

GoMed: Daily Medicine Reminder Application

Afshaan Sarguroh¹, Munaf Shaikh², Kashif Khan³, Dr. Zainab Mirza⁴

Student, Department of Information Technology, M.H. Saboo Siddik College of Engineering,
Mumbai, India ^{1,2,3}

Assistant Professor, Department of Information Technology, M.H. Saboo Siddik College of Engineering,
Mumbai, India⁴

Abstract: Good Health is a secret of every human being. Since the very beginning, Health is a matter of great concern. Some have to, without a choice, maintain a healthy lifestyle by taking medicines. Many patients find it difficult to take medicines at a proper time due to various reasons such as forgetfulness, busy schedule, old age, etc. This happens most commonly with the people taking medicines daily which results in medical non-adherence. Medical Non-adherence is a very serious issue as it can lead to various health-related problems. The advancement in mobile technology has enabled various techniques to solve these types of problems by designing and developing an application which patient will find it easy to carry along. In this paper, we aim to build an Android-based application, that will cover major features such as Medicine Reminder, Medicine Restocking Alert, Searching Hospitals, Medicals, Doctors in the vicinity, BMI Calculator, Notes, Caretaker Information, First Aid/Health Tips, Alarm System, etc. This system has a rich GUI and easy navigation which can be used by people of every age. This app will have a positive impact on people as it will act as a companion that can display reminders and notify the user to take the pills on time supporting Medical adherence and improving health.

Keywords: Medicine Reminder, Android App, Medication Adherence, Alarm System.

I.INTRODUCTION

There is a well-liked saying that health is wealth. Health is one of the foremost important things for many individuals, just because not having healthy life can cause a miserable life. Health care is a basic need of each person. The category of patients involves all citizenry - teachers, students, businessmen, housewives, children, and senior citizens. Today's life is filled with responsibilities and stress. So, people are susceptible to diseases of various types and we must make ourselves stay fit and healthy. People these days are very busy in their daily routine life schedule. If they're affected by any disease/illness then they must require the right medicines in proper quantity at the proper time. For this purpose, there should be some resource for the patients which can remind them about their medicine intake schedule.

Nowadays, everything is technology-driven and we rely on gadgets especially smartphones. Today Everyone uses a smartphone. Mobile Applications have made our lives much easier and luxurious. The most widely used facility in mobile phones is Reminders. People use Reminders for pretty much everything because of the busy schedule that they have.

Medical non-adherence is the major problem in the Health System. People usually forget to take their prescribed medications in due time and proportion. There could be many reasons for being forgetful such as busy schedules, Alzheimer's disease, loss of memory, Old Age, Dementia, Stress, Anxiety, Incorrect administration of medicines, medication complexity because of Multiple Pharmacy and Polypharmacy, incorrect timing, incorrect quantity, and lack of knowledge.

In this paper, we are introducing an Android Application that will remind the users to take proper medications at the proper time by providing them with reminders that will reduce Medical non-adherence. Besides, everyone these days has a mobile phone, and using this app will be easy and hassle-free.

This application named "GoMed" will provide various features such as:

- Reminder System for the users to take pills at a fixed time. The user will be alerted with a notification for the medication intake.
- The user can search Nearby Hospitals, nearby Doctors as well as Nearby Medicals to locate easily when needed.
- Notes Feature for the user to add important notes or details about an appointment.



- Body Mass Index (BMI) Calculator.
- Health/First Aid Tips for the assistance to the user during any emergency.
- Monthly Report Generation.
- The caretaker will be introduced in case of any emergency or for sending the restocking details of the medicine that is about to be finished.

II.BACKGROUND AND RELATED WORK

There are various applications available in the market which serves the same purpose. This section reviews some literature regarding the design, development, and implementation of medication reminder mobile applications for patients.

Deepthi Ameta et al., in their paper “Medication Reminder and Healthcare – An Android Application” describes a mobile application that focuses on the doctor and patient interaction. In this app, the patient need not worry as the doctor inputs the medicine reminder in the app for him/her. There is a section that provides healthcare tips and articles for medication adherence. It will give a reminder to the user as an email or message as chosen by the user.

Bhadane Ashwini et al., have presented a Mobile application that uses the OCR technique to recognize the prescription of the doctor in their paper “An Android Based Medication Reminder System Based On OCR Using ANN” where it will automatically recognize the medicine and store it in the app. It will then give a reminder based on the recognized text.

“Smart Phone-Based Medicine Intake Scheduler, Reminder and Monitor” is a mobile application called Wedjat developed by *John K. Zao et al.*, that can remind its clients to take the right medications on time and keep an in-take record for later surveys by medicinal services experts. Wedjat has two important features: (1) it can caution the patients about potential medication sedate/tranquilize nourishment associations and plan an intake plan that maintains a strategic distance from this antagonistic cooperation’s; (2) it can amend an in-take plan naturally when a measurement was missed. It additionally demonstrates photos of the medication and professional video concise in-take guidelines. Moreover, this application reminds a patient just once and has its platform dependent.

Arvie Carpio et al., have developed a smartphone-based software application “MedTouch: Towards the Development of Smartphone-based Software Solutions for Mobile Health Care” that enables patients to manage their vital statistics information, medical prescriptions including reminder alarms, the transmission of medical information to health care providers including photographs, and application settings.

III.PROPOSED SYSTEM

The proposed application is compatible only with smartphones running on the popular Android-based operating system. In this system, the users will have to input the medicine details in the medicine reminder section. The user will be asked for the details of the medicine to be stored. The application helps to remind patients or users to take their medicine in proper due time and proportion using an automated alarm ringing and notification system. It has various modules such as Medicine Reminder, BMI Calculator, Health and First Aid Tips, Searching Nearby Hospitals, nearby Medicals, and nearby Doctors, Care Taker Information, Notes, Medicine Reminder, and Update Profile.

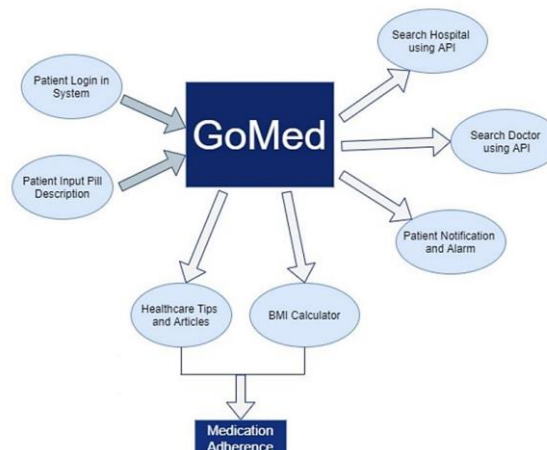
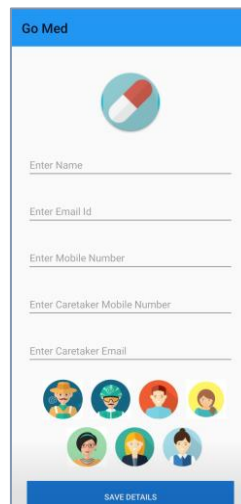


Fig. 1: System Overview

Above Figure 1 shows the Basic System overview of our Application. The inputs taken by the system are Profile details, medicine details, and timings. The output given is intake reminders and medicine restocking reminders. If the user forgets to take the pills on time they will be tracked and will be added to the report that will be generated monthly.

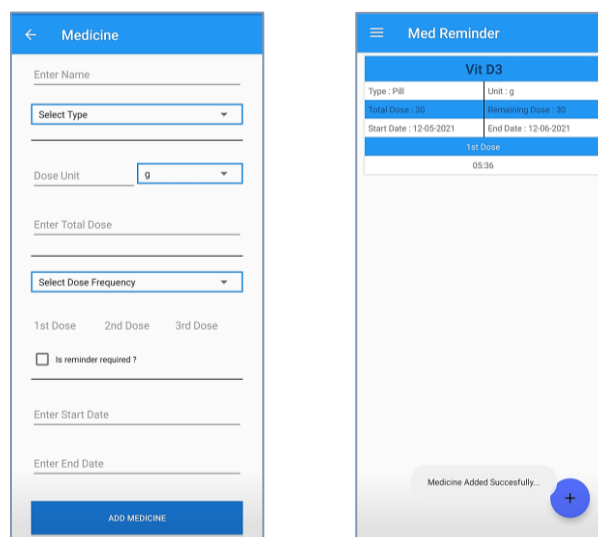
The application has a rich GUI, which will automatically attract more users. As soon as the user installs the app, following the instruction pages, he will be landing on the Starting page where the user has to fill in the details such as his name, phone no. email address and an OTP will be sent to his phone number. Upon verification, the user will have to enter the Caretaker details such as his name, phone number, and email address. (Fig. 2)



The screenshot shows the 'Go Med' app's initial profile screen. It features a blue header with a white pill icon. Below the header are five text input fields: 'Enter Name', 'Enter Email Id', 'Enter Mobile Number', 'Enter Caretaker Mobile Number', and 'Enter Caretaker Email'. At the bottom, there are six circular profile icons and a blue 'SAVE DETAILS' button.

Fig. 2: Initial Profile Screen

After successfully creating an account, the user can navigate through the different features provided. The Key Feature of this application is the Medicine Reminder module. Here the user can add medicine description such as the name of the medicine, type of medicine i.e., pills, syrup, inhalation, etc, the color of the pill, quantity to be taken, time to be taken at, frequency of the medicine, and total dosage. Based on this information, the user will get notified at particular timing to take the pill. He will have the option such as taken and Ignored based on which the user will get a monthly



The figure shows two screenshots of the application. Screenshot (a) is the 'Medicine' screen, which has a blue header and contains several input fields: 'Enter Name', a 'Select Type' dropdown menu, 'Dose Unit' (set to 'g'), 'Enter Total Dose', 'Select Dose Frequency' dropdown menu, three checkboxes for '1st Dose', '2nd Dose', and '3rd Dose', a checkbox for 'Is reminder required?', 'Enter Start Date', and 'Enter End Date'. A blue 'ADD MEDICINE' button is at the bottom. Screenshot (b) is the 'Med Reminder' screen, showing details for 'Vit D3'. It includes a table with columns for 'Type: Pill' and 'Unit: g', and rows for 'Total Dose: 30', 'Remaining Dose: 30', 'Start Date: 12-05-2021', and 'End Date: 12-06-2021'. Below the table, it shows '1st Dose' at '05:36'. A blue '+' button is at the bottom right, and a message 'Medicine Added Successfully...' is displayed at the bottom left.

report. (Fig. 3)

(a)

(b)

Fig. 3: (a) Entering Medicine Details (b) Medicine Reminder

Another highlighting feature of this application is the Restocking Reminder. As soon as 75% medicine is finished, the user will get notified to get the medicine on the Home page of the Application. When 75% of medicine is consumed, the user can contact the caretaker if he is an aged person, via email or SMS saying "Please Order Medicine XYZ, 75% is



consumed” along with image attachments to stock up the medicines or he can also send an emergency text via SMS if needed. (Fig. 4)

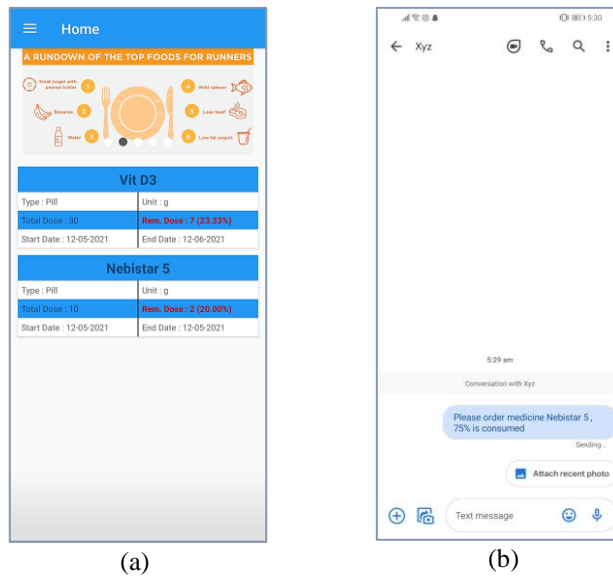


Fig. 4: (a)Medicine Restocking Alert (b) Predefined SMS is sent to the caretaker

In this app, the user can also Search Nearby Hospitals, in case of any emergency. The user can also search Nearby Doctors or clinics for some minor inconvenience or illness. Nearby Medicals can also be located for restocking the medicines or buying new ones. The user can easily find any hospital or doctor or medical nearby, by just opening the maps and the maps will show a marker for that particular hospital. (Fig. 5)



Fig. 5: (a) Nearby Hospital (b) Nearby Medical (c) Nearby Doctor



There is an option for the users to store prescription details or any appointment details or any important note in text format which will help them keep a record of any previous medications. (Fig. 6)

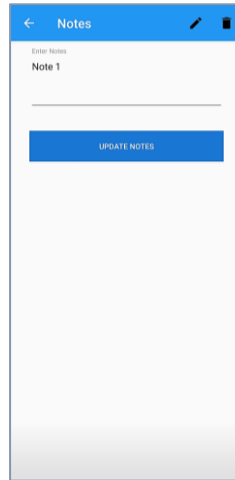


Fig. 6: Maintaining Notes

This system also offers the user some Health Tips to Stay Healthy and Fit. It also provides First Aid Tips. In case of any emergency, the user must be well aware of the aid to be taken for himself or to be given to another person.

Moreover, the application also provides Body Mass Index (BMI) Calculator, which provides health information i.e. the user is Normal, Obese, or Underweight as shown in (Fig. 7). It will help the user to eat accordingly and stay fit and healthy.

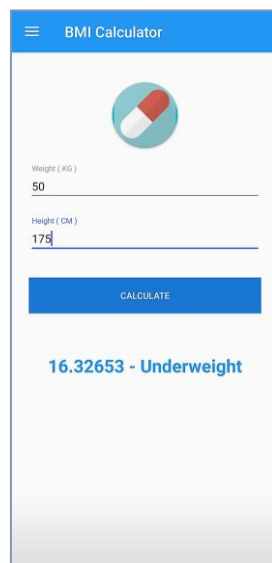


Fig. 7: Calculating BMI

IV. SYSTEM BLOCK DIAGRAM

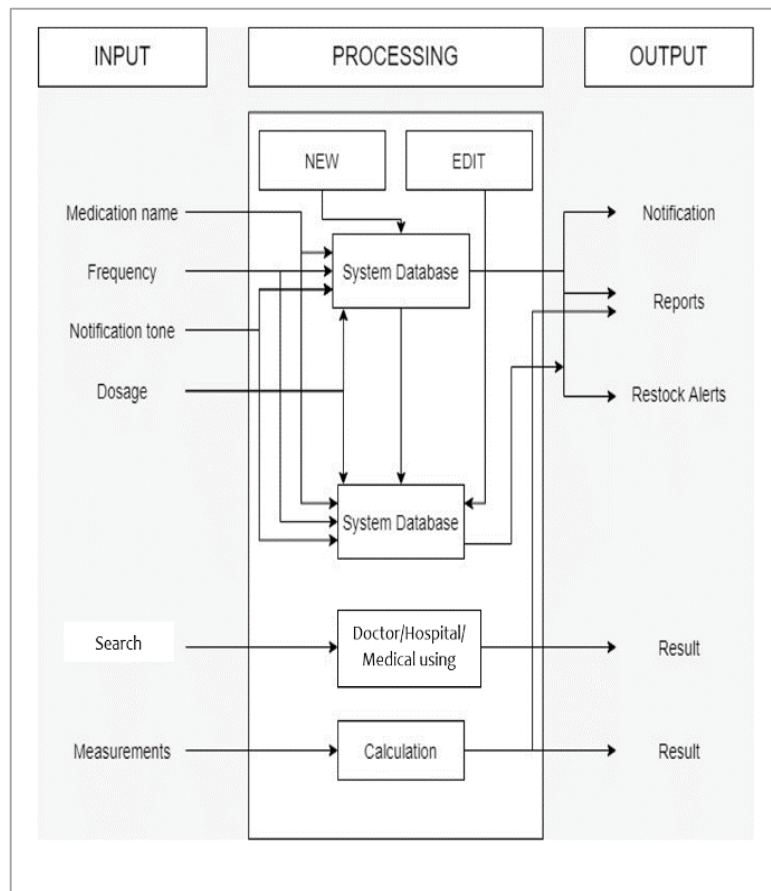


Fig. 8: Block Diagram of the Proposed System

V. CONCLUSION AND FUTURE SCOPE

In this age of science and technology, people are getting easier and convenient ways to solve their everyday problems. There is cutting-edge competition between app developers. Currently, there is various Medicine reminder application available on Play store with different features. Since the Patient finds it very difficult to keep track of their medication especially if it involves intake of pills on daily basis due to several reasons such as heavy workload, forgetfulness, and alterations in day-to-day behavior can also have a significant result on whether patients remember to take their prescribed medications. For this reason, we came up with our application “GoMed” which provides everything in one place. The user can set a reminder as well as look for the nearby hospital at the same place. It is built with a simple yet rich GUI that can be used by people of any age group. The system that we are implementing will also alert the user about the refilling of the medicine that is about to get over and also add caretaker details for refilling the medicine. Using this app, can in a way change the way people react to situations and avoid medical non-adherence.

In the future, we plan on working extensively for the betterment of the application by including features such as Online Appointment Booking and Online Medicine Ordering. This way Health care can be improvised using Mobile Technology.

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