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Title of the project

A Novel Integrated Model for Automatic Medical Assistance to Patient Population at All Geographic Locations.(MEDIKIOSK)

Name of the College and Department

Bangalore Institute of Technology and Computer Science and Engineering Department

Name of the students and Guides

Ujwal D, V P Manohar raj, Vedant Badiger, Veerasathvik Kottapalli and Dr. Savitha S K

Keywords

RFID, Arduino, NodeMCU, DTH11 sensors,

Introduction / background

The field of healthcare has undergone significant advancements in recent years, with technology playing a crucial role in improving patient care and accessibility. One such innovation that holds great promise is the Medicine Vending Machine (MVM). Designed to address the challenges of convenience, affordability, and round-the-clock availability, the MVM represents a groundbreaking solution that revolutionizes the way people access essential medications. In this article, we will explore the concept, features, and benefits of the Medicine Vending Machine, highlighting its potential to transform healthcare delivery. The Medicine Vending Machine (MVM) is a state-of-the-art automated system that enables individuals to purchase over-the-counter medications and certain prescription drugs conveniently and securely. Resembling a traditional vending machine in appearance, the MVM is equipped with advanced technological features to ensure accurate dispensing and user-friendly interactions. By leveraging cutting-edge technology, the MVM aims to bridge the gap between patients and pharmacies, offering a novel approach to healthcare access. One of the key advantages of the Medicine Vending Machine is its unparalleled convenience. Traditional pharmacy hours and long queues can often pose significant barriers to obtaining necessary medications promptly. The MVM eliminates these obstacles by operating 24/7, allowing individuals to access medications at their convenience, even during weekends, holidays, or after regular pharmacy

hours. This accessibility is especially valuable in areas where pharmacies are scarce or in emergency situations where immediate access to medications can be critical. The user experience provided by the Medicine Vending Machine is designed with simplicity and efficiency in mind. Users can easily navigate the intuitive interface, selecting their desired medications from a comprehensive list displayed on the touchscreen display. To ensure patient safety, the MVM incorporates robust authentication mechanisms, such as ID verification, prescription scanning, or even integration with electronic health records (EHRs). By adhering to strict security protocols, the MVM ensures that only authorized individuals can access prescription medications, preventing misuse and safeguarding patient well-being.

Objectives

1. To develop a complete system which provides assistance to the emergency medical needs of the user.
2. To build an efficient Kiosk for user authentication, payment validation and proper medicine dispensing.
3. To develop a user- friendly application interface for locating the nearest Kiosk based on user location and easy access of OTC medicines.
4. To update and notify medicine supplies stock data of a kiosk to the application to the admin for restocking the supplies.

Methodology

● The user when he/she is in need for the medical supplies in case of illness, The user will search for the medicines required.
● The user's request will be sent to the server, upon receiving the request the server will communicate with the Kiosk devices and searches the nearest Kiosk.
● The server also checks if the required medicine is available at the kiosk.
● The Kiosk_Id from the machine will be sent to the user's device as a response containing the location of the kiosk.
● The user accesses the nearby kiosk and payment validation is either done through RFID card reader (unique to each user), or through online payment gateways.
● Authentication of medicine dispense by OTP sent to user's hand device.
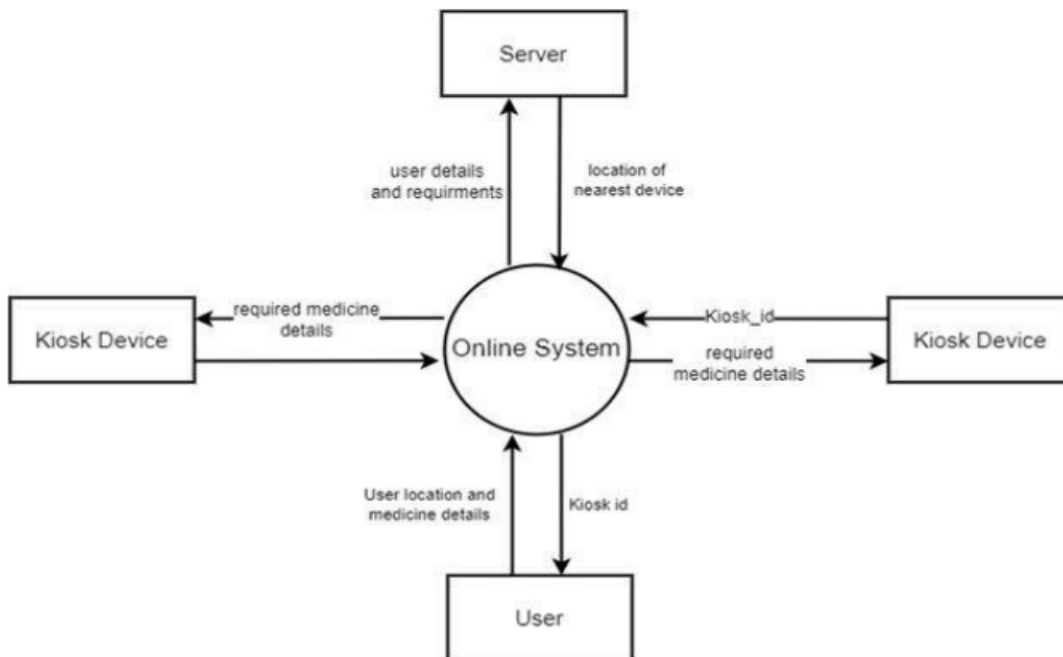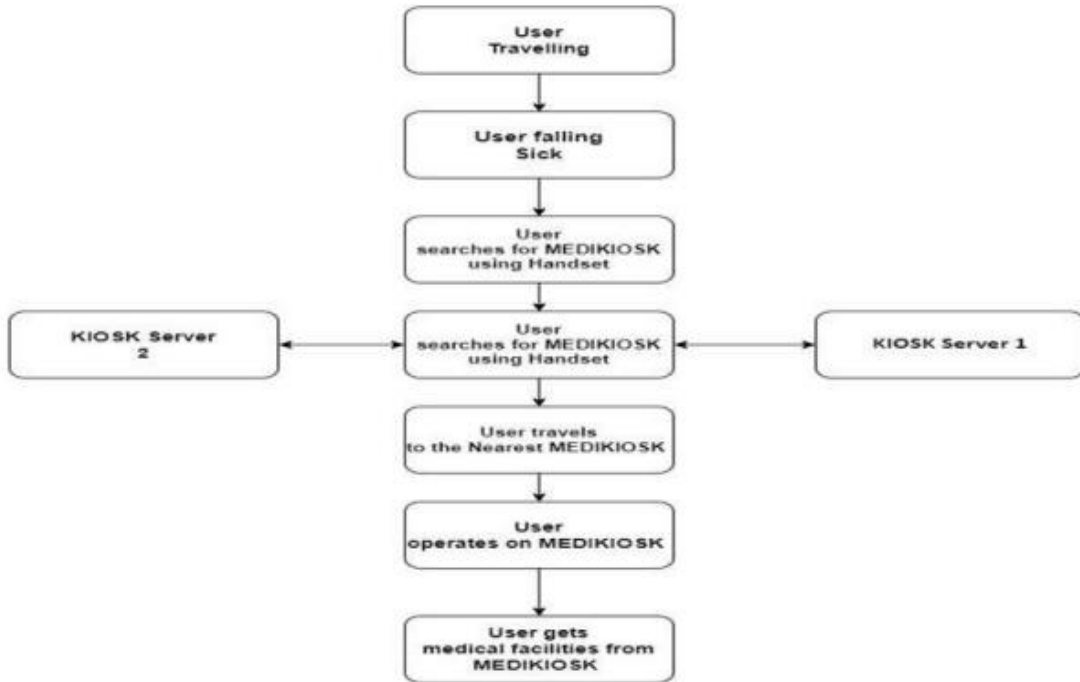● Proper dispensing of required medicine with an acknowledgement to the user.
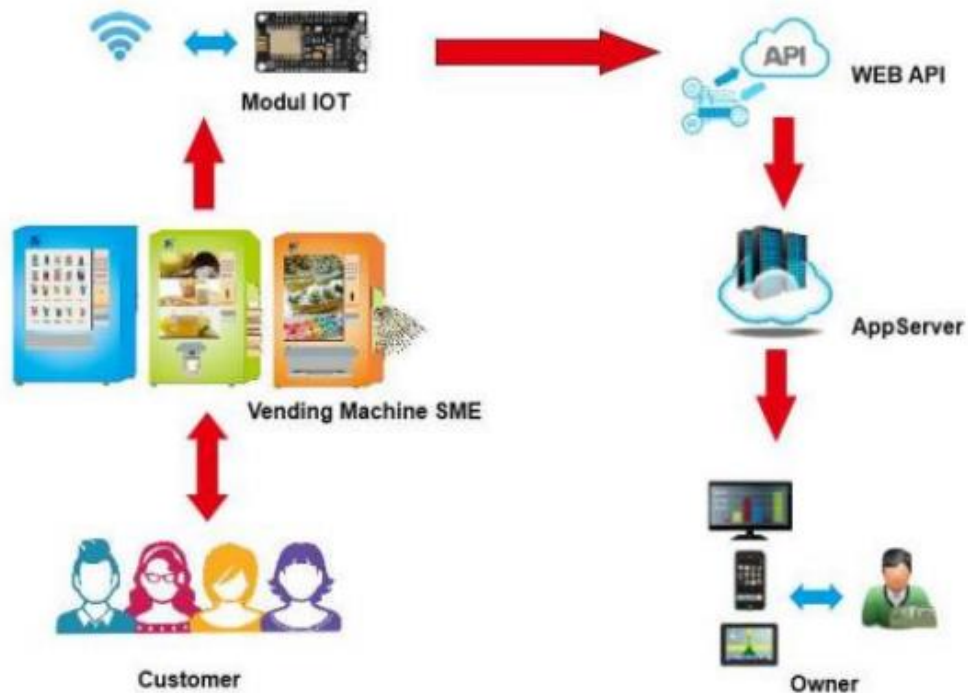
Figure 1: Proposed methodology

Figure 2- Proposed Architecture

Results and Conclusion

The Medkiosk is technically feasible for the people. Automated dispensing machines decentralized medication distribution systems that provide computer-controlled storage, dispensing of medicines. Medkiosk plays its major role in hostel areas, railway platforms, airports, and rural areas. Implementation of this system reduces manpower 24 hours availability service and reduces time consumption.

What is the innovation in the project?

Vending machines can be stocked with a variety of over-the-counter medications, making them available 24/7. By incorporating user-friendly interfaces, customers can easily search for specific products and search for the nearest kiosk based on their location. This would provide convenience, especially in locations where pharmacies might not be readily accessible.

Scope for future work

- Improved Access to Healthcare: Automated medical vending machines can be placed in locations where people have limited access to healthcare, such as rural areas and underserved communities.

- Time and Cost Savings: Automated medical vending machines can save people time and money by providing access to healthcare products without the need to visit a pharmacy or doctor's office.

- Increased Convenience: Automated medical vending machines can be available 24/7, making it more convenient for people to access healthcare products when they need.

- Contactless Transactions: In the wake of the COVID-19 pandemic, contactless transactions have become more important than ever. Automated medical vending machines can provide a safe and contactless way for people to obtain healthcare products.

- Data Collection: Automated medical vending machines can collect data on the types of products that are being purchased, which can help healthcare providers and policymakers better understand healthcare needs and trends.