CHAPTER 1
INTRODUCTION

1. INTRODUCTION

In recent number of years instant use of communication tools like mobile devices have been successfully introduced to support communication and collaboration processes in work environments. Research suggests that the use of mobile applications also increasing rapidly day by day due to social presence and awareness within a collaborative group. Now a days all over the world people are more interested in various type of mobile application, and dynamical informative apps are one of the top most choice for its very significant matter. This kind of apps helps to learn easily and patiently. Android devices come in all kinds of sizes, with all sorts of features, and all sorts of prices. Each version of Android is named by dessert, and the most recent version of Android is Lollipop with Android in control of mobile experience. That Is why now a days android based application development is also one of the top most choice of the developers in many areas. Here we use android to develop an android health management app to take care of family health condition.

Android is designed to run on many different types of devices, from phones to tablets and televisions. As a developer, the range of devices provides a huge potential audience for our app. This app made to be successful on all these devices; it should tolerate some feature variability and provide a flexible user interface that adapts to different screen configurations. Our app's user interface is everything that the user can see and interact with. Android provides a variety of pre-build UI components such as structured layout objects and UI controls that allow us to build the graphical user interface for our app. Android also provides other UI modules for special interfaces such as menus.

Google android provides an application distribution platform named play store which is the android application market place and developers can post there application in here with following some rules and regulation. Also developers required to pay a small amount of fees annually. The user can download application from this play store mostly free of charge but some application is required to pay a small amount of fees. Whenever developers update of their application with new version, user will be informed immediately and most update version is guaranteed.

CHAPTER 2
LITERATURE SURVEY

2.   LITERATURE SURVEY

2.1-HISTORY

The effectiveness of a therapy or treatment directly depends upon a patient's ability and willingness to follow a prescribed regimen. The patient's ability for reading and understanding the instructions for medication is a key factor. Patients who face difficulties in understanding the instructions in a prescription which ultimately results in decreased adherence and poor medication management and consumption. Issues of low literacy must be recognized and strategies designed with this limitation in consideration. A patient with heart failure problem not taking prescribed medication or who tents to forget to take their medicine, costs the U.S. health care system an average of almost $8,000 annually, according to a 2011 analysis published in Health Affairs. The cures are high for other illnesses too almost $4,000 per patient with high blood pressure, over $3,700per patient with diabetes and about $1,200 per patient with high cholesterol. Dr Brennan and a team of researchers at Brigham and Women's Hospital, in Boston, have been studying this issue since 2010 by analyzing pharmaceutical insurance claims data. They've determined several reasons behind not taking proper medication and among those, one of them is: There is a high degree of complications for patients who takes several different drugs for a variety.

2.2-LITERATURE REVIEW

[1]A study on Mobile apps in the Healthcare Industry: *by Balagopal Ramdurai May 2021*

Overall, health app downloads have increased by 25% during the pandemic. Covid-19 has emphasized and increased the use of digital health tools, and that while some have found it challenging, others have embraced it. As countries enter subsequent wave there is eminent national lock downs, although health services remain open, there are still efforts to treat people remotely. Now, and when life has come back to normal, people should continue to harness digital health to address the health and service issues left by Covid-19 and not lose the gains that digital health has provided over this period, the report said[1].

[2]Medical applications: a database and characterization of apps: *Jill de Grood and William A Ghali 27 august 2014*

The research team collectively developed a list of medical app characteristics, after examining a random selection of apps. The team defined target audience by the role of the groups who would use the app as either specified or inferred from the app description When an app might be used by a person who is under health provider care or managing a long-term condition such as diabetes, the team characterized it as a patient app; whereas apps for self-care without clinician over-sight, including home remedies, calorie trackers, home health guides, and medical service locators, were characterized as apps for the public. A number of filtering processes were applied to the data at the time of collection and during refinement to ensure data quality[2].

[3] Designing a health reminder application, UX case study: *Ashwini Kalmane Jun 25 2019*

'Health Memo' aims to provide support to people that they need to take their medications the way they're supposed to and to never miss their health care appointments. The app provides support for all kind of health conditions including minor to life threatening diseases. It also acts as a perfect companion for those who need a mobile organizer for vitamins, regular medications, Doctor appointments and other health concerns. there are two separate types of applications for medication. One is applications, which are tied to hospitals and available to only the patients under such hospitals.Second

one is, applications which are not tied to any hospitals and don't update medications from hospitals [3].

***[4]*Developing the Medication Reminder Mobile Application:**
Asghar Ehteshami, and Ali Samimi 2017 Jun; 25(2): 108–111.
This application was designed for the appropriate medication administration including time and dosages through: recording patient and medication data; scheduling patients' medication; and reporting medication administration on progress.This application has been designed in compliance with Iranian health information technologists and pharmacists requirements. It is expected to reduce medication error and improve patient adherence to medical prescriptions .Fulfillment of outpatients' prescribed medication is an important part of the self-care process, because it is related to patient safety and it can cause serious problems for patients' health as well as threatening their safety[4].

CHAPTER 3
PROBLEM STATEMENT

3. Problem Statement

Nowadays, everyone is trying to focus in on their well being in their everyday occupied lives. Medication non-adherence remains a significant challenge in healthcare, leading to adverse health outcomes, increased healthcare costs, and reduced quality of life for patients. Keeping these issues in mind we have designed such an application which will help users in multiple ways. They are as follows:

1. Enhancing User Experience: The application offers a user-friendly interface and intuitive design to ensure ease of use for individuals of varying ages and technological proficiency. This includes clear navigation, simple medication entry, and customizable settings.

2. Addressing Medication Adherence: The application's primary objective is to tackle the issue of medication non-adherence, which is a significant concern in healthcare. It aims to improve adherence rates by providing timely reminders for medication intake.

3. Timely and Accurate Reminders: The core function of the application is to deliver reminders at the appropriate times for medication intake, ensuring users do not miss doses. Reminders are customizable based on the user's schedule and preferences.

4. Comprehensive Medication Management: Beyond reminders, the application should enable users to manage their entire medication regimen effectively. This includes storing information such as medication names, dosages, frequencies, and any special instructions provided by healthcare providers.

5. Tracking Medication History: Users should be able to review their medication history within the application, allowing them to monitor their adherence over time and identify any patterns or trends in their medication intake.

CHAPTER 4
EXPERIMENTAL SETUP

4. Experimental Setup

4.1 Hardware Setup

Android device: Redmi , Samsung etc.

Networking Equipment: Cisco Network Router to connect the server to the internet and manage network traffic.

Storage: Sufficient storage space to store the application code, media files, and database

Data.

Security Equipment: Avast Firewall

4.2 Software Setup

Programming Languages: Java – JDK 21

Integrated Development Environment (IDE): Android Studio 20233.2.1.25

User Interface Development: Figma V 116.4.2

Backend Development: Firebase CLI (v13.1.0)

Version Control: Git
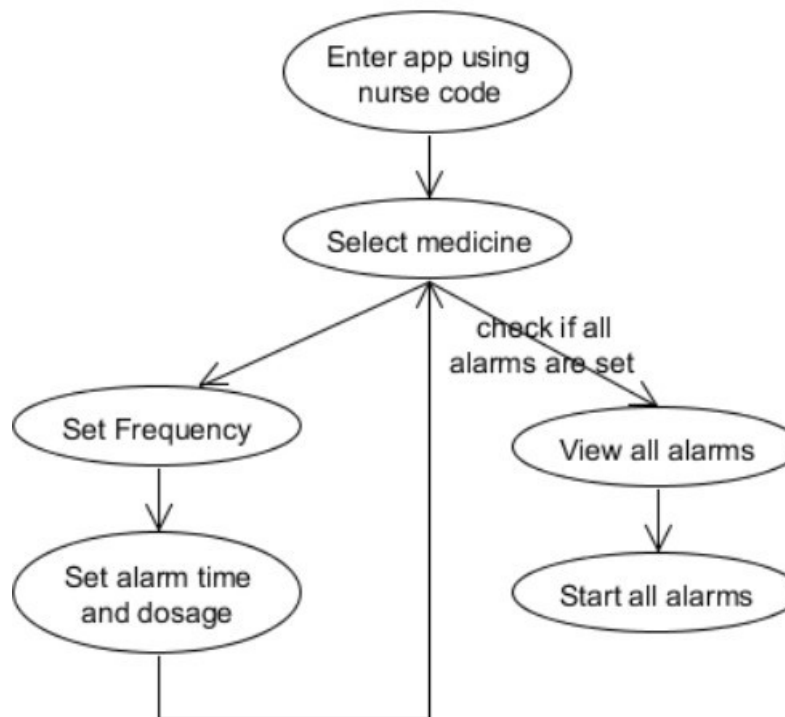
CHAPTER 5
PROPOSED SYSTEM
& IMPLEMENTATION

5. Proposed system & Implementation

5.1 Block diagram of Proposed system
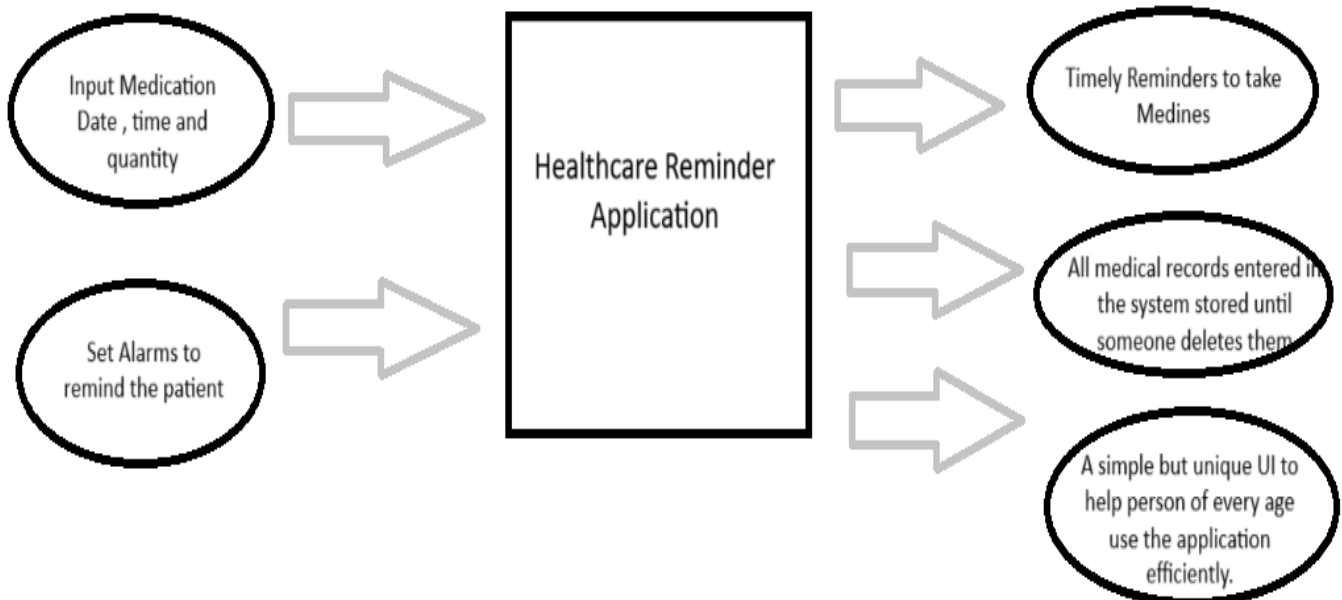
5.1.1 Block Diagram

5.2 Flowchart of Proposed system

*5.2.1 Flowchart*

5.3 Description of Block diagram

- The app is first used by the nurse to set up alarms according to the patient's regimen. The nurse needs to enter an activation code to start the app for the first time.

- if the nurse code is entered, the app will guide the nurse to register patient's medication information and set alarms. If the patient code is entered, the patient can view his medication schedule and alarms registered by the nurse.

- Once the nurse enters the nurse code, the next screens would lead the nurse to set up the medication schedule according to the patient's prescription. In this process of setting up the schedule, the first screen contains a list of medicines to be selected.

- If the patient ignores or chooses to snooze an alarm, the app will set the alarm again after 15 minutes. This will continue for up to four times until the patient chooses to dismiss the alarm. For the fourth time, the user would only have the dismiss option and cannot snooze. Beyond the fourth time, there will be no more reminders for this dose. If the patient chooses to dismiss the alarm, the app will ask them whether the medication has been taken or not . If the user clicks no then the user will be asked to provide rationale for dismissing the alarm by selecting from a list of choices

- Each drug has a unique set of options to set the frequency. For example, Exjade can be taken either one or two times a day. After selecting Exjade on the previous screen, the nurse would have to select any one option .

- After all the alarms have been set, the View Alarm button is enabled. When the nurse clicks the View Alarm button, the app displays brief information of all alarms . Along with the list, a Start Alarm button and a Download Report button are displayed in this screen. Clicking Start Alarm button would enable all of the alarms in the background. After clicking the Start Alarm button, the text on the button would change to Edit Alarm, to allow the nurse to edit alarms. When the Edit Alarm button is clicked, the user is taken back to the list of drugs where they can edit the medication and alarms.
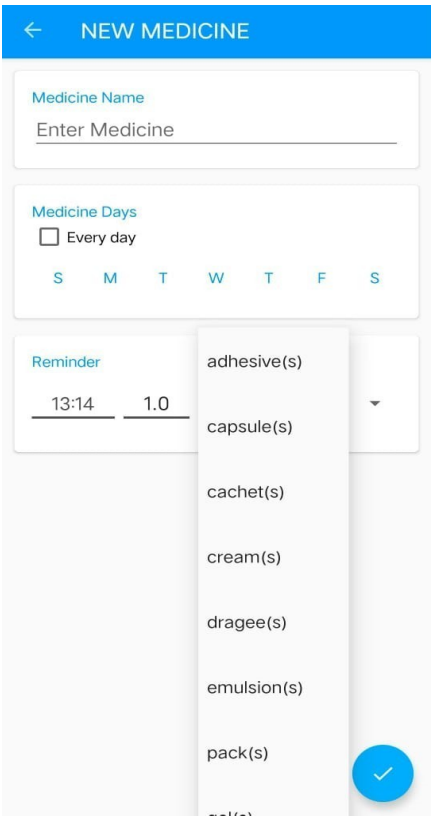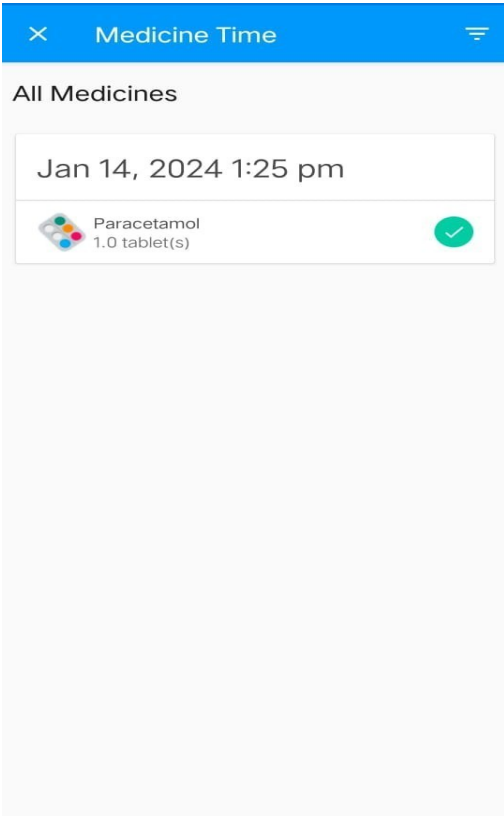
5.2 Implementation
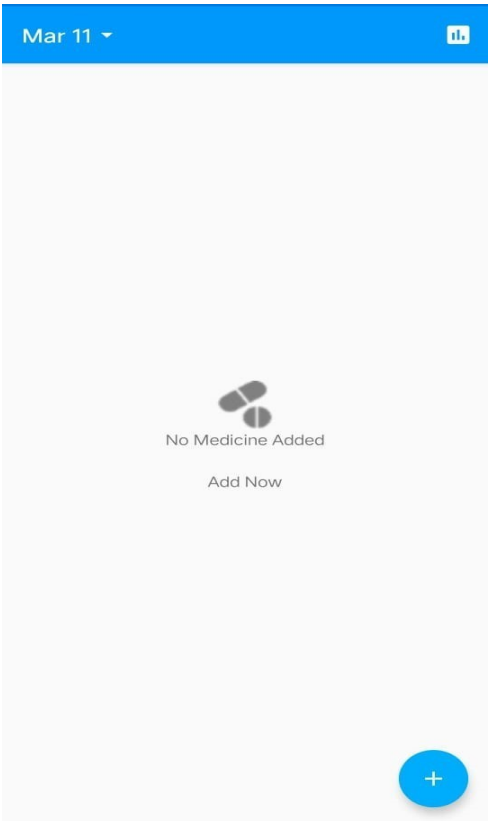
5.2.1 Home Screen
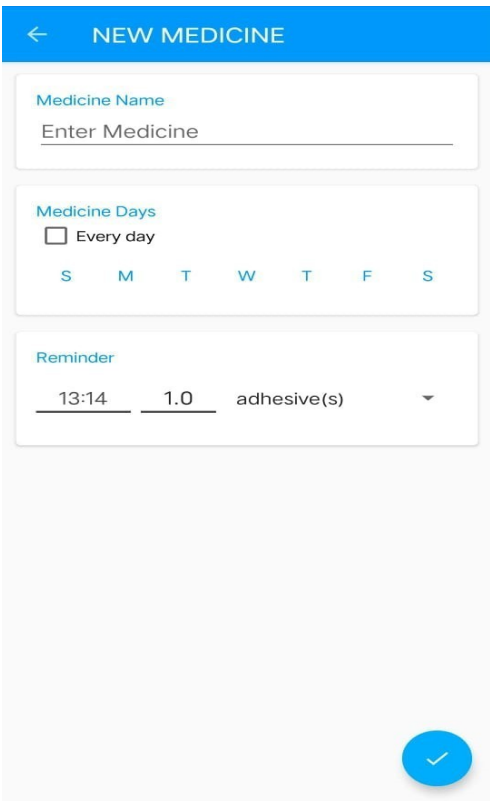
5.2.2 Medicine dosage details

5.2.3 Medicine type drop down list

5.2.4 Medicine schedule history

CHAPTER 6
CONCLUSION

6. Conclusion

Mobile solutions represent a valuable way to improve patient treatment and public health reporting in the developing world. Health tools have been successfully used as devices for self monitoring of behavior, data collection devices and assessment tools. MediAlert mobile android app is implemented so that both the nurses and patients are involved in the improvement of medication adherence. Certain challenges like security and privacy issues have been taken care of in this app as all the data is stored in the internal storage and is only accessible by the nurse and the app itself. This app can be enhanced with potential extensions such as connecting the app with the cloud and generalizing the app in such a way that the nurse can add more medications. Connecting this app with the cloud would help nurses track the patient's medication intake more frequently resulting in enhanced health care.

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