Project Report
Tailored News Reader

Bachelor of Technology

Sem-7th

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CANDIDATE'S DECLARATION

I/We declare that pre-final semester report entitled "Tailored News Reader" is our own work conducted under the supervision of the guide V.K.Dabhi. I/We further declare that to the best of our knowledge the report for B.Tech. VII semester does not contain part of the work which has been submitted either in this or any other university without proper citation.

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This project has taught me the latest technology in the world of web such as JavaScript, jQuerry, Cordova library and how to make a cross platform mobile Application. It was, though a firsthand experience in project building, it inculcated in me a great awareness in all the stages of project building right from tracing the basic cross-origin errors to the final implementation using Android SDK in eclipse and converting the application to a cross platform product.

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With Sincere regards

1. Antriksh Shah
2.Dhruvkumar Seta
3. Kirtan Solanki

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Abstract

With the advent of newer technologies and cheaper hardware, mobile phones are easily available. The influence of mobile phone in our daily life is increasing exponentially. The project is aimed at providing the customer an easy access to latest happenings around the world in the field of his preference. This document discusses the mobile development of a cross platform application using Cordova library.

This application is focused on providing the user a power packed summary containing news of his preference. The application stands out due to its simplicity: tailored news as per user's requirements, and ease of use: uses text to speech functionality; hence the listener could multitask while listening.

We have used the waterfall model for development. The first phase of the project was requirement study and understanding technological requirement of the application. The functionalities to be achieved were documented using various system level Diagrams. The development was initialized after analyzing the features supported by various technologies.

1.0 Introduction

1.1 Project Details:

In the fast paced world time management is quintessential. This application is focused on providing the user a power packed summary of news of his preference. The application stands out due to its Simplicity: Tailored news as per user requirements, and Ease of use: uses text to speech functionality; hence the listener could engage in other work.

1.2 Purpose:

To provide the user up-to-date summary of news, read out the news and provide lightweight application which uses minimum mobile resource. The other feature of this application is it is platform independent. Using Cordova library, the application can work on almost all platforms available today.

1.3 Technology Overview

Cordova library:-

Cordova is a mobile development library. It provides mobile resources to be accessed in JavaScript and jQuerry scripting languages.

PhpMyAdmin:-

It is a free and open toll system written in PHP intended to handle the administration of MYSQL with a web browser. It can perform various tasks such as creating, modifying or deleting, tables, fields, or rows using SQL language.

GoogleTTS:-

Google API used which takes a string input and converts the text into a desired language and sends an .mp3 audio file as output.

2.0 Project Management:

2.1 Feasibility Study:

2.1.1 Technical Feasibility:

System provides the hardware and software requirements at the time of installation.

The project is feasible if technical support available else not.

2.1.2 Time Schedule Feasibility:

Projects are initiated with a specific deadline. We need to evaluate whether the deadlines are mandatory or desirable. Time is one of the critical factors in the development of any system and hence proper scheduling is very essential for timely completion of project.

2.1.3 Operational Feasibility:

The system is easy to use and requires no technical skills to operate the system.

Controls and function used in the system are tested for maximum durability.

2.1.4 Implementation Feasibility:

The platform specific application has to be downloaded and installed. Once done no other implementation requirement is present; the application is ready to go.

2.2 Project Planning:

2.2.1 Project Development Approach and Justification

For Project Development Iterative Waterfall Model is used.

Iterative waterfall model:

The Iterative waterfall model approach the problems associated with the waterfall model approach. If any difficulty or problem encounter in any phase may require going back to the previous phase and performing the required modifications and proceeds sequentially .This backtracking allows modifying any corrections or modifications required in the previous phase.

As illustrated in fig, this model divides the cycle into the phases mention below:

1. Feasibility study
2. Requirements analysis and specification
3. Design
4. Coding and unit testing
5. Integration and system Testing
6. Maintenance

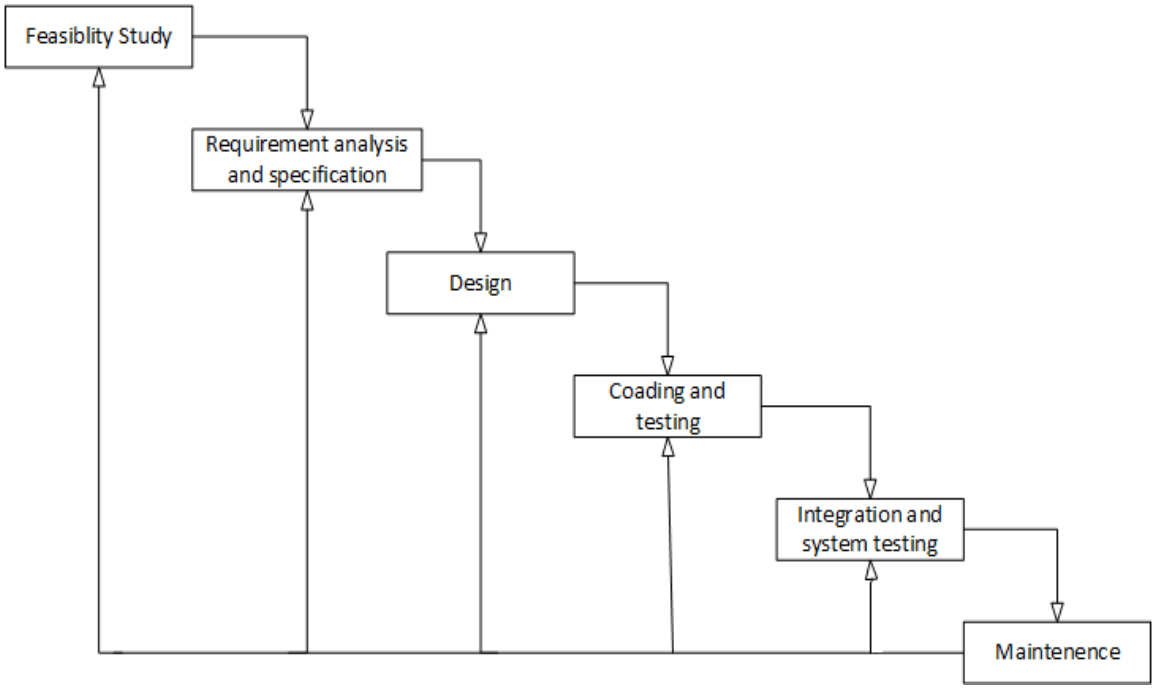


Fig: Iterative waterfall Model

Advantages of using Iterative waterfall model:

You are provided the changes to see the potential outcomes of every stage and make changes to area of concern if necessary. This is one of the reasons that make iterative model useful.

Iterative development is more adjustable to changes as it considers each stage like a vital portion of the development.

The time spent on each successive interval may be less and depending on how this last stage went and what knowledge was gained through adding new functionalities in the development part of all iterations.

Disadvantages of using Iterative waterfall model:

When using the iterative model people working on the project can get stuck in a loop. Always finding problems than having to go back and design a fix implement it, than test the system again and finding another problem can mean that the project can run over time and budget.

Informal request for improvement after each phase may lead to confusion and may also create scope creep, since user feedback following each phase may lead to increased demands. As users see the system develop, they may realize potential of other system capabilities which would enhance their work, this can be advantage as much as in can be disadvantage.

2.2.2 Milestones and Deliverables:

Timely directions are always required to run a project successfully. Milestones tell the developers how far he has reached and also tell him what things are still left and how to fulfill them. Milestones may be the short report of achievement in project activity that are used by the project manager to check project progress but which are not delivered to the clients. The delivered at the end of some major project phases.

MILESTONES	DELIVERABLES	PURPOSE
Software installation and Understanding of technology	Had Complete knowledge of android for installation and user experience	To be familiar with android.
System feasibility study, requirement and analysis	Functional specification Nonfunctional specifications	It gives exact understanding of the system
System Design	Class diagram Sequence diagram Use case Diagram Activity Diagram	It gives the logical structure that describes the system
Coding and unit testing and corrections if any	Individually tested and functional models.	It gives the required module
Integration and system testing	The output obtain for the required functionality after implementation	Integration system is ready

2.2.4 Project scheduling:

Id	Task name	Start	Finish	Duration	July-2014	Aug-2014	Sep-2014	Oct-2014
1	Requirement Gathering and analysis	04-07-2014	12-07-2014	1week				
2	Designing	14-07-2014	02-08-2014	3week				
3	Coding	04-08-2014	03-10-2014	8week				
4	Testing	04-10-2014	13-10-2014	1week				
5	Documentation	14-07-2014	13-10-2014	13week				

3.0 System Requirement Study

3.1 User Characteristics:

The ease of use and simplicity of the application makes it easily accessible by a person of unknown technical skills.

3.2 Hardware and software requirements

Software requirement:

- Android SDK 9 or above
- Eclipse IDE
- jQuerry, JavaScript and Cordova library
- GoogleTTS Services

Hardware requirements:

- Android device for deployment and testing.
- Platform to deploy XAMPP server.
- Wi-Fi Connectivity
- Internet Connectivity

3.3 Constraints:

3.3.1 Hardware limitations:

Minimum platform Requirement

Android - 2.2(Froyo)

Blackberry- OS ver 10

Windows- OS ver 7.8

Ubuntu- OS ver 1.0

Firefox- OS ver 1.0

Apple - ios6

3.3.2 Reliability requirements:

Reliability requirements of the system are one of the prime ones in the list. The system need to be highly reliable in terms of performance but at this stage where the system is far from completion we cannot gauge its reliability all we could do is to make the individual module we have developed to be as reliable as possible.

3.3.3 Safety and security Considerations:

Safety and security too are other major concerns of any client. In this case too there are certain issues related to the security and safety of the system but as mentioned earlier this stage is not about those concerns.

Actually another team of experts in security features will provide necessary standards of security and safety at larger stage when the system would have got into shape after the integration of individual modules.

3.3.4 Criticality of applications:

Criticality of the module was one of the concerned constraints. They had certain rigid aspects which were to be taken care during development. Any change in pattern of the workflow would lead to extremely critical conditions. Thus this was matter of concern and served as one of the deep rooted constraints.

3.4 Assumptions and dependencies

There were very few assumption made while developing this module of the system. They can be listed as below:

The user would be well familiar with general app developing.

4.0 System Analysis

4.1 Problems and weaknesses

To use Google TTS high speed internet connectivity is paramount. Moreover to fetch the latest news from server database connectivity is needed.

4.2 Requirement of system

4.2.1 User requirement

User requirement include not many things, but important thing is user must be aware that system works properly with full availability, reliability, security and safety. The user responsibility is he should know how to use the app and how to install it.

4.2.2 Software requirement specification:

R.1 –News Receiver Daemon

Description: A RSS feed parser continuously runs on the server. It parses the news from various RSS Feeds and stores the appropriate news into a server database.

Input: Fixed set of news keywords or User Specified specialized news keywords from the server database.

Output: None.

Processing: Fetching latest news.

Constraint: Server calls it periodically.

R.1.1 –RSS parser

Description: Using the generated RSS feed, data is retrieved from the respective feed servers and stored in our database.

Input: RSS feeds

Output: None.

Processing: Generating news items and storing in database.

Constraint: Before storing news items in database check for redundancy.

R.2 Client GUI Preference Selection

Description: The preference selection consists of fixed news genres which the user can select as per his requirement. User can also select language as per requirement.

Input: Preferential Keywords

Output: Preferences Saved.

Processing: Saving news preferences.

Constraint: None.

R.2.1 Input keywords

Description: The user selects the in built news keywords.

Input: Preferential Keywords button click.

Output: None

Processing: Store the keywords in the local database and server database.

Constraint: None.

R.3 Client GUI Fetch Data

Description: Periodically fetch data from Server database to local database and display on the screen.

Input: Fetch News button click

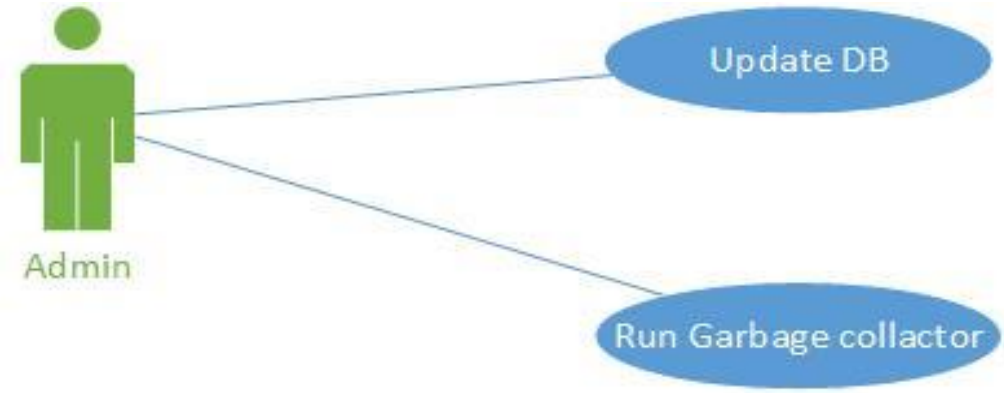
Output: Display News.

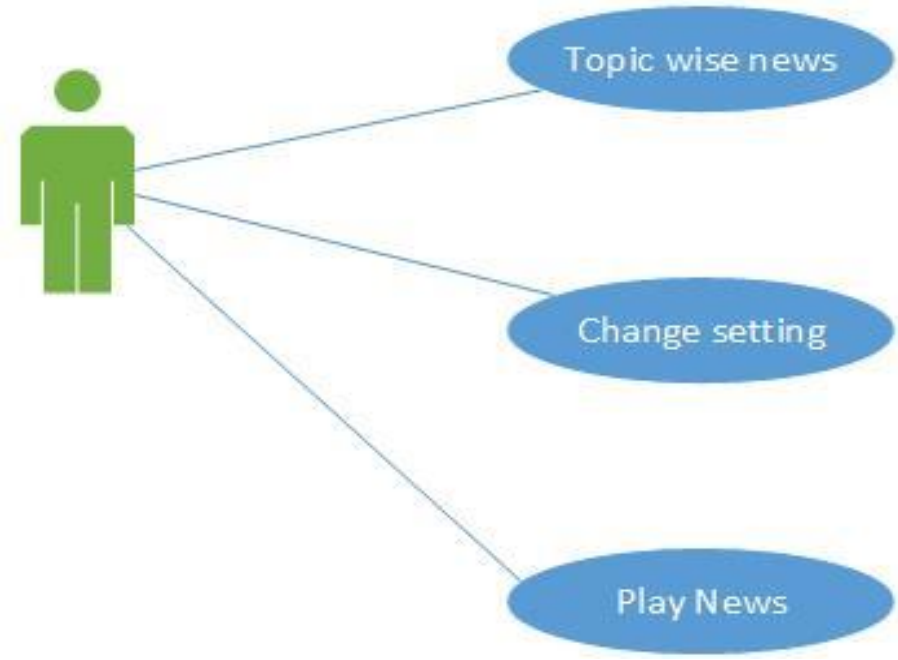
Processing: Displaying news items.

Constraint: None.

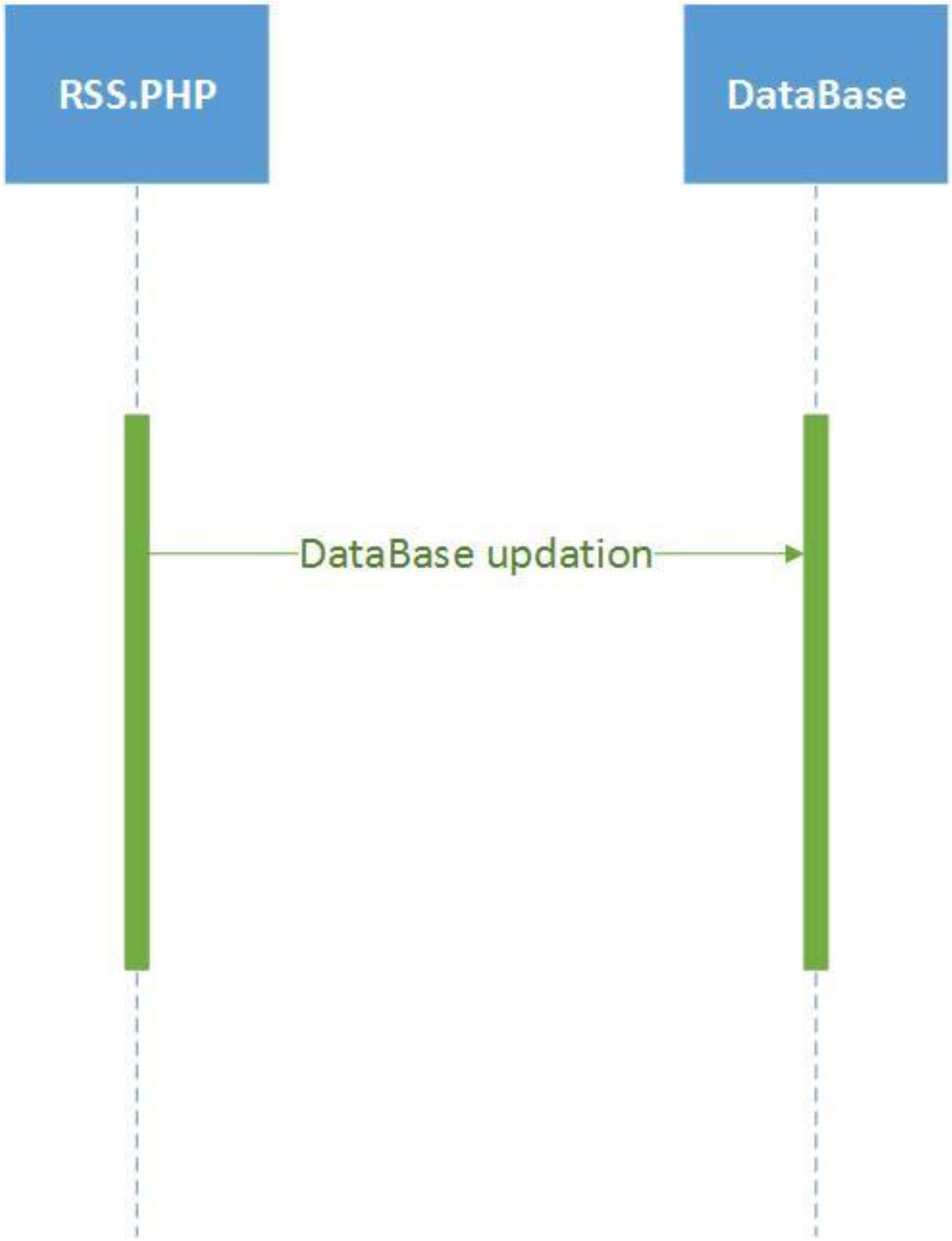
5.0 System Design

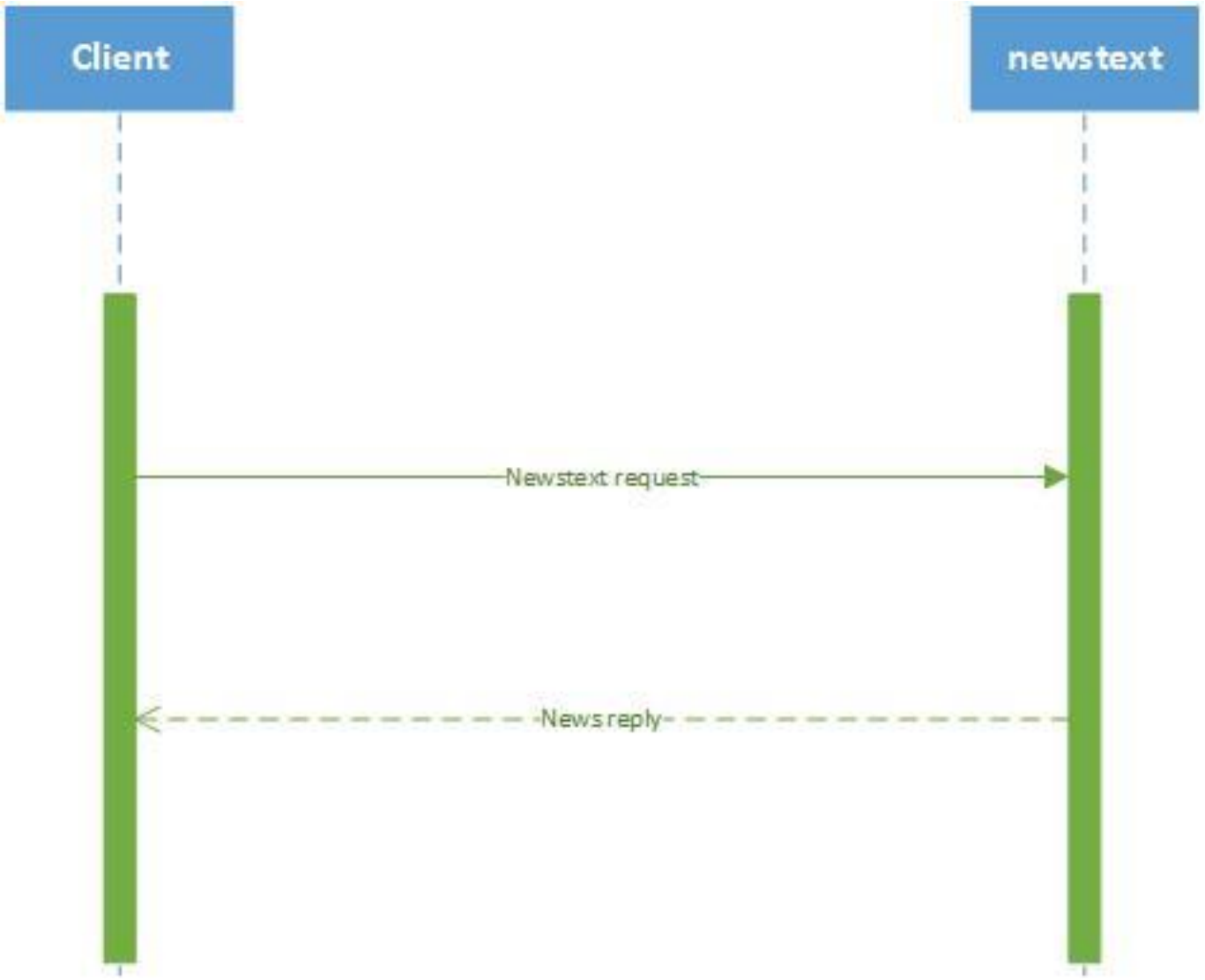
5.1 Use case diagram:

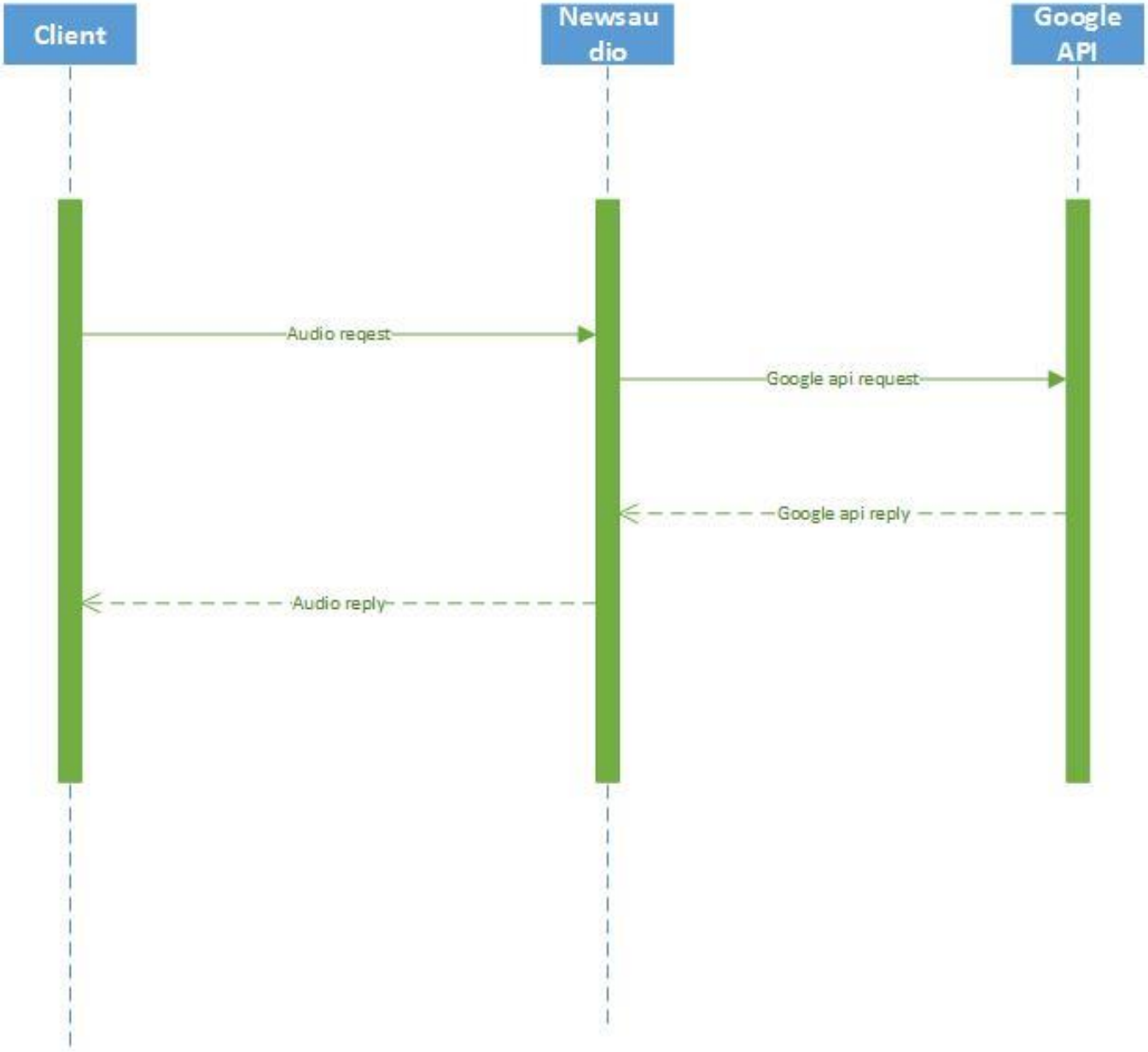




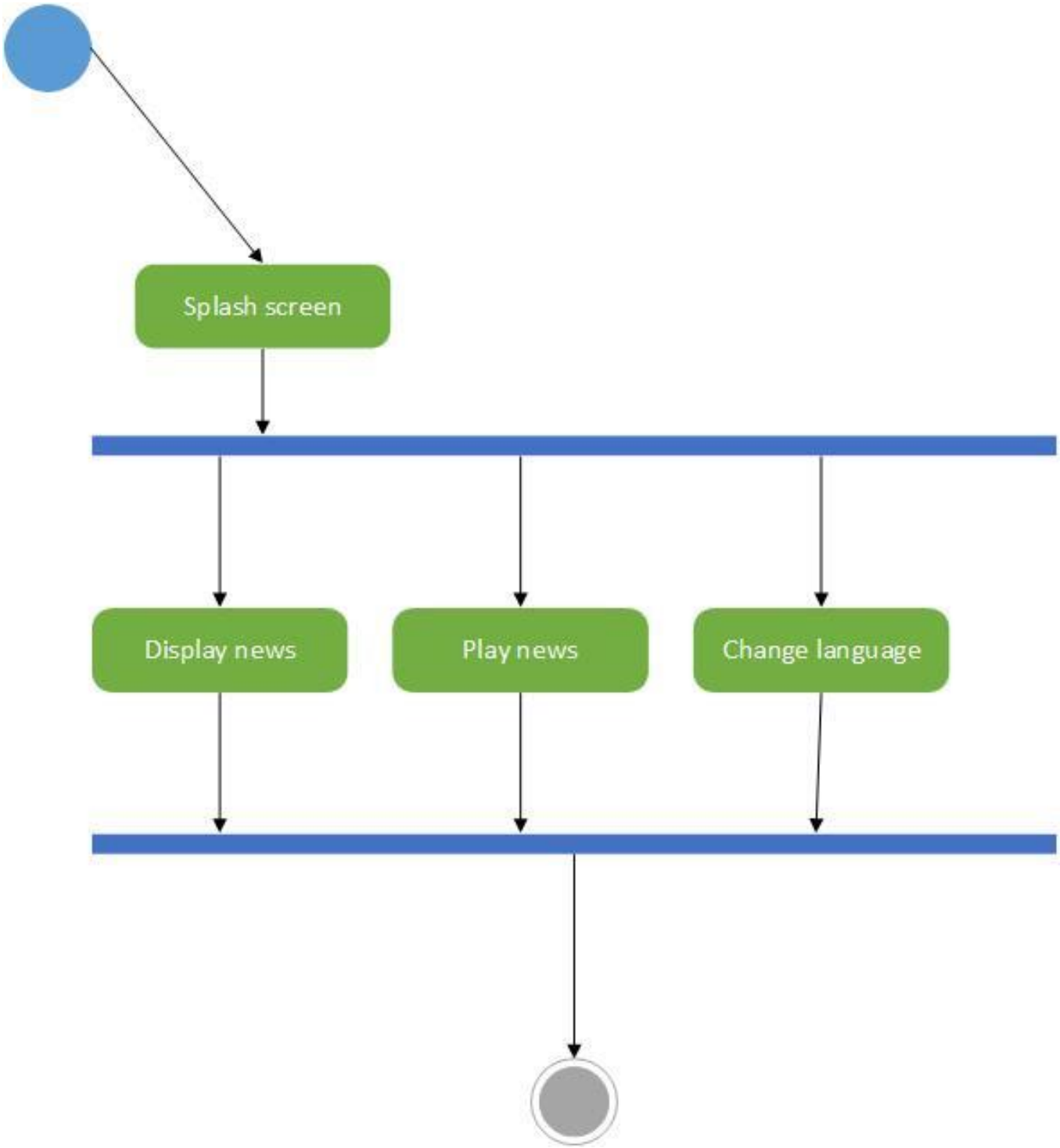
5.2 Sequence Diagram:



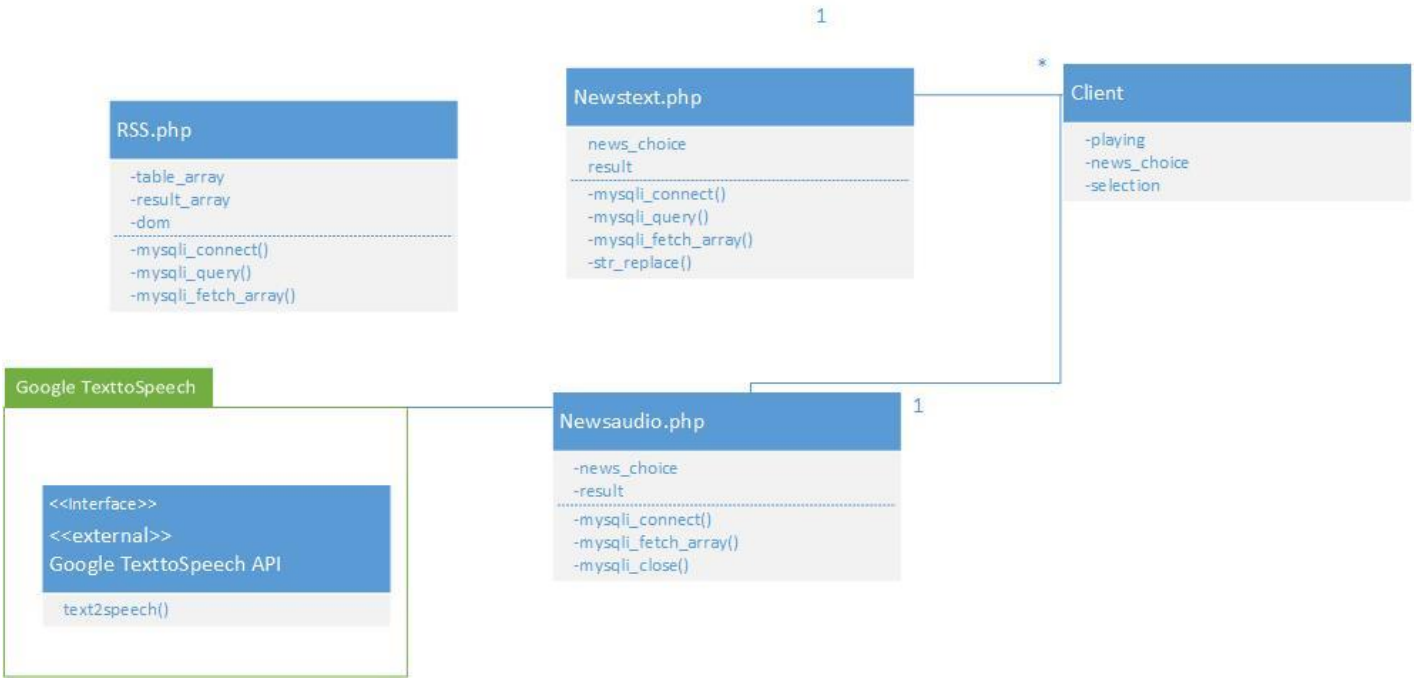

Client
newstext
Newstext request
News reply


Client
Newsaudio
Google API
Audio reqest
Google api request
Google api reply
Audio reply

5.3 Activity Diagram:



5.4 Class Diagram:



6.0 Implementation and Planning

System implementation is the stage of the project when the theoretical design is turned into working system. If the implementation system stage is not carefully controlled and planned, it can cause chaos. Thus it can be considered to be the most critical stage in archiving a successful new system and in giving the users a confidence that the system will work and be effective.

The implementation stage in a system project involves:

- Careful planning
- Investigation of the constrains on implementation of the system
- Proper implementation and integration of carious technologies to be used in out system.

6.1 Implementation Environment

Developer side:

- ADT(Android development toolkit) with PhoneGap library
- Images and sounds
- Android device for testing purpose

6.2 Program Specification

We had divided our project onto smaller modules, so that it would be easy when it comes to implementation. This division of modules is based on the task that we accomplished at regular interval of time. Several functions were implemented one after the other at different times and considered to be under different module as describe below

- Splash Screen module will be displayed till the application is loaded.
- ResourseManager module will load all the resource of application whenever is needed.
- Main Menu module will load the menu elements after splash screen is loaded.
- Loading Scene module will show the loading state and until the previous scene unload the object and next scene loads the objects to memory.

7.0 Testing

Testing is the process carried out on software to detect the difference between its behavior and the desired behavior as stipulated by the requirement specification. Testing is advantageous in several ways Firstly, the defects found help in the process of making the software reliable. Secondly even if the defects found are not corrected, testing overtime, the record of defect found reveals the most common kinds of defects, which can be used for developing appropriate preventive measures such as training, proper design and reviewing.

7.1 Testing Plan

The testing technique that is going to be used in the project is black box testing. In black box testing the expected input to the system are applied and only the output are checked.

7.2 Testing Strategy

The development process repeats this testing sub-process a number of times for the following phases.

a) Unit Testing
b) Integration Testing

Unit testing tests a unit of code after coding of that unit is completed. Integration tests weather the various programs that make up a system, interface with each other as desired, fit together and whether the interface between the programs are correct. System testing ensures that the system meets its stated design specifications. Acceptance testing is testing by the users to ascertain whether the system developed is a correct implementation of the software requirement specification.
Testing is carried out in such a hierarchical manner to ensure that each component is correct and the combination is not very costly or difficult trace and fix.

7.3 Testing Methods

Black box testing:

Black-box testing treats the software as a "black box", examining functionality without any knowledge of internal implementation. The testers are only aware of what the software is supposed to do, not how it does it. Black-box testing methods include: equivalence partitioning, boundary value analysis, all-pairs testing, state transition tables, decision table testing, fuzz testing, model-based testing, use case testing, exploratory testing and specification-based testing

White box testing:

White-box testing is a method of testing the application at the level of the source code. These test cases are derived through the use of the design techniques mentioned above: control flow testing, data flow testing, branch testing, path testing, statement coverage and decision coverage as well as modified condition/decision coverage. White-box testing is the use of these techniques as guidelines to create an error free environment by examining any fragile code. These White-box testing techniques are the building blocks of white-box testing, whose essence is the careful testing of the application at the source code level to prevent any hidden errors later on. These different techniques exercise every visible path of the source code to minimize errors and create an error-free environment. The whole point of white-box testing is the ability to know which line of the code is being executed and being able to identify what the correct output should be.

7.4 Test Cases:

- **Test Case #1:** Splash Screen display.

Test Type	Unit Testing.
Action	Start application.
Expected Result	Display splash screen until application is loaded.
Actual Result	Display splash screen for few second.
Pass/Fail	Pass.

- **Test Case #2:** Post splash screen display menu.

Test Type	Unit Testing.
Action	After splash screen display menu.
Expected Result	Show menu.
Actual Result	Showing menu.
Pass/Fail	Pass

- **Test Case #3:** Button pressed.

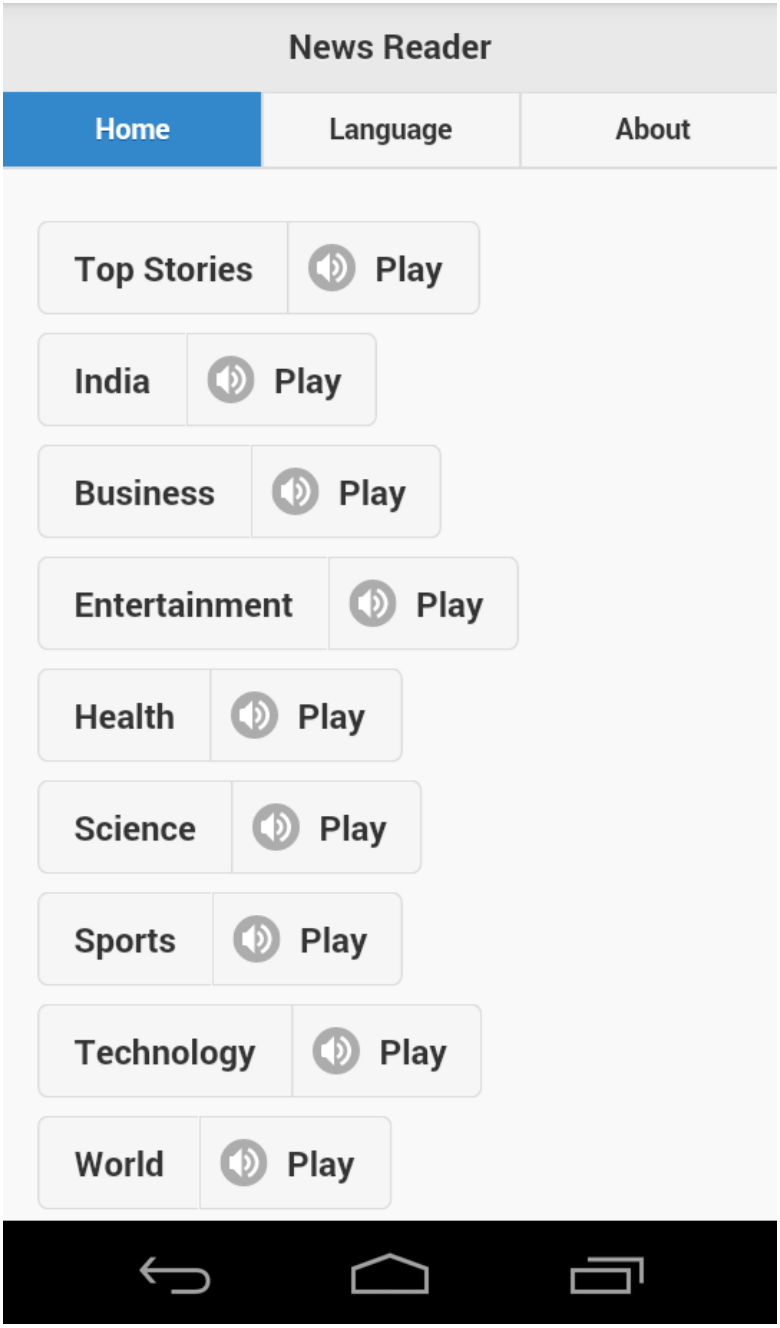
Test Type	Unit Testing.
Action	Button pressed.
Expected Result	News should be displayed.
Actual Result	News displayed.
Pass/Fail	Pass

8.0 User Manual

Splash Screen:

Splash Screen will be displayed as soon as you launch the application. It will stay on the screen while the rest of the application is loaded.

Menu Screen: Home



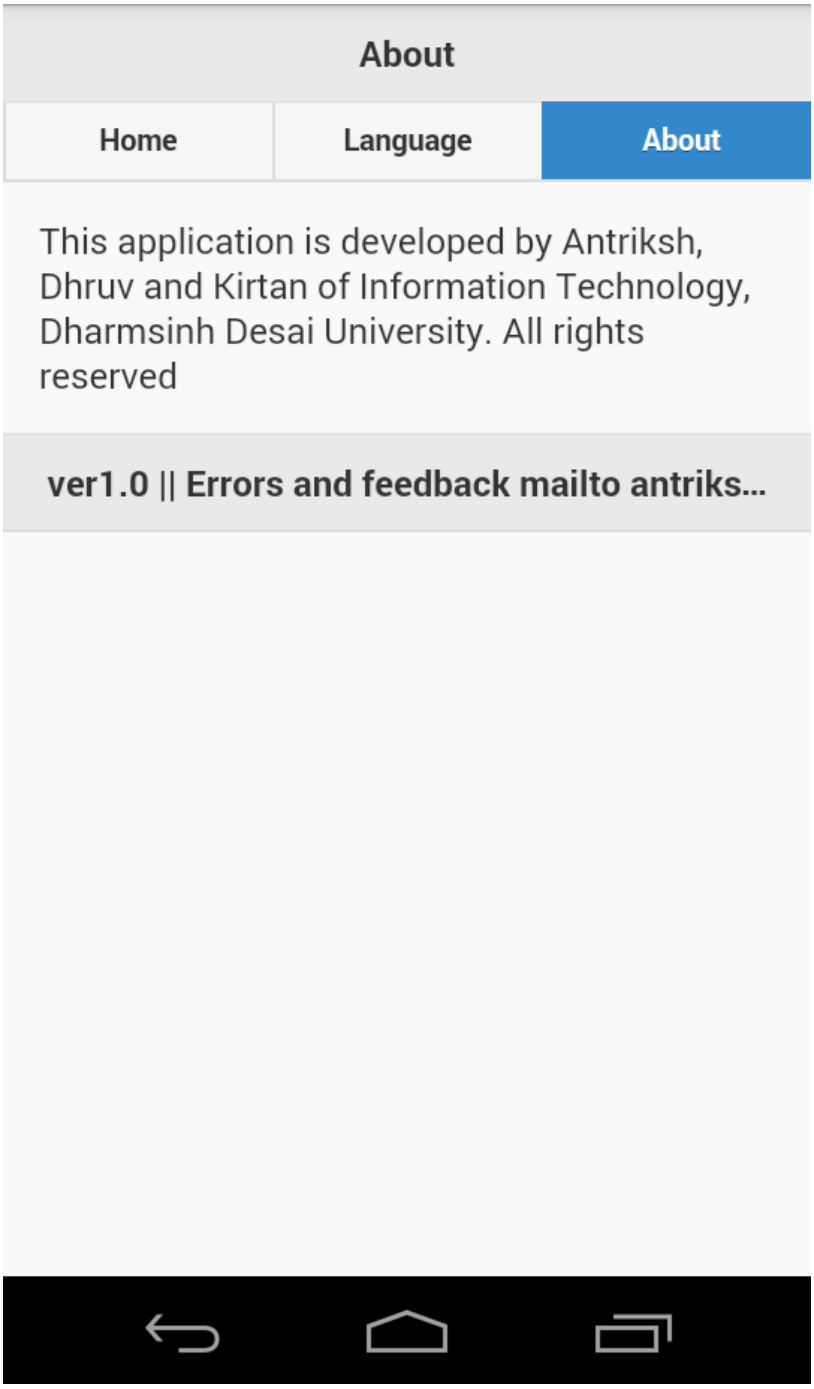
This is the menu screen of the application. The top navigation bar has three buttons. The first and by default is the home screen. The second is the language selection. Third is the about section of the application

Menu Screen: Language

Select the language from a list of 50 + languages available at Google TTS

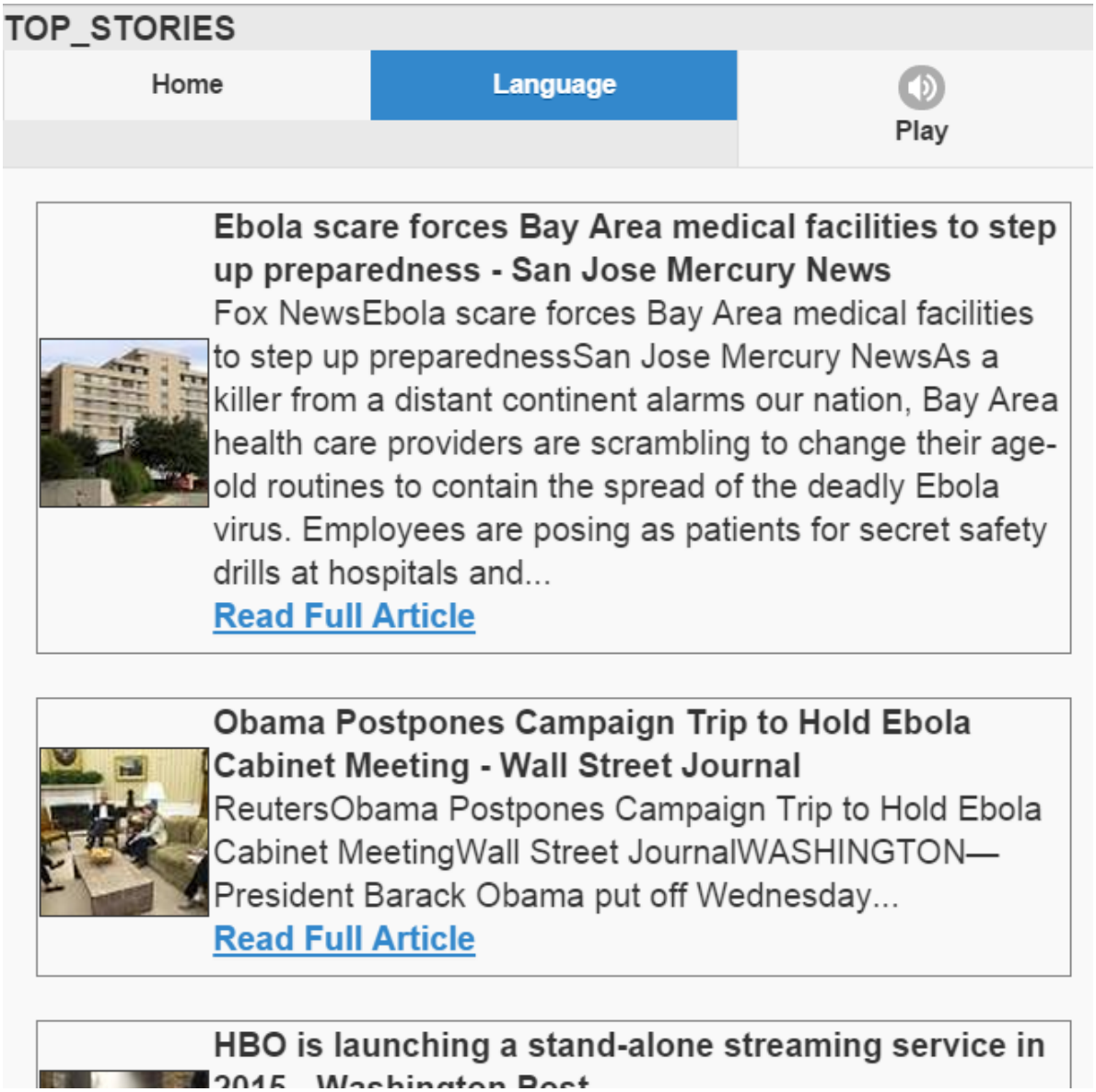
Languages include English, French, German, Hindi and many others.

Menu Screen: About



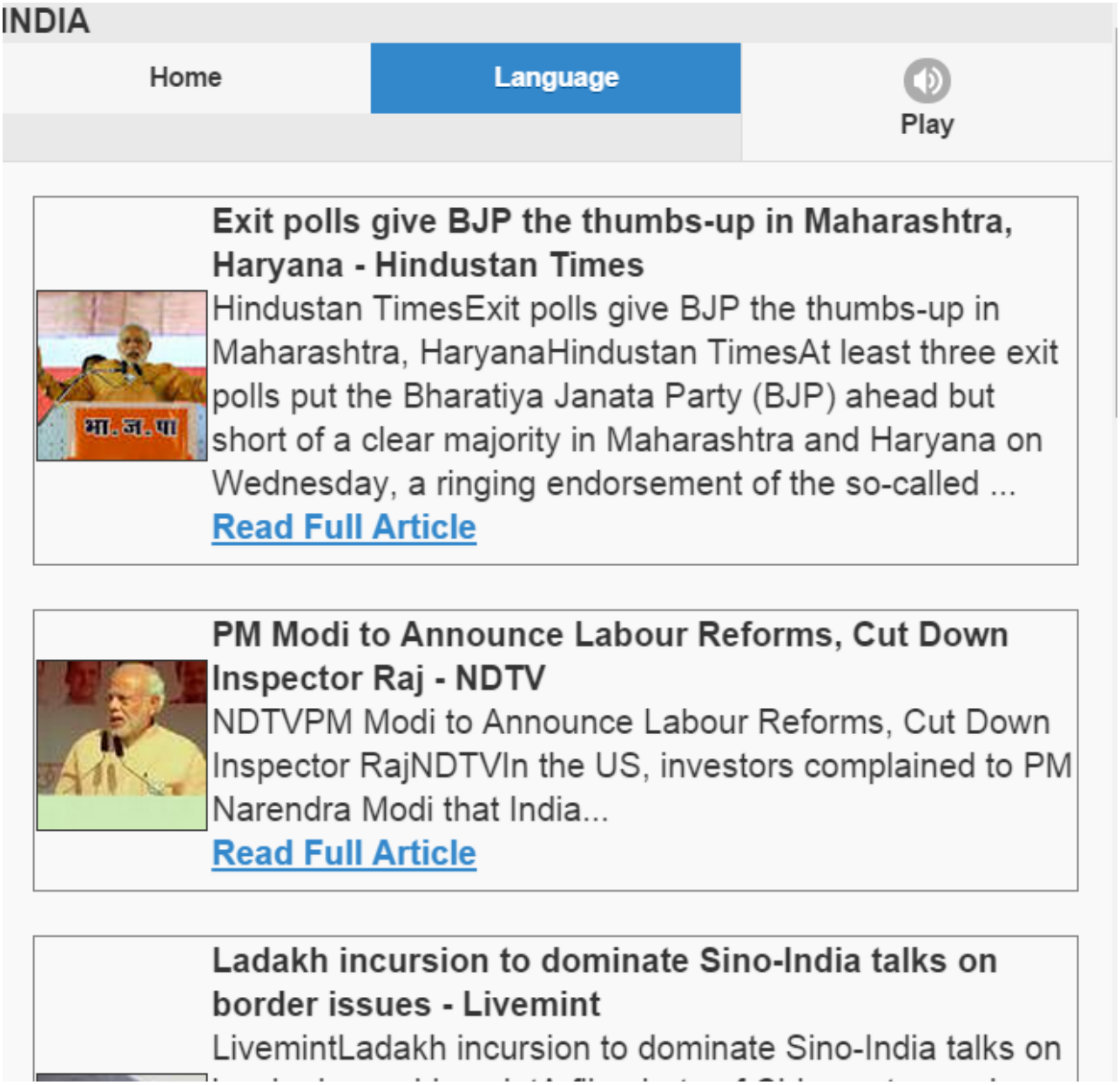
This is the menu screen of the about section.

Display News



News from Top stories.

The play button at the right click corner will read out the news in the selected language.



News from India.

The play button at the right click corner will read out the news in the selected language.

Admin Panel

Table Name	Status	News Build	Database Build	Difference
top_stories	**Updated**	2014-10-15 18:54:46	2014-10-15 11:06:34	28092
india	**Updated**	2014-10-15 18:56:58	2014-10-15 11:08:26	28112
business	**Updated**	2014-10-15 18:57:01	2014-10-15 11:08:29	28112
entertainment	**Updated**	2014-10-15 18:57:03	2014-10-15 11:08:32	28111
health	**Updated**	2014-10-15 18:57:05	2014-10-15 11:08:34	28111
science	**Updated**	2014-10-15 18:57:06	2014-10-15 11:08:36	28110
sports	**Updated**	2014-10-15 18:57:09	2014-10-15 11:08:38	28111
technology	**Updated**	2014-10-15 18:57:11	2014-10-15 11:08:39	28112
world	**Updated**	2014-10-15 18:57:14	2014-10-15 11:08:41	28113

Table Name	Status	News Build	Database Build	Difference
top_stories	Up-to-Date	2014-10-15 19:15:18	2014-10-15 19:15:18	0
india	**Updated**	2014-10-15 19:19:08	2014-10-15 19:18:40	28
business	**Updated**	2014-10-15 19:19:09	2014-10-15 19:18:42	27
entertainment	**Updated**	2014-10-15 19:19:11	2014-10-15 19:18:45	26
health	**Updated**	2014-10-15 19:19:13	2014-10-15 19:18:46	27
science	**Updated**	2014-10-15 19:19:14	2014-10-15 19:18:48	26
sports	**Updated**	2014-10-15 19:19:16	2014-10-15 19:18:50	26
technology	**Updated**	2014-10-15 19:19:18	2014-10-15 19:18:52	26
world	**Updated**	2014-10-15 19:19:19	2014-10-15 19:18:53	26

The admin control panel.

It contains the name of the table, its update status, table build time, updated build time and the difference in seconds between the two times.

9.0 Limitations and Future Enhancement

Limitations:

Cordova library does not support all the available mobile platforms.

GoogleTTS functionality is not commercially available. Due to which high speed internet access is needed.

Poor connectivity can lead to errors in image display.

Future Enhancement:

More features: The ability to add dynamic RSS feeds from user.

Better Compatibility: Future app have better compatible with more application platforms.

10.0 Conclusion and Discussion

Conclusions:

By performing a study in mobile application development we conclude that this field has a tremendous scope for development of creative application, and the potential of the domain is not yet saturated.

By performing on different module of mobile app development we realize that artistic skill is also necessary to become mobile app developer.

We also learnt simplicity of HTML/CSS and JavaScript overrules Android using Java any day.

Discussion:

According to us, this project still has lot of scope for future development. The challenge to further develop a more efficient and simplistic application still lies before us.

WEB RESOURCES:

1. https://github.com/hiddentao/google-tts

2. http://phonegap.com/

3. http://phonegap.com/community/

4. https://translate.google.co.in/

5. http://stackoverflow.com/questions/3595515/xmlhttprequest-error-origin-null-is-not-allowed-by-access-control-allow-origin

6. http://stackoverflow.com/questions/5224017/origin-null-is-not-allowed-by-access-control-allow-origin-in-chrome-why