



## AI-Powered Vending Machine Doctor

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### ABSTRACT:

This innovative system integrates a personal AI doctor with a Vending machine (AI-powered vending machine doctor). The structure is designed to dispense medicines automatically to patients based on prescriptions from top doctors tailored to their specific illnesses. A user-friendly touch screen display facilitates the input of illness details from the patients. These solutions address the challenges faced by the general public.

**Keywords:** People Challenges – Medical conclusions - AI-powered vending machine – overcome challenges – dispense medicines.

### 1.INTRODUCTION:

The increasing prevalence of common illnesses has necessitated innovative healthcare solutions. Artificial intelligence (AI) has emerged as a promising technology for improving healthcare outcomes. However, existing literature highlights the limitations of AI adoption in healthcare, particularly in resource-constrained settings. This study's Goal is to investigate the effectiveness of AI-powered vending machines in improving healthcare accessibility for rural area communities. Our research question is: Can AI-powered vending machines significantly reduce healthcare challenges faced by public people in their daily lives?

### 2.OBJECTIVE:

Analyzing the general public facing numerous challenges in their daily lives is given below, particularly in accessing healthcare services. Specifically:[1] Rural area residents struggle to comprehend medical conclusions and prescriptions from doctors promptly. [2] patients often endure lengthy waiting times for doctor appointments. [3]some individuals cannot afford doctor fees due to financial constraints. [4] medicines provided by hospitals and medical shops sometimes have short expiry dates. [5]medical records are fragmented due to multiple hospital and medical shop visits. The main research goal/expected outcome is to overcome all the above problems faced by public people in daily life.

### 3.CONCEPT:

To address the above five main issues faced by public people, I have designed an AI-powered vending machine that dispenses medicines automatically using artificial intelligence and machine learning algorithms and methods.

**3.1 Convenient language-**First, the user should select their convenient language to communicate with the machine. Tamil, English & Hindi only 3 languages will be provided in the initial days once the project gets higher demand other languages will be added. Then the user should enter their details, such as

**3.2 gender-** the gender is categorized into three types male, female, and transgender the patient should select any of them.

**3.3 age-** the age is categorized into three categories [7-17], [18-35], [35-45] the patient should select any one. Children whose age is below [7] years and adults whose age is above [45] years are not allowed to get medicines from this personal AI vending machine doctor and the process will be canceled automatically.

**3.4A set of [25-30]common illnesses**like cold, cold(running nose), blocked nose, Dry cough, cough, fever, head ache, vomiting sensation, sore throat, hoarseness in voice, body pain, diarrhea, ear ache, fire wound, itchy skin, eye irritation, more... will be displayed on the screen (a multi-select option is enabled here) The patient can select any three of them to initiate what type of illness they have.

**3.5Duration of the illness-** is categorized into four 1 day, 2 days,3 days, and 4 days, if the illness existed for 5 days or greater than 5 days the process will be canceled automatically because it is not advisable to get medicines for this personal AI vending machine doctor.

**3.6** Then the user should enter their **Aadhar card number** (through keypad or artificial intelligence and machine learning's voice recognition method is used for better user experience and the Aadhar card number is used for storing the database so that we can avoid the replication of the users and the verification process starts here for security purposes. The above-entered age (as input by the user) will be verified by the Aadhar card number if the entered age and the Aadhar card age are not matched the process will be canceled. If both the Aadhar card age and user input age matches the process will be continued. A user can access the machine twice a week. The machine will not dispense medicines if the user attempts to obtain the medicines for third time within a week.

**3.7** The patient will be verified by their **fingerprints**. If the fingerprints are not matched the process will be cancelled. If the fingerprint is matched move on to the next step.

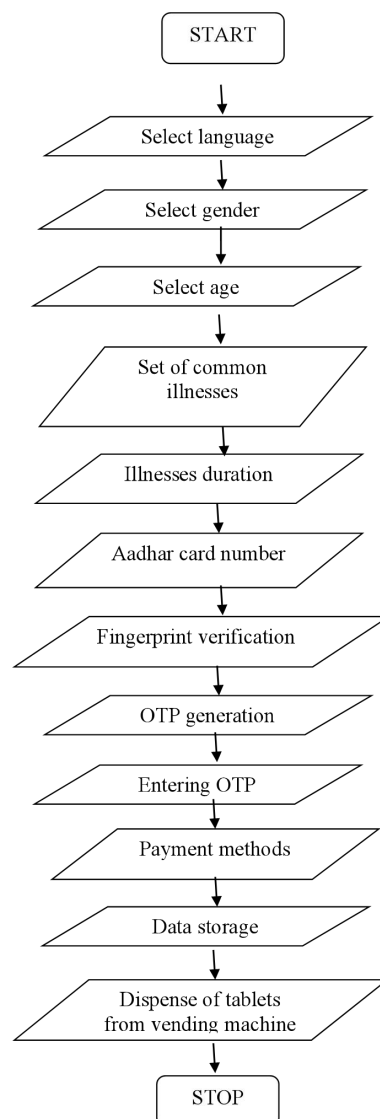
**3.8** For additional security an **OTP** will be sent to the respective patient's mobile number. Once the OTP is entered the process will be continued. If the OTP is wrong the process will be cancelled. If the OTP is verified properly move on to the next step.

**3.9** Then there are three types of **payment methods** i) card payment. ii) online payment. iii) cash payment. If the payment is unsuccessful within 2 minutes process will be canceled. After the payment is successful the medicines will be dispensed from the vending machine based on Top Doctor's built-in prescription system.

**3.10 Database** of an individual (date, time, what illness the patient selected, what illness duration the patient selected, what the mode of payment, what the tablets dispensed to the patient) is stored uniquely based on the Aadhar card number.

**3.11 Dispense of medicines.** Artificial intelligence and machine learning (AIML's) image recognition method is used in the dispensary box. If the patient fails to pick any tablet with the help of image recognition a buzzer sound will make a noise to encourage the patient to pick the medicine.

#### 4.FLOWCHART:



## 5.IMAGE REPRESENTATION:

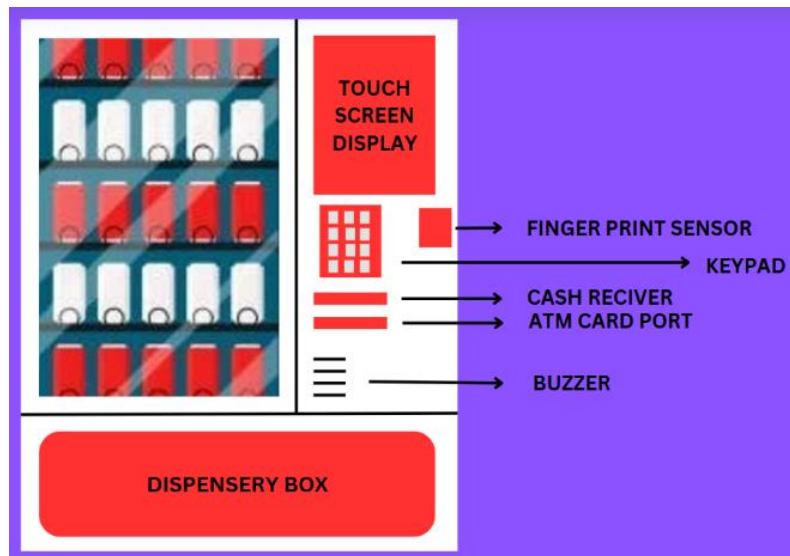


Fig.1 Physical appearance

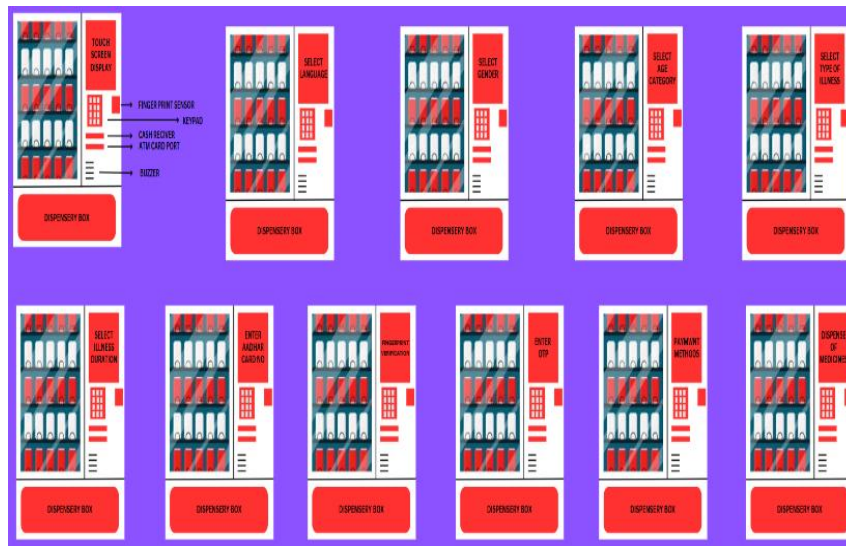


Fig.2 Methodology

## 6.REQUIREMENTS:

[1] A **proper power supply** is required for the machine to be functional at any time 24x7 or solar panel is used to generate electricity manually. [2] **proper internet connectivity** is required to make the payments possible at any time. [3] A **customized vending machine** is required which should have high accuracy in dispensing the medicines. [4] These machine needs around **10x10 feet of space** to locate it. [5] medical supplements like **tablets** are **purchased** in bulk amounts from top pharma manufacturing companies like Cipla, lupin, etc...

## 7.APPLICATIONS:

[1] It is completely a new project model and patternable. There are some existing chatbots, but they are not trustworthy. However, this project will increase the trust of the public. [2] The dealers will be profitable by charging some minimum cost as a vending machine fee. (Example: currently it costs about 100 rupees as doctor fees but this vending machine will add only 20 rupees as a fee. So, here the patient saved 80 rupees in fees). & The medicines costs are also reduced while purchasing it in a bulk quantity. (Example: if a patient gets medicines for 100 rupees from the doctor. But the vending machine gives the same quality of medicine at 80 rupees so that, the patient saved rupees 20 in medicines). As an overview patient spends 200 for a doctor and medicines but in this AI-powered vending machine, the patient spends only half of the amount. We can also display advertisements on the vending machine display during the process to get more profit for the dealer. [3] The main motive is to help poor people by reducing the fees of the doctor. [4] This AI-powered vending machine can also be used in college hostels to treat common illnesses by using it the hostellers do not need to go

out unwantedly at late night. [5] Doctors have a certain amount of time for Outpatient (OP) so, the patients aren't able to meet the doctor on time but this AI-powered vending machine will be available at any time ie: 24x7 as a result, the patients can access this machine at any time any place.

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## 8.FRONTEND & BACKEND DEVELOPMENT:

For the **client side** of our project, we will utilize cutting-edge fronted technologies to create a responsive, user-friendly interface. Some of the key technologies are [1] HTML5. [2] CSS3. [3] Javascript (with frameworks like react, angular, or vue.js). [4] UI libraries (example: material-UI, bootstrap). [5] Accessibility features (WCAG2.1 compliance). For the **server side** of our project, we will leverage robust backend technologies to manage data, logic, and integration. Some of the technologies are [1] programming languages (for example node.js, python, ruby, etc...). [2] frameworks (example: express.js, Django, ruby on rails). [3] Databases (relational: My SQL, PostgreSQL: NoSQL: mongo DB, Cassandra). [4] APIS (REST fil, graph QL). [5] security measures (example: authentication, authorization).

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## 9.CONCLUSION:

The AI-POWERED Vending machine offers a Comprehensive solution to various challenges in the Healthcare sector. By Providing easy access to medical service, it alleviates the struggles faced by rural residents. Additionally. It drastically reduces waiting times for patients to just a Few minutes, Making healthcare more efficient. The machine also ensures that medicines are affordable for all, at a lower cost, thereby increasing accessibility. Furthermore, it verifies the expiry dates of Medicines, guaranteeing their quality and safety. Lastly, the machine maintains accurate and up-to-date medical records for individuals, Facilitating efficient tracking and management of patient health. Overall, this innovative solution has the potential to revolutionize the healthcare industry.

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## 10.FUTURE ENHANCEMENT:

The future enhancements of the AI-powered vending machine will be driven by demand and usage patterns. If there is significant demand for this innovative solution, we can introduce modifications to streamline the user experience, specifically, instead of requiring users to enter their Aadhar card number every time, we propose introducing the medical card which is similar to an ATM card, which stores essential personal information. This upgrade will substantially reduce time consumption for each user, making it more convenient and efficient for patients to access medications.

- Faster authentication and verification process.
- Personalized medication.
- Real-time tracking of medication usage and adherence.
- Secure storage of sensitive medical information.
- Seamless integration with electronic health records (EHSs)

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## 11.REFERANCES:

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