

Smart Medicine Reminder With Family Alerts

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ABSTRACT

This research paper presents the design and development of a Smart Medicine Reminder System aimed for the people who are very busy in their daily activities work, hectic office environment, busy schedules, senior citizens and for the ones who are not able to take care of themselves. The app is very useful for elderly people who are suffering from health difficulties like Alzheimer's or the people who often forgot to take medications on time due to age related issues or busy schedules.

So basically, this app or systems provide a very useful and easy way to help people to take their medications on time with the use of smart features that are present in this app. This system provides medicine reminder, add or edit medicines, daily schedule, notifications and alerts. Users can make daily custom time, add name of daily or weekly dosages.

This app helps people:

- >to reminds them when to take dosages
- >stores medicine details
- >mark medicines as taken or missed ->send alerts if you forget
- >tracks medicine stock and refill time

It is basically used by the patients with regular medications elderly people busy students or professional caregivers tracking with family members.

KEY Features:

- >automated reminders and notifications
- >medicine tracking system
- >missed dose alerts
- >refill notifications

The proposed system is especially beneficial for elderly individuals, patients with chronic diseases and for the busy professionals and the system improves discipline in medication intake and contributes to better healthcare outcomes.

The results include:

- >efficient medicine management
- >increased medication adherence
- >better health monitoring

Thus, the proposed system provides an efficient solution for improving medication adherence and ensuring better health outcomes.

INTRODUCTION

In today's fast-paced world, it becomes very crucial to maintain a proper schedule which becomes a significant challenge especially for elderly individuals and patients who are dealing with chronic diseases. Missing or delaying medication doses can lead to serious health complications and bring struggles for other family members as well and thus reduced the effectiveness of following treatment.

Therefore, ensuring timely intake of medicines is essential for better healthcare management. Digital solutions are increasingly being used to address healthcare-related issues with the rapid advancement of mobile and web technologies.

A Smart Medicine Reminder App is one such solution designed to assist users in managing their day-to-day medication routines efficiently. The application provides automated reminders, alerts, and tracking features to ensure that users take their medicines on time without fail. Poor adherence to long-term therapies significantly affects treatment outcomes and increases healthcare burden, as studies have shown.

The application provides automated reminders, alerts, and tracking features to ensure that users take their medicines on time without a failure which may cause complications in the future and thus affect the health of the patients.

Traditional approaches such as written schedules, pill organizers, or manual alarms provide only basic reminders and do not offer monitoring or support when a patient forgets to take medication. With the rapid growth of smartphones technology and mobile health applications, and an effective way to improve medication compliance, digital solutions have emerged.

The system allows users to schedule medicine timing, dosage information, and treatment duration through a user-friendly interface. The application generates automated reminder notifications at the scheduled time using the device's alarm and notification services.

Focusing on modern technologies to support healthcare management, this research basically focuses on the design and development of a very user-friendly and efficient smart medicine reminder system. The system aims to improve discipline in medication intake, and provide a reliable solution for patients and caregivers.

Medication commitment systems have evolved significantly with advancement in mobile and IoT technologies. Several researchers have proposed reminder applications, cloud-based monitoring platforms, and IoT-enabled pillboxes to address the issue related to missed medication doses.

There are several studies and several existing systems which have been developed in the world to address the problem of medication non-adherence and to assist patients in taking their medicines on time which helps them to improve their health and helps in fast improvement.

Thus, this system is very useful for various patients and elderly people.

Many mobile-based medicine reminder applications provide



basic functionalities such as scheduling medicines, setting alarms, and tracking dosage history. These include medication tracking, refill reminders, and support for multiple types of medicines like tablets, injections, and syrups. Some systems also support multi user functionality, multiple patients and maintain medical logs and health records.

There are various studies that have designed mobile applications that allows users to set reminders, manage dosage, and track medication schedules. These apps focus on improving usability for elderly users but it come along with various limitations that



include requires manual input, no intelligent tracking or automation. There are various IoT based

Smart reminder Systems which works just like modern systems that use NodeMCU and IoT technology to send alerts, monitor patient adherence and notify caregivers if they missed their medicines which is very essential for the patient health and for fast recovery.

It includes advantages like remote monitoring, real-time alerts but are also associated with constraints such as hardware dependency and higher cost which causes trouble for the developers.

Smart pill box with monitoring have advantages like automatic pills dispensing, multi-dose management and error reduction in medication intake and also include limitation like complex designs and expensive for daily users.

Based on the above studies, it is evident that there are various medicine reminder systems which have been developed using hardware, mobile applications, and IoT technologies. Such systems provide effective solutions for medication management, many of them are either complex, costly, or lack user friendly component or interfaces.



PROPOSED WORK

This system aims to develop a smart medicine reminder application that helps users manage their medication schedules effectively and efficiently. The system is designed to reduce missed doses and improve shortcomings to prescribed treatments through timely alerts and user-friendly features.

This application allows users to add, update, and delete medicine schedules by entering details such as medicine name, dosage, frequency, and generate automated reminders using gmail notifications to the closed family members as well as the care giver who is taking the care of the patients. There are notification alerts with sound or vibration, daily and weekly schedule tracking, missed dose alerts and reminders as well as user authentication to ensure data security or cloud or local database storage for saving user data. There voice reminders for better accessibility, doctor or caregiver notification system, health tracking and reports.

IMPLEMENTATION

The implementation of this app is carried out by using a combination of frontend, backend, and database technologies to ensure smooth functionality and user interaction.

->System development approach

->Frontend implementation

That includes

- *user registration and login page
- *dashboard to view medicines time
- *forms to add, update, and delete medicines
- *notification display interface

->Backend implementation

- *handling user authentication
- *managing medicine schedule data
- *triggering reminders based on time
- *api development for frontend-backend Communication

->Database implementation

- *user details
- *medicine name, dosage, and timing
- *reminder status

->Reminder mechanism

The core functionality of the system is the reminder feature. It is the reminder feature.

- *Timers or schedules
- *push notifications or alarm alerts

->Integration

All components are seamlessly integrated using API's .The frontend sends requests to the backend, which processes the data and interacts with the databases.

->Testing and Deployment Correct reminder notification Data accuracy

User interface responsiveness

->Tools and Technologies Html, CSS, JavaScript/React Node.js, express.js MongoDB

Vs code, GitHub

The implementation ensures that the system works efficiently by combining a responsive interface, reliable backend processing, and accurate reminder scheduling to help users to manage their medications effectively.

FEATURE SECTION AND EXTRACTION

The smart medicine reminder system is designed to assist with multiple features to ensure ease of use, reliability, and effective medication management.

->User registration and login

It ensures secure user authentication, allowing users to create accounts and safely store their medical schedules.

->Medicine scheduling

Medicine name Dosage
Date and time Frequency

->Automated reminders

If a user does not response to the reminder then system generates a missed dose alert to ensure better adherence.

->User-friendly interface

System is designed with a very simple and east interface so that the people of all the age groups can find it to use it very easily and effectively and thus helps to increase it's frequency.

->Data storage

All the users data are stored with security using database.

->Medicine history tracking

The system allows users to track their medication schedules. It provides reminders and alerts to avoid missed drug intake.

->Notification system Push notification Sound alerts

Vibration alerts

FEATURE EXTRACTION

->Input feature Medicine name Dosage information Time and frequency User details

->Processing feature

Time-based scheduling algorithm Reminder triggering mechanism Data validation and processing Missed dose detection logic

->Output feature Reminder notifications Alerts for missed doses Medication history reports

->Functional features Add/edit/delete medicine Set reminders View schedules Track adherence

->Non-Functional features

Usability Reliability Performance Security

RESULTS

->The system was successfully developed and implemented.

->Medicine reminders were generated accurately on time.

->User data was stored and can be accessed efficiently.

->The interface was simple and very easy to use.

->Missed medication alerts work effectively.

->The system showed fast response and stable performances.

->No major errors or crashes were seen.

->Overall, the system proved reliable and efficient.

CONCLUSION

The smart medicine reminder system was successfully designed

and implemented to assist users in managing their medication schedules easily. The system provides timely reminders, reduces the chances of missed doses, and ensures better work to prescribed treatments. With its simple and easier and user friendly interface, it can be easily used by the younger as well as aged patients.

The app demonstrated reliable performance, accurate reminder alerts, and very efficient data management during testing. It addresses a common problem in healthcare by helping users to maintain their consistency in taking their medications.

Overall, the proposed system proves to be an efficient, reliable, and practical solution for improving medication management and prompting better health outcomes.

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