

Medicine In-take Reminder and Monitor

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Abstract

The structure of comprehensive health care emphasizes self-care more than therapy. Medication therapy is a strong instrument for therapy received through the health setting, especially in medication area. Error in medication administration has produced different problems and they cost billions of dollars every year. Regarding mobile phone extensions, we developed a local medication reminder mobile application. This is an Android-based application in which a programmed caution ringing framework is executed. It centers around specialist and patient collaboration. Patients need not recollect their drug measurements timings as they can set a caution on their dose timings. The alert can be set for different drugs and timings including date, time and prescription depiction. A notice will be sent to them through a message or an update ideally picked by the patients. The update enables the patient to have a cognizance with the utilization of prescription and can be utilized in helping the client in reminding the dose, subsequently updates help in diminishing medicine apportioning blunders and wrong measurements.

Keywords: *Medication remainder, Android based software, Medicine Scheduler.*

I. INTRODUCTION

The class of patients include every single individual educators, understudies, businesspeople, housewives, kids and furthermore we all have a bustling wild calendar. The present life is brimming with obligations and stress. So individuals are inclined to maladies of various kinds and it is our obligation to make ourselves remain fit and solid. In the event that the patient remains at home, at that point the individual may inspire somebody to care for him/her however, when one isn't at home, is out of the city or state far from home then it is hard for the relatives to call them and remind them their measurements timings unflinchingly. In our creating and innovation subordinate life we thoroughly depend on devices particularly keen telephones. Today everybody has an

advanced cell. With this we inspire a chance to utilize innovation in a superior way with the goal that it tends to be made helpful to us. Also, it has a critical influence in our day by day life furthermore, causes us remaining fit from numerous points of view. The astounding issue is that patients neglect to take the best possible drugs in legitimate extent what's more, in legitimate time. Drug adherence, which alludes to the degree or degree to which a patient takes the correct drug at the perfect time as indicated by a specialist's remedy, has as of late risen as a major issue on the grounds that numerous investigations have detailed that non-adherence may basically influence the patient, in this way raising restorative costs[1]. Prescription nonadherence is a typical, complex, and expensive issue that adds to poor treatment results and devours wellbeing care assets [2]. So we are presenting an Android application whose goal is to help the patients to remember their measurement timings through Alarm Ringing framework with the goal that they can remain fit and solid. Through route they can seek specialists and medical clinics and contact subtleties with the goal that they can without much of a stretch get legitimate treatment on time. This application focusses on the general population who neglect to take meds on time. It enables clients to set an alert alongside the fields of date, time and medication depiction which will enable them to set caution for various prescriptions at various time interims. The notice framework will send a notice in the wake of setting a caution. The client can actuate or deactivate the notice as needs be. It will be sent as email or message as chosen by the client. The patients can seek specialist ailment insightful and zone savvy which will give simple looking office alongside specialist's contact data, visiting spot and accessibility time. Medicine updates help in diminishing medicine administering mistakes and wrong doses.

The application is planned on Eclipse. It very well may be useful in barrier segment and crisis conditions (mishaps) and can spread human services mindfulness. It is life-sparing, cash sparing and efficient application which is anything but difficult to utilize and gives a decent UI.

II RELATED WORK

Numerous Medication Systems have been created dependent on various stages and ideas. Utilization of social insurance related applications is developing yet there are numerous issues identified with their usefulness. My MediHealth [3] is a prescription update framework for kids. It keeps running on cell phones such as advanced mobile phones, giving UIs to designing prescription calendars and client alarms for reminding clients about the time and sort of medicine as indicated by the arranged prescription plan. A few frameworks use sensors, radio-recurrence ID (RFID), or movement identification innovations to guarantee that patients really take their drugs [4][5][6]. Park et al proposed prescription update synchronization framework dependent on information synchronization. It transmits OMA (open versatile partnership) DS (information synchronization) based messages containing the patient's prescription information and the gadget design information to a remote chief/medicinal staff. It moreover synchronizes information (counting prescription calendars) adjusted/produced by these work force in the prescription server [1]. Prasad B has examined the methodology of Medicine update professional. It is a free application which bolsters up to 15 updates. Client can choose them in either rehashing or non-rehashing alert examples. Any hourly time interim between cautions can be chosen, beginning from the least of 60 minutes. At the booked time, application will deliver a notice with a caution, vibration or LED sign. [7]Zao et al have created Wedjat – Smart Phone Application which attempts to maintain a strategic distance from prescription organization blunders [8]. There are numerous escape clauses of existing update frameworks. To list a couple:

They don't give sickness astute seeking of the Doctors, no discretionary notice as it were impulse, no office for booking of arrangements to the specialists. A portion of the frameworks have a default alert tone so the clients can't transform them. The planned update recommends any sort of drug, portion of medication, and so forth naturally without specialist's solution, which can make hurt the patients. Ultimately, a considerable lot of the frameworks accessible require uncommon equipment which need to be obtained.

EXISTING SYSTEM

The existing system involves a standard internet connection for receiving reminder notifications or either to receive an alarm or a call at a proposed time, date including dosage details.

III PROPOSED SYSTEM

The aim of proposed system is based on Android Operating system which will remind the users to take medicines on time through SMS notification or an automatic alarm ringing system without an need of internet.

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. 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 [13]. It supports an easy implementation as it is less expensive, reliable, scalable, accessible to anyone with smartphones, and do not require separate devices, packaging or extra hardware. In case if the users 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 other registered number), so it works even when you are running out of the battery. Also a facility of reminding the doctor's next appointment in the system has been focused. 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 focused which makes the application more suitable, more user friendly with great features and satisfactory results.

Advantages:

1. No need of active internet.
2. Notifies through a pop up window.
3. Notifies through SMS.
4. It provides better service than previous one.

IV METHODOLOGY

Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm and area of application. Design is the first step in the development phase for any engineered product or system. The designer's goal is to produce a model or representation of an entity that will later be built. Beginning, once system requirement have been specified and analyzed, system design is the first of the three technical activities design, code and test that is required to build and verify software.

The importance can be stated with a single word "Quality". Design is the place where quality is fostered in software development. Design provides us with representations of software that can assess for quality. Design

is the only way that we can accurately translate a customer's view into a finished software product or system. Software design serves as a foundation for all the software engineering steps that follow. Without a strong design, we risk building an unstable system – one that will be difficult to test, one whose quality cannot be assessed until the last stage.

During design, progressive refinement of data structure, program structure, and procedural details are developed reviewed and documented. System design can be viewed from either technical or project management perspective. From the technical point of view, design is comprised of four activities – architectural design, data structure design, interface design and procedural design.

Modules:

User Module:

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/she has to take the medicines. The time field shows the time of dosage and on that time the alarm will get activated. The user can add the description of the medicine, including name and purpose.

Database Module:

The data entered by the user is retrieved and stored in sqlite database and then displays the data in notification panel at that particular time along with the medicine details.

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.

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'.

Healthcare Module: In it, the patients can read different posts, articles, new technology in medical sciences, tips and other information of staying fit because staying fit is important for a good social life, becoming a good wellbeing, looking and feeling better, and a happy healthy life. Patients can get knowledge of new treatments.

Registered_Patients Module: The Doctor can view all the patients registered to him with all of his details.

Appointment_Schedule Module: The doctor can view the appointment schedule and can set the new appointments accordingly. This module will help in making proper adjustments.

Reply_Mode Module: The reply mode module allows the patient to ask some questions related to the prescribed pills, medicine schedules and other queries. The doctors can reply in yes or no mode.

Architecture:

The three-tier architecture was coming into existence to improve management of code and contents and to improve the performance of the web based applications. There are mainly three layers in three-tier architecture.

These are defined as follows...

- Presentation.
- Business Logic.
- Database

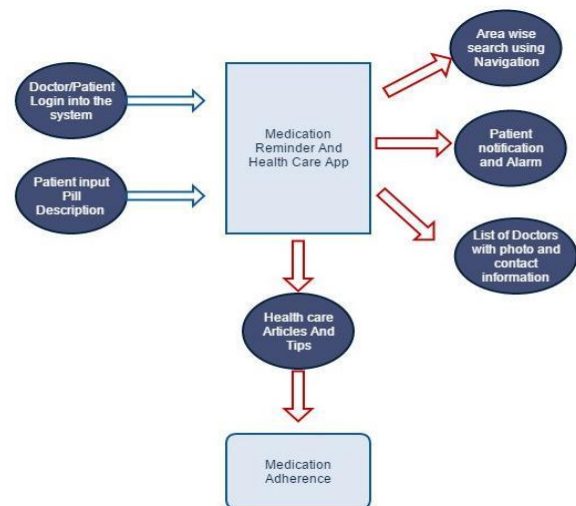


Figure: Medication Reminder and Healthcare: System Overview

1. Presentation: First layer Presentation contains mainly the interface code, and this is shown to user. This code could contain any technology that can be used on the client side like HTML etc.

2. Business Logic: Second layer is Business Logic which contains all the code of the server-side. This layer has code to interact with database and to query. Manipulate, pass data to user interface and handle any input from the UI as well.

3. Database: Third layer Data represents the data store like MS Access, SQL Server, an XML file, an Excel file or even a text file containing data also some additional databases are also added to that layers.

Input to the system is the information entered by the patient which includes date, time, medicine name, doctor's name, etc. The output of the system focuses on "Medication

Adherence". Medication adherence usually refers to whether patients take their medications as prescribed (eg, twice daily), as well as whether they continue to take a prescribed medication. Medication non adherence is a growing concern to clinicians, healthcare systems, and other stakeholders (eg, payers) because of mounting evidence that it is prevalent and associated with adverse outcomes and higher costs of care.

V CONCLUSION

In this paper we proposed Numerous Medication Reminder Systems have been created on various stages. A large number of these frameworks require uncommon equipment gadgets to remind the patients about the drug in-take timings. Acquiring new equipment gadgets turns out to be exorbitant and additional time and cash expending. So in the given work an endeavor has been made to actualize a framework which is efficient, effectively open and improves prescription adherence. Prescription non-adherence decreases the viability of a treatment and forces a budgetary weight on social insurance frameworks [14] [15]. The patients will get the calendar of medication in-require significant investment with drug depiction, beginning and consummation date of prescription, notice through message or email, programmed alert ringing framework and route framework. The booked update won't propose any sort of drug which isn't endorsed by the specialist that will guarantee the security of the patient and furthermore will maintain a strategic distance from wrong doses. The patients can likewise look specialists infection astute (contingent on the specialization of the specialist), which gives simple seeking office to the clients and recovers the time. Specialists can see all the fixed arrangements alongside date and time, which he fixed and through this he can make new arrangement plans. We intend to concentrate on improving the general execution of the framework. Likewise, cooperation among patients and specialists through video calling and secure medicine will be engaged upon. Some more approaches to accomplish medicine adherence will be engaged.

VI REFERENCES

- [1] Park, KeeHyun & Lim, SeungHyeon, (2012) "Construction of a Medication Reminder Synchronization System based on Data Synchronization", International Journal of Bio-Science and Bio-Technology, Vol.4, No. 4, pp1-10.
- [2] "Smartphone medication adherence apps: Potential benefits to patients and providers", available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3919626/>
- [3] Slagle, J.M., Gordon, J.S., Harris, C.E., Davison, C.L., Culpepper, D.K., Scott P. and Johnson, K.B., (2011) "MyMediHealth – Designing a next generation system for child-centered medication management", Journal of Biomedical Informatics, Vol. 43, No. 5, pp. 27-31.

- [4] Becker, E., Metsis, V., Arora, R., Vinjumur, J.K., Xu, Y. and Makedon, F. (2009) "SmartDrawer: RFID- Based smart medicine drawer for assistive environments", Proc. of Pervasive technologies related to assistive environments, June, pp 1-8.
- [5] Ammouri, S. and Bilodeau, G.A. (2008) "Face and hands detection and tracking applied to the monitoring of medication intake", Proc. of Canadian Conf. on Computer and Robot Vision, May, pp. 147-154.
- [6] Batz, D., Batz, M., Lobo, N.D.V. and Shah, M. (2005) "A computer vision system for monitoring medication intake", Canadian Conf. on Computer and Robot Vision, May, pp. 362-369.
- [7] Prasad, B., (2013) "Social media, health care, and social networking", Gastrointest Endosc. Vol. 77, pp 492-495.
- [8] Zao, J.K., Wang, M.Y., Peihuan, T. and Liu, J.W.S., (2010) "Smart Phone Based Medicine In-take Scheduler, Reminder and Monitor", IEEE e-Health Networking Applications and Services (Healthcom), pp 162 – 168.
- [9] "Android", available at: http://www.openhandsetalliance.com/android_overview.html
- [10] Mahmood, R., Mirzaei, N., Malek, S., (2014), "EvoDroid: Segmented Evolutionary Testing of Android Apps", FSE'14, November 16-21, 2014, Hong Kong, China
- [11] "Medication Adherence", available at: <http://circ.ahajournals.org/content/119/23/3028.full>
"Healthful Reminders for Medications, Beyond an Apple a Day", available at: http://www.nytimes.com/2010/09/30/technology/personaltech/30smart.html?_r=0
- [12] "Thinking Outside the Pillbox: A System-wide Approach to Improving Patient Medication Adherence for Chronic Disease" (2009), A NEHI Research Brief July 2009, New England Healthcare Institute.
- [13] Hughes, D. A., Bagust, A., Haycox, A., and Walley, T.O.M. (2001) "The impact of non-compliance on the cost effectiveness of pharmaceuticals: a review of the literature", Health Economics, pp. 601- 615.
"Adherence to long term therapies: Evidence for Action" (2003), Report by World Health Organization.

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