



Daffodil International University

Project Proposal

Title: Medicine Reminder Android Application

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Submitted to:

Tanvirul Islam

Lecturer

Department of Computer Science and Engineering

Daffodil International University

Submitted by:

Name	ID
Prince Saha	191-15-12978
Bipro Roy	191-15-12976

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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 email or message inside the system preferably chosen by the patients. They can search doctors disease wise. The patients will get the contact details of doctors as per their availability. Also the users can see different articles related to medical fields and health care tips. 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.

INTRODUCTION

The category of patients involve 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 smartphone. 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 stay fit in many ways.

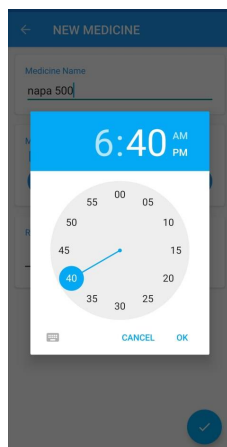
The remarkable problem is that patients forget to take the proper medicines in proper proportion and at the proper time. Medication adherence, which refers to the degree or extent to which a patient takes the right medication at the right time according to a doctor's prescription, has recently emerged as a serious issue because many studies have reported that non-adherence may critically affect the patient, thereby raising medical costs[1]. Medication nonadherence is a common, complex, and costly problem that contributes to poor treatment outcomes and consumes health care resources.

The application is designed on Eclipse. It can be helpful in the defence sector and emergency conditions (accidents) and can spread health care awareness. It is a life-saving, money saving and time saving application which is easy to use and provides a good user interface.

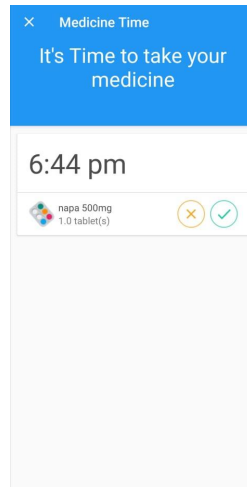
Methodology

The proposed system is based on the 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 smartphones 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. [9] 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 the kinds of information included in a manifest file are descriptions of the app's components among other architectural and configuration properties. Components can be one of the following types: Activities, Services, Broadcast Receivers, and Content Providers.

Set Alarm module- It helps in reminding about the medicines. User can add details of his dosage schedules. Using the date field one can enter the starting and ending dates between which he has to take medicines. The time field shows the time of dosage and on that time the alarm will get rung. The user can add the description of the medicine, including name, purpose and other related description. All the information will be saved in the database. This makes any time availability of the patients' records. They can change the ringtone of the alarm from the ringtones stored in the devices.



Get_Notification module—Once the alarm is set then the user gets the notification. The users can activate or deactivate this accordingly. If he does not require the notification he can turn off it. If he requires this system then a notification will be sent into his device. Again if he wants the notification in email form, he can select the ‘Notification through Email Mode’ or if he requires it in a message format he can go with ‘Notification through Message Mode’. Figure 2 depicts the module with Notification through Message Mode.



Implementation

List of software and related technologies being used Languages

- Python-Django
- Piston (Django Web Service APIs)
- Python-Celery (Process Scheduling)
- JSON & XML
- Lau script
- Bluebox (Freeswitch, PHP Web Interface) Web Standards
- HTML5, CSS3
- Javascript Framework (jQuery) Databases
- SQLite
- MySQL Servers (VMs localhost)

- Apache2
- Python-Mod_WSGI
- MySQL Server
- Freeswitch (VoIP server)

ADVANTAGES

The users will get the notifications through SMS also. It will provide the information about the medicine timings. The scheduled appointment with the doctor with the contact details including visiting time, venue and availability at different hospitals in case the appointment is missed at the scheduled place. The new appointment will be set accordingly.

The system focuses on improving the rate of attendance at healthcare appointments. The personal phone notifications and reminders are a strong supporting tool in improving medication adherence strategies. The New England Healthcare Institute estimates that \$290 billion of healthcare expenditures could be avoided if medication adherence were improved . It supports an easy implementation as it is less expensive, reliable, scalable, accessible to anyone with smartphones, and does not require separate devices, packaging or extra hardware. In case if the user's phone is switched off and he has set the alarm and the notification is set on , still he will be able to get the notifications through email or message(on his device as well as on another registered number), so it works even when you are running out of battery. Also a facility of reminding the doctor's next appointment in the system has been focussed.

We have also implemented a navigation system which will allow users to locate the nearest registered hospitals according to their current location. The location based searching of the doctors as well as disease wise searching has been focussed which makes the application more suitable, more user friendly with great features and satisfactory results.

Future of the Project

Many Medication Reminder Systems have been developed on different platforms. Many of these systems require special hardware devices to remind the patients about the medicine in-take timings. Purchasing new hardware devices becomes costly and more time and money consuming. So in the given work an attempt has been made to implement a system which is economical, easily accessible and improves medication adherence. Medication non-adherence reduces the effectiveness of a treatment and imposes a financial burden on health care systems. The patients will get the schedule of medicine in-take time with medicine description,

starting and ending date of medicine, notification through message or email, automatic alarm ringing system and navigation system. The scheduled reminder will not suggest any kind of medicine which is not prescribed by the doctor that will assure the safety of the patient and also will avoid wrong dosages. The patients can also search doctors disease wise (depending upon the specialization of the doctor), which provides easy searching facility to the users and saves the time. Doctors can view all the fixed appointments along with date and time, which he fixed and through this he can make new appointment schedules.

We plan to focus on improving the overall performance of the system. Also, interaction between patients and doctors through video calling and secure prescription will be focused upon. Some more ways to achieve medication adherence will be focused.