

AUSHDHI- A Life Saver

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Abstract: India's medical industry is growing rapidly. But due to lack of health awareness, there is an immediate need to create awareness about various diseases like Cardio, Asthma and Diabetes with detailed precautions and symptoms which can be of help to majority of people. To tackle the problem of health related issues especially among lower economic sections in rural India which don't have the access to basic amenities will benefit by our application as it keeps them updated about the medicines banned in India to stop drug abuse, set the reminder/alarm for daily medicine intake on weekly/daily basis, contact relatives in case of emergency and send an automated text message containing current location and timestamp.

Index Terms: Health, Windows phone, Precaution, Symptoms, Reminder, Banned, and Medicine

1. Introduction

The aim of our application is to develop a comprehensive and reliable mobile application which proves to be beneficial for most of the people by making use of various technologies like GPS, Bing Maps, Database and Isolated Storage. The application will help the users to check medication status, whether it is approved or banned, GPS to search for hospitals/clinic, first aid option which will show precautions for diseases like Asthma, Cardio and Diabetes, and also help to set the reminder/alarm for medicine intake.

2. Related Work

Many applications have been developed for India's booming medical industry but none has emerged as a single package pit stop. We have tried to include as many services as we could and tried to overcome the demerits that other applications posed. Some applications lack good user interface, some lack location services and some lack GPS.

No application has so far been deployed in the market that displays whether the medicines about which they are providing information contains any banned substance or not. On the other hand, our application has tried to overcome this limitation.

3. Platform Selection

Our system is implemented on Windows Phone platform. We chose Windows as the developing environment for our system as it is new and has a great scope. The selection was based on the above parameters and depth of our knowledge. The relatively new technology, ease of development and scope of its growth compelled us to use the windows application platform. Also, this platform provides comprehensive inbuilt libraries. Many more features of WP7 can be accessed through references and even community support for windows app developers is great in case we encounter any problem in development phase.

3.1 Windows Phone

Windows Phone 7 utilizes a layered architecture as shown below. In contrast to the iPhone iOS, WP7 will run on multiple phones. To provide a consistent user experience and features that developers can rely on, it defines a minimum set of hardware specifications that all phones must meet. They include an ARM7 CPU, a DirectX capable GPU, a camera, and a multi-touch capacitive display. Standard sensors include: an A-GPS, an accelerometer,

a compass, proximity and light sensors. There are three standard physical buttons on the phone - back, start and search.

In WP7, Microsoft provides most of the device driver code. The device manufacturer has to write very little code specific to their device. This is expected to improve the consistency and quality across various devices. WP7 takes advantage of hardware acceleration through encapsulation layers such as DirectX or XNA.

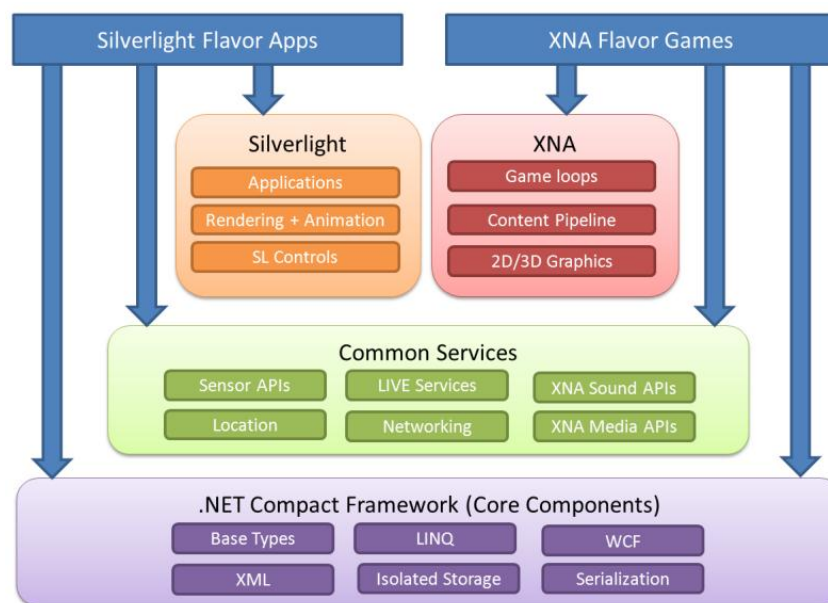


Figure 3.1: Windows Phone Architecture^[6]

3.2 Benefits of Windows Phone Architecture to consumers

Windows Phone features a user interface based on Microsoft's Windows Phone design system, codenamed Metro, and was inspired by the user interface in the Zune HD. The home screen, called the "Start screen", is made up of "Live Tiles", which have been the inspiration for the Windows 8 live tiles. These tiles are

links to applications, features, functions and individual items (such as contacts, web pages, applications or media items).

Several features of Windows Phone are organized into "hubs", which combine local and online content via Windows Phone's integration with popular social networks such as Facebook, Windows Live, and Twitter. Windows Phone uses multi-touch technology.^[10]

4. System Architecture

4.1 Structure Diagram

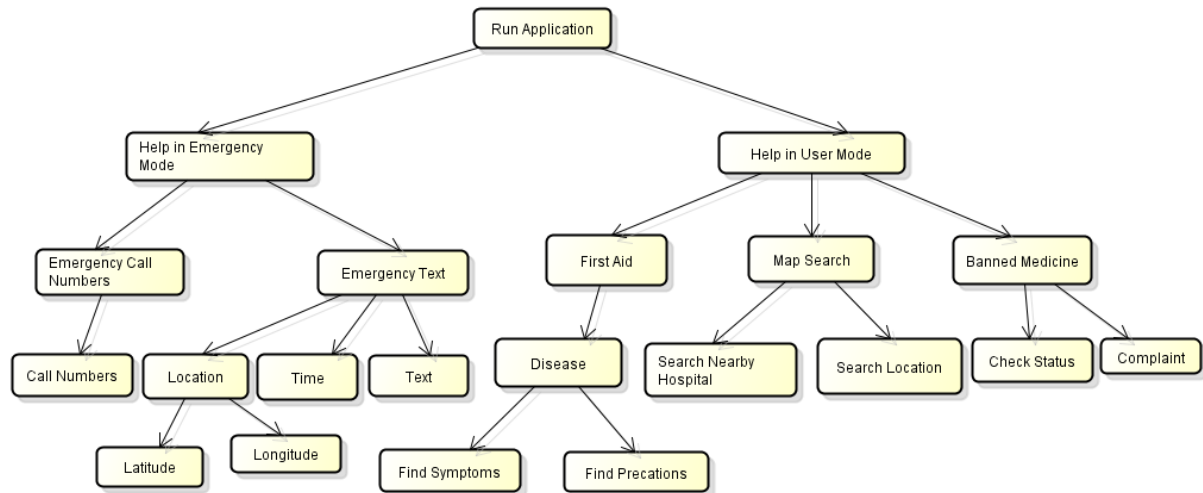


Figure 4.1 Structure Diagram of our app

A Data Structure Diagram (DSD) is the diagram of a conceptual data model which documents the entities and their relationships, as well as the constraints that bind them. For

our application, the figure shown above displays the various entities and their established relationships.^[3]

4.2 Use Case Diagram

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. The above shown figure shows the overall flow of control of our application.^[2]

The use cases shown above are:

- Emergency call and text
- Search hospitals/clinic and directions
- Symptoms and precautions for diseases
- Set Reminder/Alarm
- Check status of banned medicine
- File your complaint

The above use case diagram describes the facilities enjoyed by the user, in our case a mobile user.

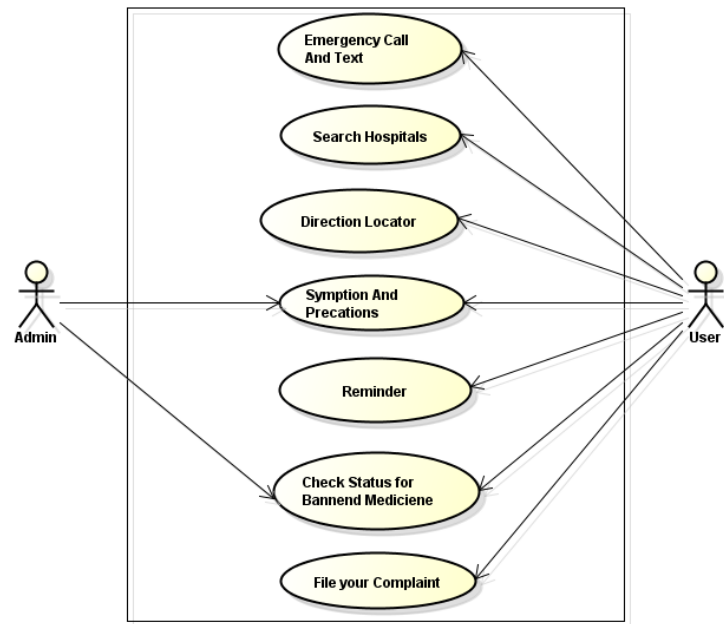


Figure 4.2: Use Case Diagram

4.3 Data Flow Diagram

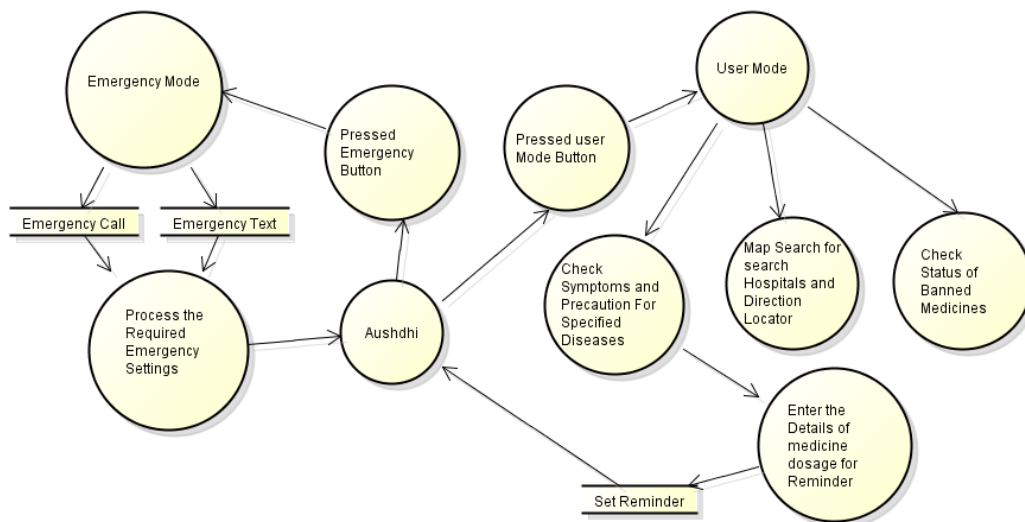


Figure 4.3: Data Flow Diagram

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modelling its process aspects. It shows the data processing occurring in our application. ^[4]

5. Advantages and Limitations of the proposed system

5.1 Advantages

The advantages of our system are:

- Good user interface.
- Detailed precautions and symptoms for various diseases.
- User's current location and timestamp will be sent to those relatives whose numbers have been saved by the user in the system.
- Bing maps to search for locations and directions.
- Set reminder/alarm from the system itself.
- Search for medications that are banned and approved in India.

5.2 Limitations

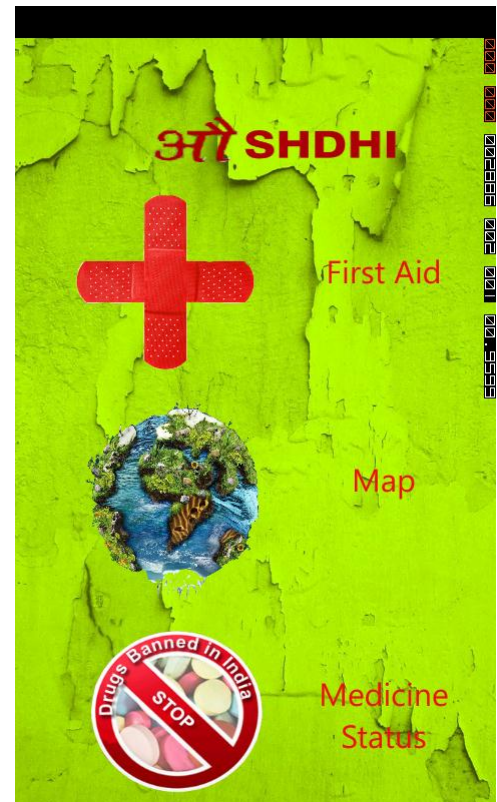
The limitations of our system are as follows:

- The database of medicines covers only India not any foreign countries. So the results shown are country specific.
- Only three diseases are covered i.e. Asthma, Diabetes and Blood Pressure. For other diseases one needs to refer to some other source.

6. System Screenshots

Some of the system screenshots are:

a. User Mode



Screenshot shows the different options available to a user that he/she can choose from like First Aid to search for symptoms and precautions, Map to search for nearby hospitals/clinics and Medicine Status to check whether a medicine is banned or approved in India by Drug Council of India.

7. Testing of the system

We adopted Integration testing which is a systematic technique for constructing the application architecture while at the same time conducting tests to uncover errors associated with it.

Under integration testing, we did Smoke testing because every day we were adding some new components and it needed to be tested daily so to avoid “show stopper” errors at the end. Through this we were able to assess our progress and since it was a time-critical project, we were able to rectify any error that might have put our project behind schedule.

8. Conclusion and Future Work

The goals achieved in following this approach: Provide detailed symptoms and precautions for various diseases, set reminder/alarm for medicine intake, use Bing Maps for location and search services and check the status of a medicine to know whether it is approved or banned by the Drug Council of India.

The system has huge scope if someone tries to work on it further for the betterment of society and its people. Following are the areas where improvement can be done:

- Database of banned medicines of other countries can be included so that the system doesn't remain country specific.
- More diseases with detailed symptoms and precautions can be included so that many people can benefit.
- Shake gesture should be included so as to save the precious life of a person. In those critical moments, nobody has time to inform through call/text. By

just shaking the phone, it should send the automated text with exact location, date, time to his close ones.

9. References

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