

Medicine Reminder Application Using Java & Android Studio

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ABSTRACT

This is an Android-based application in which an automatic alarm ringing system is implemented. It focuses on doctor and patient interaction. Patients need not remember their medicine dosage timings as they can set an alarm on their dosage timings. The alarm can be set for multiple medicines and timings including date, time and medicine description. A notification will be sent to them through app. They can search doctor & get list of doctors. The patients will get the contact details of doctors easily via app. The system focuses on easy navigation and good user interface. Many such Medical Reminder Systems have been developed where a new hardware is required but in our work we have made an attempt to develop a system which is economical, time-saving and supports medication adherence.

1. INTRODUCTION

The category of patients involves all human beings—teachers, students, businessmen, housewives, children and also all of us have a busy hectic schedule. Today's life is full of responsibilities and stress. So people are prone to diseases of different types and it is our duty to make ourselves stay fit and healthy. If the patient stays at home then he or she might get someone to look after him/her but when one is not at home, is out of the city or state away from home then it is hard for the family members to call them and remind them their dosage timings every time.

In our developing and technology dependent life we totally rely on gadgets especially smart phones. Today everyone has a smart phone. With this we get an opportunity to use technology in a better way so that it can be made useful to us. And it plays an important part in our daily life and helps us staying fit in many ways.

The remarkable problem is that patients forget to take the proper medicines in proper proportion and in proper time. Medication adherence, which refers to the degree or extent to which a patient takes the right medication at the right time according to a doctor's prescription, has recently emerged as a serious issue because many studies have reported that non-adherence may critically affect the patient, thereby raising medical costs. Medication non-adherence is a common, complex, and costly problem that contributes to poor treatment outcomes and consumes health care resources.



2.EXISTING SYSTEM

We are introducing an Android application whose objective is to remind the patients of their dosage timings through Alarm Ringing system so that they can stay fit and healthy. Through navigation they can search doctors and contact details so that they can easily get proper treatment on time. This application focuses on the people who forget to take medicines on time. It allows users to set an alarm along with the fields of date, time and medicine description which will allow them to set alarm for multiple medicines at different time intervals.

the kinds of information included in a manifest file are descriptions of the app's components among other architectural and configuration properties.



Disadvantages of Existing System

- 1) The Internet is required to run this application functionality.
- 2) This application can run on android OS

Advantages Of Proposed System

- Personal phone notifications and reminders are solid supporting tools for improving medication adherence strategies.
- Schedule an appointment with the doctor with the contact details.

3. PROPOSED SYSTEM

The proposed system is based on Android Operating system which will remind the users to take medicines on time through notification and automatic alarm ringing system.

Android is a Linux-based operating system designed primarily for touch screen mobile devices such as smart phones and tablet computers, developed by Google in conjunction with the Open Handset Alliance. Android was built from the ground-up to enable developers to create compelling mobile applications that take full advantage of all a handset has to offer. The system is specified on android operating system only because the market share of Android is high. Android also comes with an application development framework (ADF), which provides an API for application development and includes services for building GUI applications, data access, and other component types. The framework is designed to simplify the reuse and integration of components. Android apps are built using a mandatory XML manifest file. The manifest file values are bound to the application at compile time. This file provides essential information to an Android platform for managing the life cycle of an application. Examples of

4. PROBLEM STATEMENT

Medication adherence is a crucial aspect of managing chronic conditions and maintaining overall health. However, many people find it difficult to remember to take their medications on time, leading to missed doses and potentially negative health outcomes. In addition, keeping track of multiple medications with different schedules can be overwhelming and confusing, especially for older adults and those with cognitive impairments. Therefore, there is a need for a medicine reminder app that can help users manage their medication schedules and improve adherence, ultimately leading to better health outcomes.

5. LITERATURE REVIEW

What is an Android Application -

Android is a mobile operating system (OS) based on the Linux kernel and currently developed by Google. With a user interface based on direct manipulation, Android is designed primarily for touchscreen mobile devices such as smartphones and tablet computers, with specialized user interfaces for televisions (Android TV), cars (Android Auto), and wrist watches (Android Wear).

The OS uses touch inputs that loosely correspond to real-world actions, like swiping, tapping, pinching, and reverse pinching to manipulate on-screen objects, and a virtual keyboard. Despite being primarily designed for touchscreen input, it also has been used in game consoles, digital cameras, and other electronics. Android is the most popular mobile OS. As of 2013, Android devices sell more than Windows, iOS, and Mac OS devices combined, with sales in 2012, 2013 and 2014 close to the installed base of all PCs. As of July 2013 the Google Play-store has had over 1 million Android apps published, and over 50 billion apps downloaded.

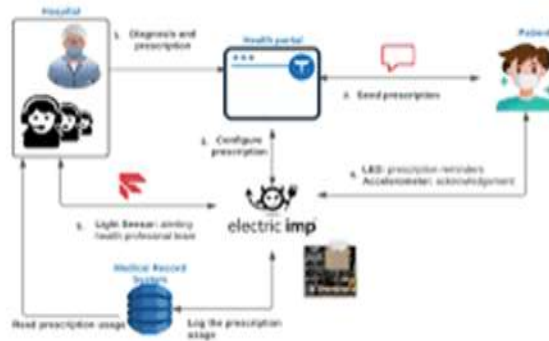
A developer survey conducted in April–May 2013 found that 71% of mobile developers develop for Android. At Google I/O 2014, the company revealed that there were over 1 billion active monthly Android users (that have been active for 30 days), up from 538 million in June 2013.

Literature survey:-

- Mediminder – Medication Management and Reminder Application
- Published in – 10 December 2021

When living with a chronic disease, one's quality of life or even life itself depends significantly on the degree to which one can follow their treatments. In such cases, treatment adherence is essential as every dose counts. However, a significant number of people find it hard to follow their treatment due to the increased number of medications and administration complexity. The solution we propose is Mediminder, an Android application for treatments management. Designed to aid people suffering from chronic diseases, its purpose is to simplify adherence to numerous complex treatments using reminders and planning tools.

6. ARCHITECTURE DIAGRAM



Methodology

To develop an effective medicine reminder app, the following methodology should be considered:

1. Identify the target audience: It's essential to understand the target audience's needs and preferences to create an app that will be useful and easy to use. Factors such as age, cognitive abilities, and health conditions should be considered when designing the app.
2. Determine the features: The app should have features that help users manage their medication schedules, such as setting reminders for specific medications at particular times, tracking medications taken, and providing alerts when it's time to refill prescriptions.
3. Develop a user-friendly interface: The app's interface should be user-friendly and easy to navigate. The app should have clear, concise instructions and use simple language to avoid confusion.
4. Test the app: Once the app is developed, it should be tested to ensure that it's functional and easy to use. User feedback should be solicited to identify any areas that need improvement.
5. Ensure data privacy and security: As the app deals with sensitive medical information, it's crucial to ensure data privacy and security. The app should be designed to comply with applicable data protection laws and regulations.
6. Release the app: Once the app has been developed and tested, it can be released to the public. Marketing strategies should be employed to make the app visible to the target audience.

7. ALGORITHM

Medication adherence is a crucial aspect of managing chronic conditions and maintaining overall health. However, many people find it difficult to remember to take their medications on time, leading to missed doses and potentially negative health outcomes. In addition, keeping track of multiple medications with different schedules can be overwhelming and confusing, especially for older adults and those with cognitive impairments. Therefore, there is a need for a medicine reminder app that can help users manage their medication schedules and improve adherence, ultimately leading to better health outcomes.

8. MATHEMATICAL MODEL

The app could then use this information to update the user's medication schedule. One possible mathematical model for a medicine reminder Android app could be as follows:

Let R be the set of all medication reminders that need to be sent to the user, and let T be the set of all times at which the reminders are to be sent. For simplicity, we assume that each reminder is associated with a single medication, although this could be extended to handle multiple medications per reminder.

We can model the user's medication schedule as a sequence of doses, with each dose consisting of a medication, a time of day, and a dosage amount. Let S be the set of all scheduled doses for the user. Each dose can be represented by a tuple (M, t, d) , where M is the medication, t is the time of day, and d is the dosage amount.

To generate the reminders, the app would need to compare the current time to the scheduled dose times and generate a reminder for each dose that is due within a certain time window. Let $d(t)$ be the set of all doses scheduled for time t , and let $r(t)$ be the set of reminders generated for time t . Then we can define the reminder generation function as follows:

$$r(t) = \{ (M, d) \mid (M, t, d) \in S \wedge t - w \leq \text{current_time} \leq t \}$$

where w is the time window for generating reminders (e.g., 30 minutes).

The app could then display the reminders to the user and allow them to mark each dose as taken or skipped. Let D be the set of all doses that have been taken or skipped, and let C be the set of all completed doses. We can define the dose tracking function as follows:

$$D = \{ (M, t) \mid (M, t, d) \in S \wedge \text{user_marks_dose_as_taken_or_skipped} \}$$

$$C = \{ (M, t, d) \mid (M, t, d) \in S \wedge (M, t) \in D \}$$

and generate future reminders accordingly. Note that this model is just one possible approach, and there are many other factors that could be taken into account, such as user preferences, medication interactions, and adherence tracking.

9. CONCLUSIONS

In conclusion, a medicine reminder app can be an effective tool for managing medication schedules and improving medication adherence. By incorporating features such as medication scheduling, tracking, refill reminders, notes and comments, multiple profiles, dose tracking algorithms, drug interaction checkers, health data tracking, user-friendly interfaces, and data privacy and security measures, the app can provide users with a comprehensive medication management solution.

The app can help users keep track of their medication schedules, reduce the likelihood of missed doses, improve adherence to medication regimens, and ultimately lead to better health outcomes. It can also provide users with personalized recommendations and notifications, making it easier to manage complex medication schedules for family members or caregiver.

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