the medicine name in the application

and the respective medicine rack/block will be identified (LED light will be blinked).

IOT SENSORS: The Internet of Things (IoT) is a network of interconnected devices that are embedded with electronics, software, sensors, actuators, and other components that allow these objects to collect and exchange data. Temperature control is one of the most basic applications for Internet of Things (IoT) sensors in a supermarket. The internet of things can also collect data from smart shelves and transmit it to store personnel for analysis. This technology can assist supermarkets in determining which products are appealing to customers and can influence how items are displayed in stores. Digital screens using IoT technology can display not only commercials and catalogues, but also personalised promotions based on data collected.

4.CONCLUSION

Every aspect of the healthcare industry is seeing an increase in the use of IoT. The automated medicine identification system in medical stores that uses IoT makes it easier to identify medicine blocks. When a user enters medicine names into the arranged blocks, they are saved in the centralised database. When a user wants to search for a medication, they must enter

the medication's name, which is already stored in the application. Once the user enters the medicine name, the lights in the medicine block will blink.

The Internet of Things concept is the best platform for developing any automation project in any industry. It is possible to use automation systems, and this method can reduce the manual workload of humans. The methodology has been found to be error-free in terms of interpretation and administration. Drug store employees will be barred from running distribution errands for minor tasks.

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