**CHAPTER THREE**

**METHODOLOGY**

**3.0 Introduction**

The proposed system is based on Android Operating System which will remind the users to take their medication on time through an automatic alarm ringing system.

**3.1 Use Case Tools**

Use Case tools are used for capturing system’s functional requirements. A use case is an approach used in system analysis to identify, simplify, and organize system requirements.

Use case diagrams show how users will interact with the system. A use case diagram contains four components.

* The boundary, which defines the system of interest in relation to the world around it.
* The actors, usually individuals involved with the system defined according to their roles.
* The use cases, are the specific roles played by the actors within and around the system.
* The relationships between and among the actors and the use cases.

For our application, actors involved:





Patient System

Possible use cases:

Use case diagram for the e-medication app as follows:

Figure 1: Use case diagram of the app



All the use cases are described in details below.

Use Case 1: **LogIn** (Actor: Patient and System)

1. Patient opens the system.

2. Patient can access the system using their email address.

3. The patient waits for the home page.

Use Case 2: **DisplayPatientProfile** (Actor: System)

1. The system displays patient’s information with home page.

2. Allows the patient edit their profile.

Use Case 3: **ViewCurrentMedicationList** (Actor: Patient and System)

1.Patients can view their current medication list on the system.

2. Patients can also add a new medication to the list.

Use Case 4: **ViewAppointments** (Actor: Patient and System)

1. Patients can view their future doctors appointment date.

2. Patients can also add a new appointment to the list.

Use Case 5: **LogOut** (Actor: Patient)

1.Patients closes the application by logging out.

**3.2 System Overview**

Basically, the patient mostly interacts with the google calendar app that is already preinstalled on every Android device. The front end of the system is a web application which allows users create an account using their email address, then, using the web app, they can conveniently add their medication reminders view their current medication list, add doctor’s appointments and view doctor’s appointments. This application then distributes the information supplied, to all the patient’s android devices synced with the email address and creates a reminder for each activity.

Figure 1 reflects the overview of the application. Input into the system is the information entered by the patient which include login details, drug description details (such as name, dosage and time of use), and doctor’s appointment details (such as the date and time for the future appointments).

The output of the medication reminder system are the medication reminder alert and the doctor’s appointment reminder.

Figure 1: System overview of medication reminder app

**3.2.1 Login Module**

Figure 2 highlights the **patient login module**. In the beginning when the patient opens the app, he/she has to log in using their email address and the system automatically authenticates the user with their password. After login, the patient will be able to view homepage which contains the list of all the medications, appointments, profile and a log out option.

Each option on the homepage can be accessed by the user, and modified as needed.

Figure 3. Patient login module

**3.2.2 Profile Module**

The profile module contains information about the patient.

**3.2.3 Medication Module**

This module allows the patient view his current medication list. On this screen, he/she can see at a glance all the drugs they are currently on, and allows for modifications and updates. Addition and deletion of medications can be made to the list.

A new drug can be added to the list by inputting details about the drug such as the name of the drug, the dosage and how long it would be used.

**3.2.4 Appointment Module**

The appointment module contains information about all the patient’s doctor’s appointments. The dates and times of future appointments are displayed on the appointment screen. It also allows for modification and updates. The patient can enter new appointments and delete existing ones.

**3.2.5 LogOut Option**

This option logs the patient out and takes them back to the login page.

**3.3 System flowchart**

This project aims to develop a healthcare application that provides reminder services to users so that they can adhere to their medication regime. The user creates a new medication schedule by setting a schedule name and specifying the date and time for the first medication notification. Once a schedule is created, additional medication details, such as medicine name, duration of use and dosage can be added. Once the schedule and the medication details have been created, the user will be directed to the view schedule list. While viewing the schedule list, the user can choose to activate the schedule reminder immediately or at a later time. Upon activation of a schedule reminder, the application will be distribute the data to all Android devices synced ith the email address.

When it is time for the medication alert, Google Calendar on the user’s devices with ring an alarm for the medication or appointment. The Google Calendar will also display the medication details which include medicine name, dosage and the duration of use in both the notification bar and main screen of the mobile phone. The flowchart of the system’s operation is shown in Figure 4.