

ANDROID NEWS AND EVENT MOBILE APP FOR THE UNIVERSITY OF IBADAN COMMUNITY

A. M. Saka and O. Osunade

Department of Computer Science, University of Ibadan, Nigeria

E-mail: sakbioonline@gmail.com, o.osunade@ui.edu.ng

Corresponding author: O. Osunade

Abstract

The University of Ibadan is an internationally recognized academic institution with alumni, students, staff and visitors located in various parts of the world. The University's communication policy and plan has been through traditional means such as newspaper, e-mail, bulletin, memos and letters. In an era where education is becoming competitive and funding reduced, the university needs additional communication tools that is relevant and useful to the current generation. In light of this, a mobile app was developed for the Android platform that would ensure that news and events related to the University of Ibadan is readily available to android mobile devices. The mobile app has been tested and is ready for deployment.

Keywords: android, university, Nigeria, mobile app, Google Cloud Messaging

1.0 BACKGROUND

The University of Ibadan is the premier academic institution of learning in Nigeria. It was established as University College, Ibadan in 1948 by the University College London. The University is located in the Ibadan, a former regional headquarters and the present capital town for Oyo State. The University is situated on Latitude 7° N and Longitude 3° E.

The University provides academic, research and community services to the town, state, nation and the world at large. The University of Ibadan offers courses in a varied range of fields such as medicine, agriculture, arts, social sciences, science, pharmacy and education. The University graduates over five thousand students yearly with eight hundred of them having postgraduate degrees (University of Ibadan, 2012).

The University's organizational chart is large and complex, but it is made up of management, academic staff, non-teaching staff and students. Within this broad classification, there are many categorizations and nomenclature. In this work, reference will be made to only staff and students. The University management communicates with the staff and students through memos, bulletin and minutes of meetings. The Publications Unit of the Vice-Chancellor's office produces the bulletin, while administrative units such as Department use memos and minutes to communicate with the intended person or unit. The bulletins are placed at some strategic location in the school, primarily at the inquiry box at the Central Administration Building. Letters are primarily used for communication with parties external to the University.

In an era where people have short attention spans, limited movement due to financial constraints, and are online most of the time a change in communication delivery is necessary. Mobile communication had been on the increase in Nigeria since the year 2000 when global system of mobile communication (GSM) was introduced. In Nigeria at present, the infrastructures have been improved and service is reliable. It would thus seem appropriate that this channel should also be explored for communication with staff and students of the University of Ibadan.

It is this gap in communication delivery that this work seeks to offer a mobile application for news and events delivery to staff and students of the University of Ibadan. The developed system should allow an administrator of the application to upload the news and events from the back-end of

the application and the mobile application users should be able to receive the notifications on their respective android devices.

2.0 LITERATURE REVIEW

An extensive search of online resources was carried out that confirmed the existence of mobile apps for news and events, but no app providing both services. In the next paragraphs a review of some news app and events app will be discussed.

The USA TODAY Android app brings the latest news, sports scores, weather, stocks and financial data, and much more to user (USA TODAY, 2014). All USA TODAY content is free, and the application receives constant updates, to ensure the latest info is available. Inline images and video make it simple to quickly click a picture or clip for a closer look. A user can download stories for offline reading when there is no Internet access.

The Cable News Network (CNN) App for Android provides users with all of CNN's latest news content, in text and video form, in a great looking package that's designed specifically and for free. The app isn't just meant for news consumption; readers can easily share and comment on posts and even submit their own stories and media via CNN's iReport section, according to Sacco(2014). Users also get local weather information and can view phot galleries related to the day's news.

The NYTimes app for Android is best suited for Times subscribers, since the majority of the newspaper's online content is "locked" to non-subscribers. Anyone can download the app and view 10 articles per month for free. Subscribers get access to all of the Times sections, along with video and slideshows and breaking news alerts. The app makes it simple to share stories via favorite social media sites like Facebook and Twitter (New York Times Company, 2014).

Pulse News isn't designed to provide content from just one publication (Pulse, 2013). Pulse is a news aggregator that pulls in content from a wide variety of online sources. Pulse "takes websites and transforms them into a colorful and interactive mosaic," according to Pulse (2013). Users surf content from recommended Pulse sources or search user's favorite websites. Pulse saves stories for offline reading and can quickly share content via Facebook and Twitter. Pulse News integrates with Google Reader and LinkedIn, so that feeds can be quickly imported.

Pulse was originally released in May 2010 for the Apple iPad. The app was created by Ankit Gupta and Akshay Kothari (two Stanford University graduate students) as part of a course at the Institute of Design.

Pocket, formerly known as Read It Later, is a "digital bookmarking" service. The value in Pocket is that it can be used on any computer or mobile device, even some apps—including Pulse News—to save online content for future reading. The app works without a Web connection, it's easy to use, and Pocket remembers your scroll position in stories so you can pick up reading wherever you left off (Google Play, 2014a).

According to Google Play(2014b), All Events in City is the official app of the world's largest and fastest growing event portal – <http://allevents.in>. It has 10 million events loaded across more than 20,000 cities reaching out to more than 2 million monthly active users. "All Events in City" will keep users "in the loop" and make them a social rock star wherever they go. It allows users to add events to Google calender.

Google Play (2014c) also highlighted Event Cinemas as an event mobile app. This app is for moviegoers on the go! It is fast and easy to use. Searching for cinemas, movies and sessions is quicker than ever! Key features of the free app are:

3.0 PROPOSED SYSTEM

The design of the news and events mobile app is based on the Google Cloud Messaging technology. Google Cloud Messaging for Android (GCM) is a service that allows developers to send data from their server to users' Android-powered device, and also to receive messages from devices on the

same connection (Google, 2014). The GCM service handles all aspects of queuing of messages and delivery to the target Android application running on the target device.

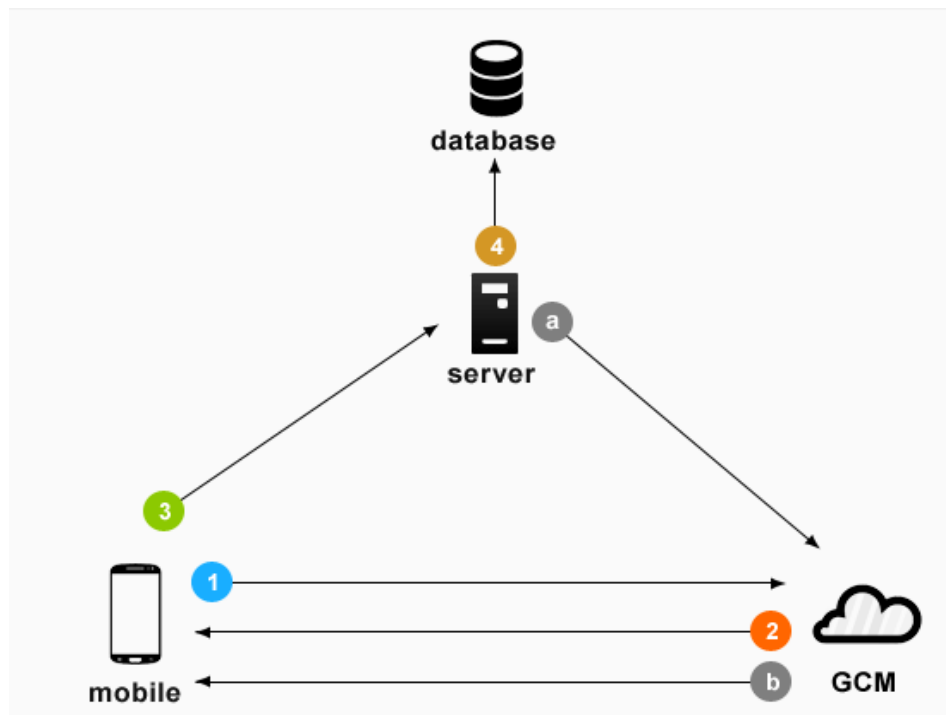


Figure 1:Proposed system

In Figure 1, the following steps illustrate the operation of the proposed system.

1. The android device sends sender id and application id to GCM server for registration
2. Upon successful registration, GCM server issues registration id to android device
3. After receiving registration id, device will send registration id to app server
4. App server will store the registration id in the database for later usage
 - (a) Whenever push notification is needed, app server will send a message to GCM server along with device registration id
 - (b) GCM server will deliver that message to the mobile devices using device registration id

The proposed system has the following benefits: a centralized system for storing and ensuring easy retrieval of news and events; timely and effective dissemination of news to the right set of people and at the right time, and eliminates the defacement of walls.

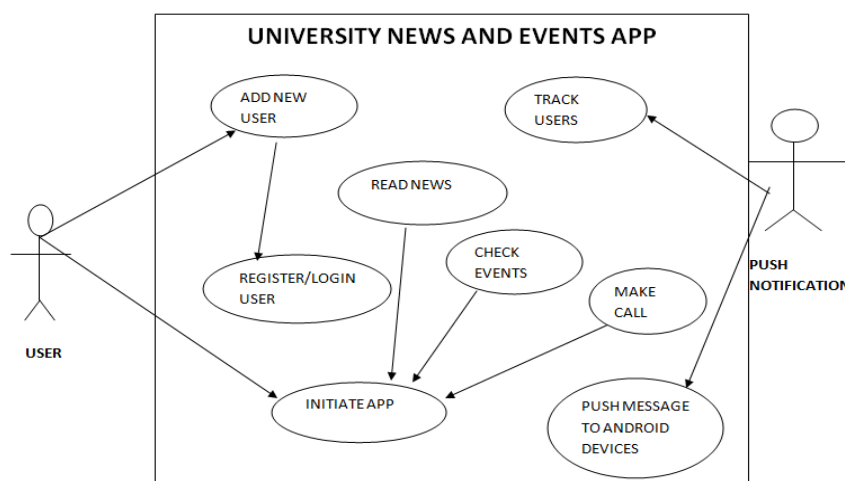


Figure 2: Use case model of the proposed system

The USE CASE Model for the proposed system is shown in Figure 2. The system consist of two set of actors: the user and Push Notification.

User: This actor carries out the most important of all activities which is communication in the system. The user interfaces with the system by registering new users, authenticating the existing users and initiating the application after successful authentication. The user is able to perform the following actions:

Add new user: This is one of the activities being performed by the user. New user can simply be added by filling the registration form

Register/login: Registered user are authenticated before granting access and if the potential user is yet to be registered, register activity could also be accessed from here

Initiate app: Once a user has logged in, subsequent log in would not be needed as far as the same android device is being used

Read news: The last 5 news items (or more) is accessed by authenticated user(s)

Check events: The last 5 news event (or more) is accessed by authenticated user(s)

Make calls: Some special services lines can be directly called from the app by a single tap on the respective line

Push Notification: This actor is responsible for tracking each user of the system with a unique registration identification number and delivers information to desire user(s) via the GCM push notification technology.

Track users: The GCM Push notification technology identifies each registered user with a key

Push message: The GCM Push Notification Technology push messages to registered users.

4.0 SYSTEM IMPLEMENTATION

The system was implemented on a local server (Apache) for the server side and android emulator for the client side. The system requirements for the effective performance of the system are in two parts which are: Hardware and Software requirements.

Hardware Requirements

Server-side

In order for the system to function efficiently the following minimum hardware configuration will be required:

- 750 MHz Intel Pentium III processor or above
- 250MB of available RAM
- Minimum of 10MB of available disk space

Client side

- Mobile devices running on android

Software Requirements

The software requirements of the implementation of this system include:

- Operating System: Microsoft Windows XP,
- WAMP Server : Consisting of MySQL and Apache Server
- J2SE SDK
- Android SDK: Consisting of ADT (Android Development Tools) and AVD (Android Virtual Devices)
- Eclipse IDE
- Web Browser

5.0 RESULTS AND DISCUSSION

The following are the implementation screenshots obtained from both the client and server side of the news and events mobile app.

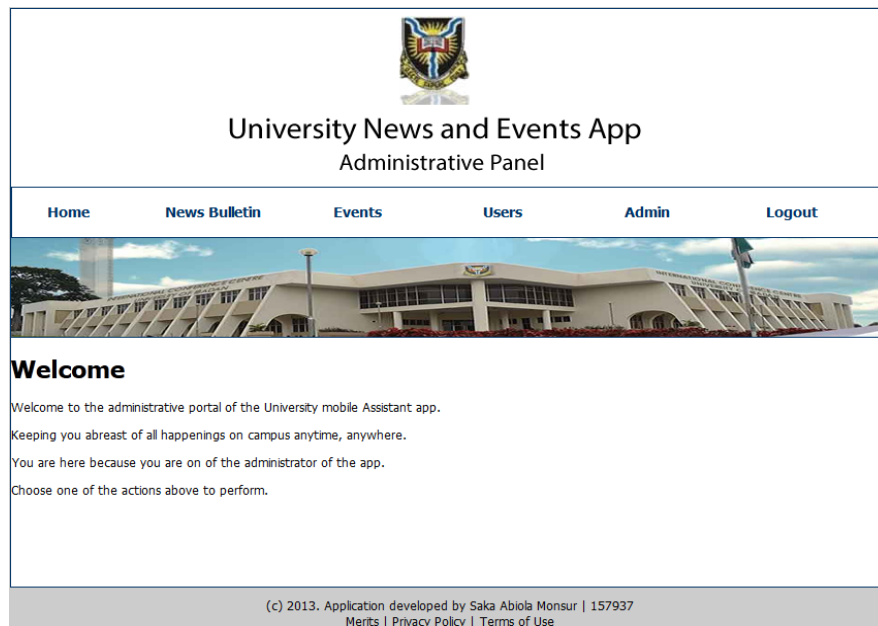


Figure 3: Welcome page

The administrator requires a username and password as a means of authentication to access the server-side. Figure 3 shows the welcome page after a successful log in by the administrator.

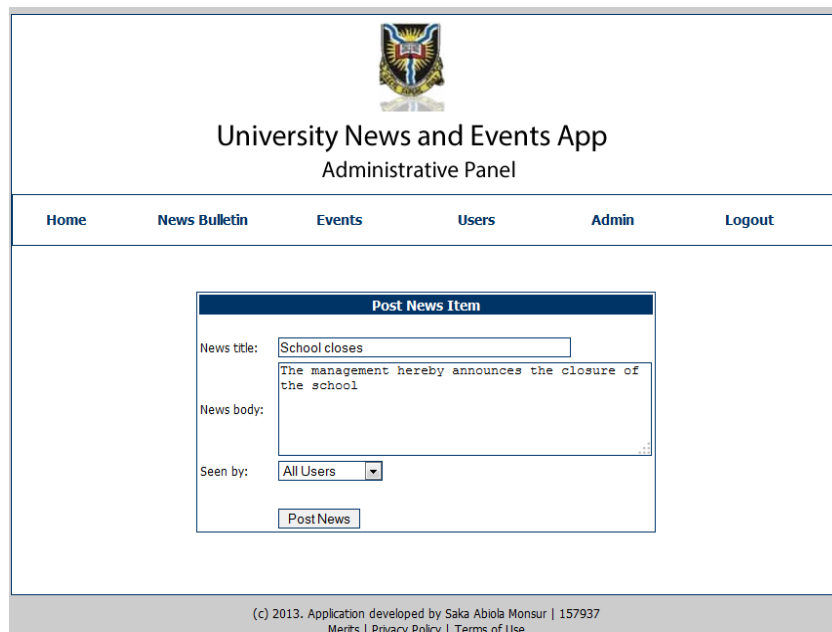


Figure 4: Post New News Item page

In Figure 4, a new item is created for News. The administrator enters the news item details, a php script checks the validity of the inputted data, and displays a “News successfully posted” message if correct.

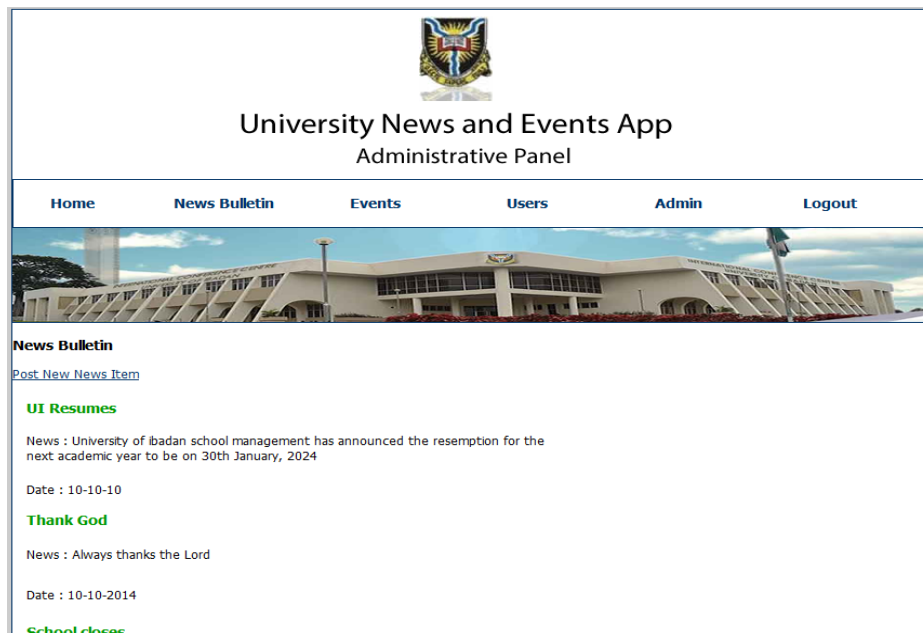


Figure 5: News Bulletin page

The News bulletin page displays randomly selected news as shown in Figure 6.

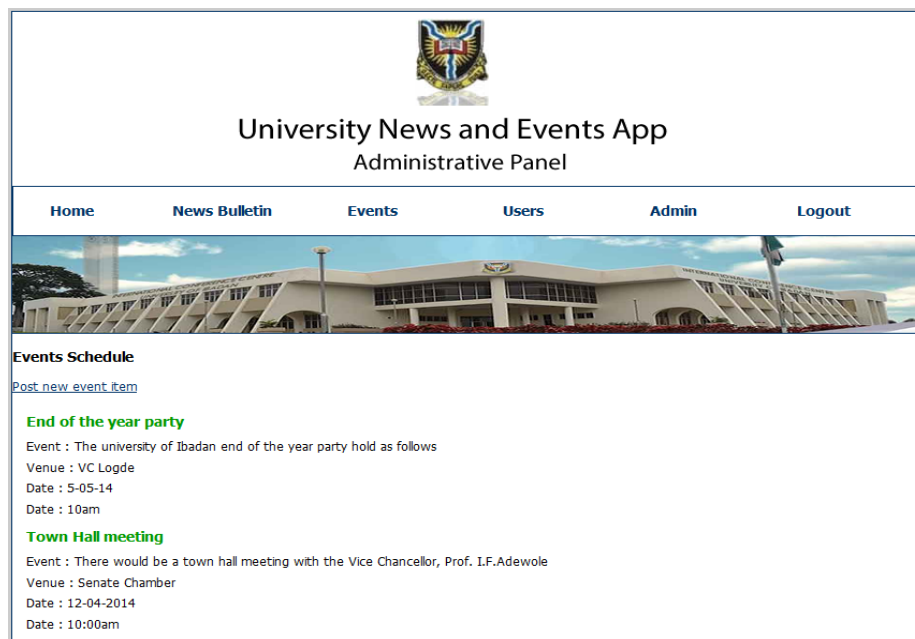
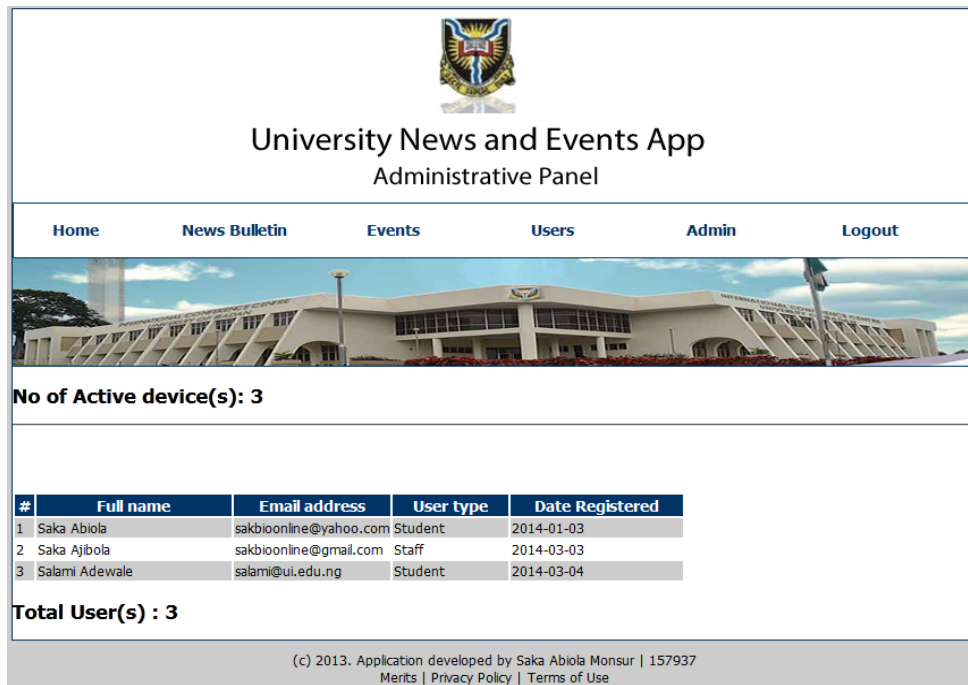


Figure 7: Events page

Selecting the Events link on the administrator Panel displays events as shown in Figure 7. A screen similar to the one in Figure 4 is used to create an event by the administrator. Details such as time, date and target audience for the event is specified by the administrator. The event item details are checked for validity of the input data, and if correct, “Events successfully posted” message is displayed.

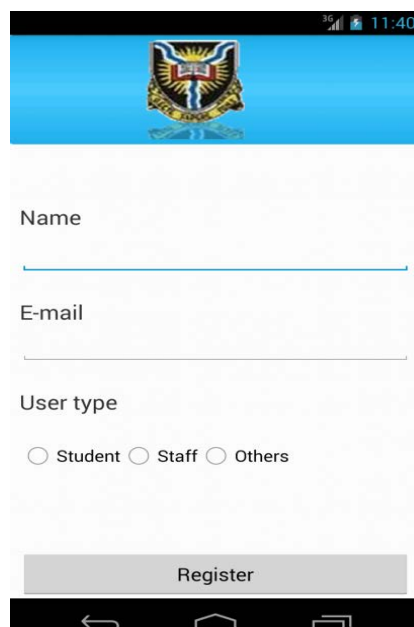


The screenshot shows the administrative panel of the 'University News and Events App'. At the top is the university crest. Below it, the title 'University News and Events App' and 'Administrative Panel' are centered. A navigation bar contains links: Home, News Bulletin, Events, Users, Admin, and Logout. Below the navigation bar is a banner image of a university building. Under the banner, it states 'No of Active device(s): 3'. A table lists the active users with columns for #, Full name, Email address, User type, and Date Registered. Below the table, it says 'Total User(s) : 3'. At the bottom, a footer contains copyright information: '(c) 2013. Application developed by Saka Abiola Monsur | 157937' and links for 'Merits | Privacy Policy | Terms of Use'.

#	Full name	Email address	User type	Date Registered
1	Saka Abiola	sakbioonline@yahoo.com	Student	2014-01-03
2	Saka Ajibola	sakbioonline@gmail.com	Staff	2014-03-03
3	Salami Adewale	salami@ui.edu.ng	Student	2014-03-04

Figure 8: Show users page

In the administrative panel, the details of those that have already installed the app on their mobile device is listed along with the user type as in Figure 8. The names of all administrators are listed on the Admin page similar to that shown in Figure 8. It is only super administrator that can add a new user or delete an existing user.



The screenshot shows the registration screen of the app. It features the university crest at the top. Below the crest are input fields for 'Name' and 'E-mail'. Under these fields is a 'User type' section with three radio button options: 'Student', 'Staff', and 'Others'. At the bottom of the form is a 'Register' button. The screen is framed by a black border, and the status bar at the top shows the time as 11:40.

Figure 9: Registration Screen

When the user launches the app, the splash screen is displayed. In the background, it is checking the status of the host device if it has been registered by checking with the app server. If it has been registered, it initiates the home screen, and if not initiates the register screen to register the device. Figure 9 displays the prompt to the user to register on the app server.

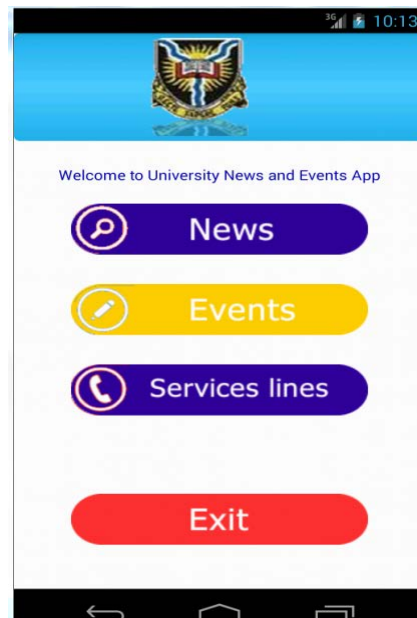


Figure 10: Home Screen

The Home screen in Figure 10 contains the buttons that initiates the display of news, events, service lines and exit. The user can choose any of the buttons.

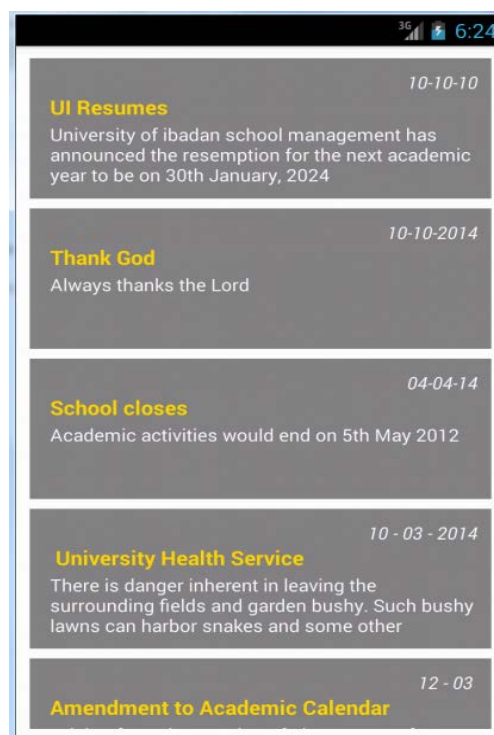


Figure 11: Show News Activity

Selecting the news bulletin button loads the already fetched news that has been pushed to the device and afterwards attempt to pull new news item. Figure 11 shows posted news items on the mobile device.



Figure 12: show events

Figure 12 is a list of events available to the user. It loads the old events first and attempts to fetch the updated events item from the server. An alarm or reminder can be set for an event by using the “thumbs up” icon under the events. The user can cancel the alarm or reminder by clicking on “thumb down” icon.

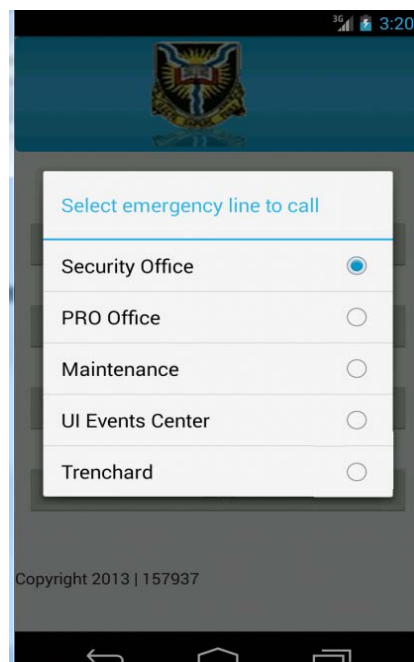


Figure 13: Call service lines activity

For emergency purposes, some telephone numbers have been pre-programmed into the app. When the user clicks on Services Line Button, it prompts the user to pick one out of the indicated services lines as shown in Figure 13.

CONCLUSION

The mobile app for news and events delivery for the University of Ibadan community is functional and operational. Google Cloud Messaging Push Notification was used to notify users on the arrival of new news or events item. This discouraged the use of other means such as pooling from the server, and persistent connection which comes with their respective disadvantages like shortening the devices battery lifespan and wastage of bandwidth. The newly developed university news and events mobile app would be useful to the whole university community and beyond. Three classes of users; student, staff and others were identified for delivery of the news and events item(s). Further work can be done to this application by adding new functionalities and enhancing its user interface. It can also be developed for other mobile platform users such as BlackBerry, J2ME, iOS and Symbian OS.

REFERENCES

1. University of Ibadan (2012) University of Ibadan Calendar 2008 - 2012. Published by Registrar's Office, University of Ibadan ISBN 978-978-2458-42-1
2. Google (2014) Google Cloud Messaging for Android. <http://developer.android.com/google/gcm/index.html> Retrieved 30 May 2014.
3. New York Times Company (2014) Mobile Apps . Available at <http://www.nytimes.com/services/mobile/index.html?id=10&device=phone/tablet&model=ANDROID> Retrieved 30 May 2014.
4. USA TODAY (2014) Mobile Apps. Available at <http://www.usatoday.com/mobile-apps/> Retrieved 30 May 2014.
5. Sacco, A. (2014) 10 Best Android Tablet Apps for News Junkies. Available at http://www.cio.com/article/689467/10_Best_Android_Tablet_Apps_for_News_Junkies?page=6#slideshow Retrieved 30 May 2014.
6. Google Play (2014a) Pocket. Available at <https://play.google.com/store/apps/details?id=com.ideashower.readitlater.pro> Retrieved 30 May 2014.
7. Google Play (2014b) All Events in City. Available at <https://play.google.com/store/apps/details?id=com.amitech.allevnts> Retrieved 30 May 2014.
8. Google Play (2014c) Event Cinemas. Available at <https://play.google.com/store/apps/details?id=com.ahl.eventcinemas> Retrieved 30 May 2014.
9. Pulse (2013) Pulse. Available at <http://www.pulse.me> Retrieved 30 May 2014.

Article received: 2015-07-01