

ConnectUniv: An Application bridging the Gap between the Students and the University

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Abstract- *ConnectUniv is basically a medium to connect the students studying under a particular University and also providing a mechanism to interconnect the different colleges under it. It is an advancement over the applications developed till now in the field of education. The main motive to develop such a fascinating creation is not only to promote the academics but it would also focus on the increased number of opportunities for the career, entertainment sources, sports paradigms etc. This app is bridging the gap between the students and the University as its connecting the students of different colleges under a single platform. The features of the application include Newsfeed, Campus2Campus, Academics, Your Companion & Calendar. The justification that it's connecting every college under the University is that the stuff which is going to be posted on the app will be sent by the administrators assigned to each college. Furthermore, it is going to provide the fresher to explore more whereas the others can be benefitted with its enormous key features that include career opportunities like internships, workshops, seminars which will be regularly updated on the app. Thus, making the life of a student better responsive, and updated.*

Keywords- student; university; connect; administrators, updates; education

I. INTRODUCTION

ConnectUniv is originated from the concept of learning anywhere in the world without the traditional methods of carrying the books and different gadgets to fulfill different purposes related to learning and gaining knowledge. It also relates to the concept of connecting with the people around you having the same objectives as yours. There has been much advancement in the field of E-learning and Mobile learning (M-Learning) where the latter is the advancement of the first one which simply expands the concept of anywhere and anytime dimension of learning. The simple definition of mobile learning is supporting learning with the help of technologies that defines mobility which are hardware components like Personal Digital Assistant (PDA), Smart Phones, Wireless Laptop Personal Computers.

With the emergence of mobile element in education, the definition of learning has enhanced. It has shifted from

technology to smart learning. Instead of learning from different hardware devices mentioned above, M-learning focuses on learning from mobile device such as Smart Phone. Its advantage is that Smart Phone is a small device which fulfills the purpose of all mobile devices that are mentioned earlier. So, this way we can use the concept of M-learning in a better way. The development of mobile learning is therefore a boon to educational institutes to provide education and communication to the students in a more interactive way.

Frankly speaking, the technologies that are being used nowadays in education are really impressive. With the invention of technologies such as projectors in classrooms, notebook computers and online teaching has made the learning easier and interactive without any doubt.

But apart from these technologies, there is a serious need of implementing mobile applications in education for better communication between the students and making learning easier. By the use of mobile applications in education, students can get better updates regarding every aspect of their student life which not only includes the academic part but also co-curricular activities which is an integral part of building a strong character.

Many applications have been launched by various universities for their students in order to ease the process of learning and managing their campus events. This paper is a reference for the mobile application that is going to be built with some advancement in features.

II. DESIGN OF THE MOBILE APPLICATION

A. Overall System Architecture

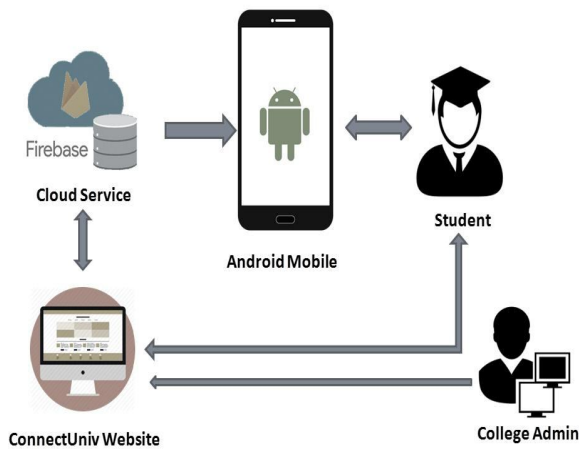


Figure 1. Overall System Architecture

Above is the overall system architecture of the project. As we refer the architecture, the main components are: Android Mobile having the Android App, Student, College Admin, ConnectUniv Website and the Cloud Service.

The student accesses the mobile app and the website on which the data is posted by the college admin. The data posted on the website by the admin is sent to the cloud database. Then the mobile app and the website display the contents by extracting data from the cloud database.

B. Mobile App Architecture

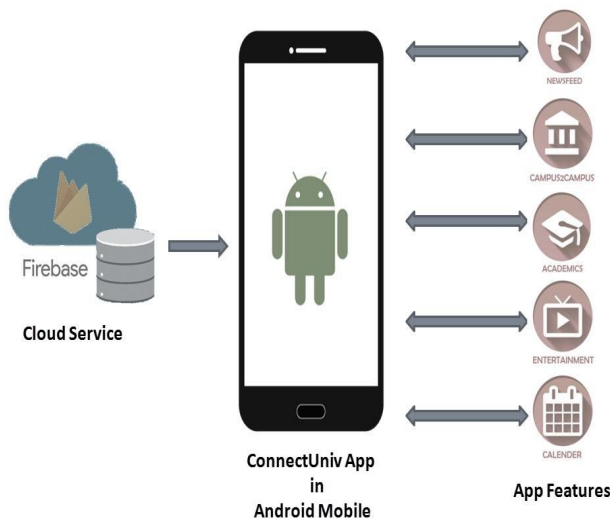


Figure 2. Mobile App Architecture

The architecture shows the flow of mobile app. It shows the features of the application. The app extracts the data from the cloud database which is Google’s Firebase. The features of the app includes Newsfeed, Campus2Campus, Academics, Your Companion and Calendar. The Newsfeed and Campus2Campus features uses the Firebase database to display data in the form of text and images in the App.

C. Website flow Architecture

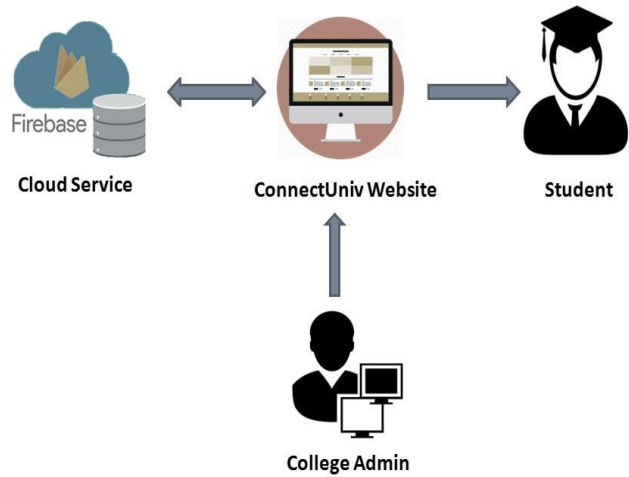


Figure 3. Website flow Architecture

Above diagram is the architecture flow of the website. As already mentioned earlier, the website extracts the data from the cloud database on which the data is stored using the website by the College Admin.

III. IMPLEMENTATION OF THE MOBILE APPLICATION

A. Spash Screen

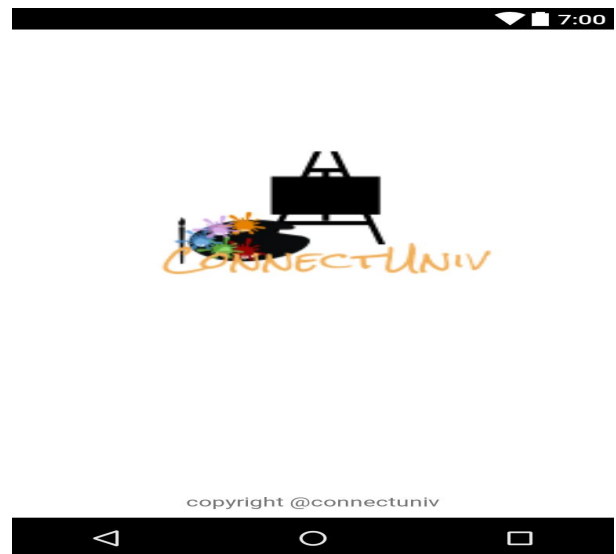


Figure 4. Splash Screen of ConnectUniv

The screenshot above is the Spash Screen of the App which shows the logo of the App and the name i.e ConnectUniv. This is the first Activity that loads when we open the App. This screen is present for about 3 seconds. This

screen has been coded such that if the user is already logged in, then it will directly go to the main activity otherwise it will launch the Login activity for the user to login again.

B. SignUp Activity

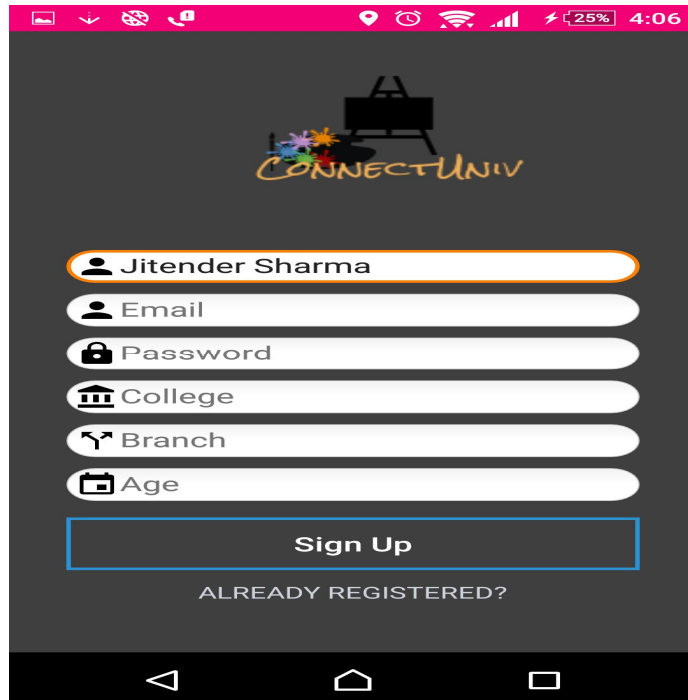


Fig. 5. SignUp/Registration Page

The above screenshot is the SignUp or Registration page from which the user can register to the App. The fields mentioned in the page are Name of the Student, their Email Id, Password, their College name, their Branch and their Age. After filling all that information and registering to the App, the data gets stored into the cloud database i.e. Firebase. After registering, the user account is created with the mentioned Email Id. Firebase shows the list of all users who registered on the App. The database admin can add or remove the accounts directly from the Authentication section of the database.

C. Login Activity

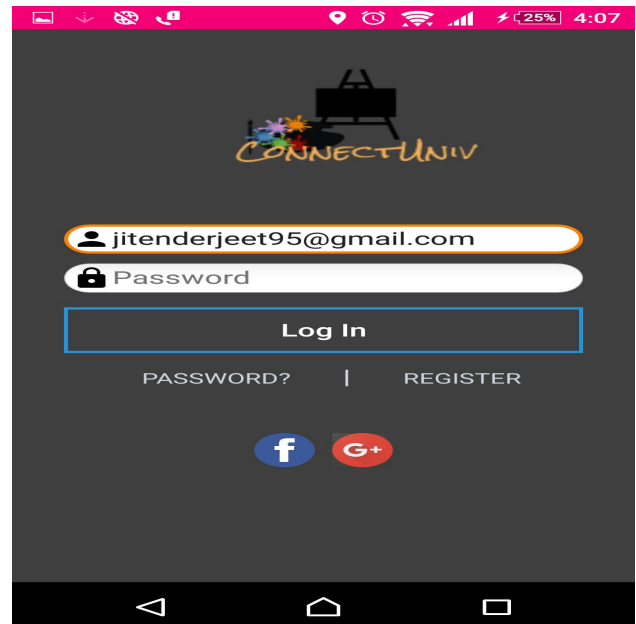


Fig. 6. Login Page of ConnectUniv

The screenshot shown above is the Login page of the App from which the user logs in to start using the App. The user types his/her credentials (Email and Password). If the credentials match with the ones stored in the database, the user successfully logs into the App and can start using it. There are other options too for logging in like Google and Facebook Sign In through which the user can directly Sign In into the App without mentioning the credentials. Google and Facebook APIs are used to implement these features in the App. One just needs a Google or a Facebook account to login and need to give permission to access the profile information of their respective account.

D. Main Activity of the App

This following is the screenshot of the Main Activity of the app with the navigation drawer at the left side. This screenshot shows all the features of the App on the Navigation drawer that are: Newsfeed, Entertainment, Campus2Campus, Your Companion, Calendar and About. These are the main six modules of the App. The navigation drawer also displays the logo of the App. One can navigate to different features or modules by simply opening the navigation drawer and choosing the feature they want to use.

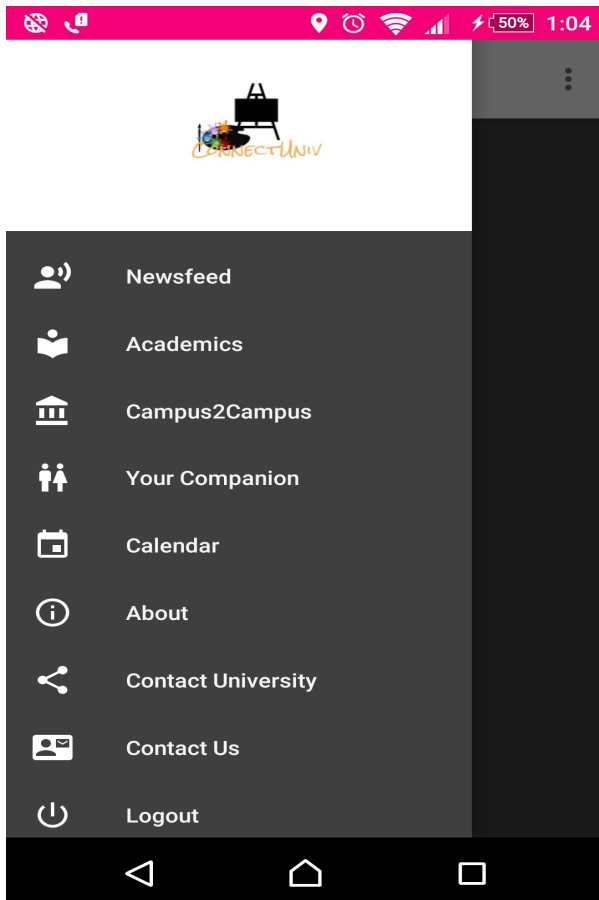


Fig. 7. Main Page of ConnectUniv

E. Academics Module

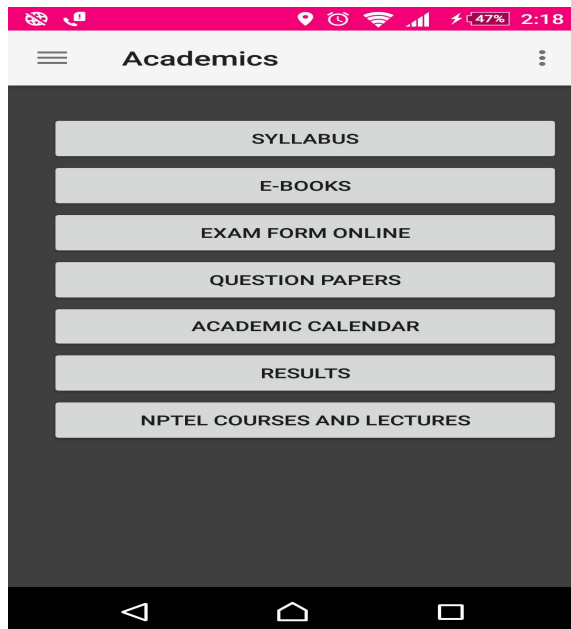


Fig. 8. Academics Module

The Academic module (Fig 8), is the module which helps the students with their academics. It helps the students

getting all the important academic resources like syllabus, e-books, previous question papers, exam time-table etc. This module extracts the information from the university website which has all these resources related to the topics mentioned in the module. It displays all that information in a well structured and easy format so that the students doesn't have to browse through the complex website to get the required resources. It also helps students save time to get the required content. They can get the resources simply in a single click.

The link's URL is used to go to that particular page. The URL is mentioned in the java class file for that particular function.

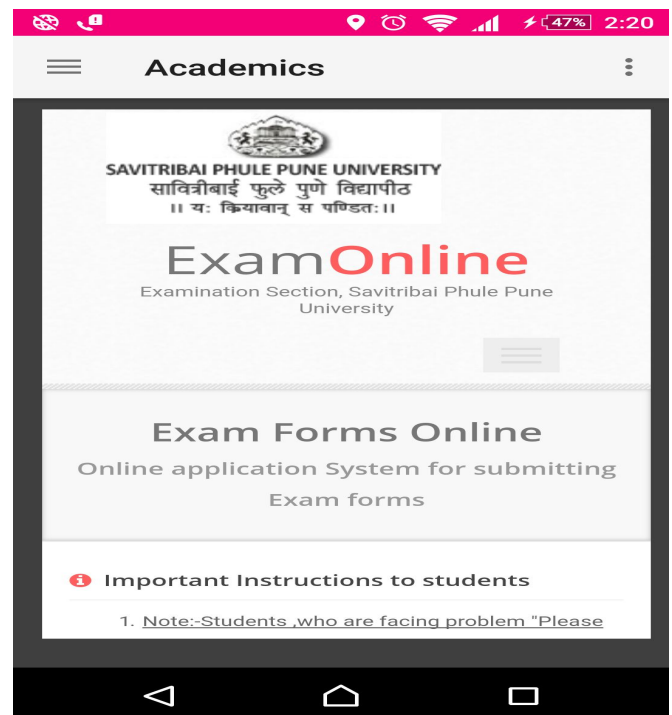


Figure. 8 (a). Submodule of Academics Module

The above screenshot is the submodule of the Academics module. The name of the submodule is "Exam Form Online" which is mentioned in the Academics Module screenshot. This is shown here to demonstrate how the page looks like when it is extracted from the website. The page is responsive with the mobile app so that the user can use the resources of the page in a better manner. This is done by making page look better through coding. It won't look good if you open the same page in mobile browser. All other submodules mentioned in the Academics module screenshot look alike this module and also works in the same manner.

F. Campus2Campus Module

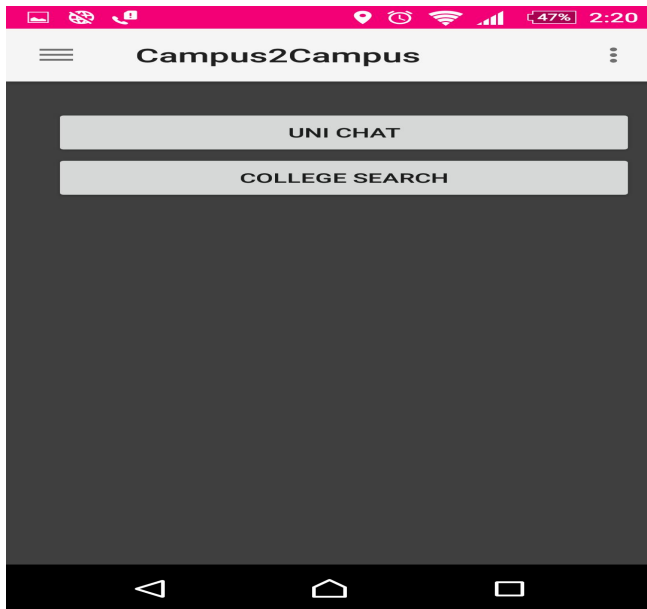


Figure. 9. Campus2Campus Module

Now, comes the Campus2Campus Module also called as Campus to Campus. As the name of the module suggests, it connects one campus to the other. Students of one campus can connect to the other by directly interacting through chat interface or by getting information about different other colleges by searching about them. The two submodules in the Campus2Campus module are UniChat and College search. Through UniChat, the students can interact among themselves through the chat interface. One can create a group of common interest and start the chat.

The second submodule is College Search in which any student can search about the different colleges present under the university. The data is extracted from the University website which in turn collects it from the University database. One can get the information about the college like total intake of the different branches present in the college, total faculties, infrastructure and similar stuff.

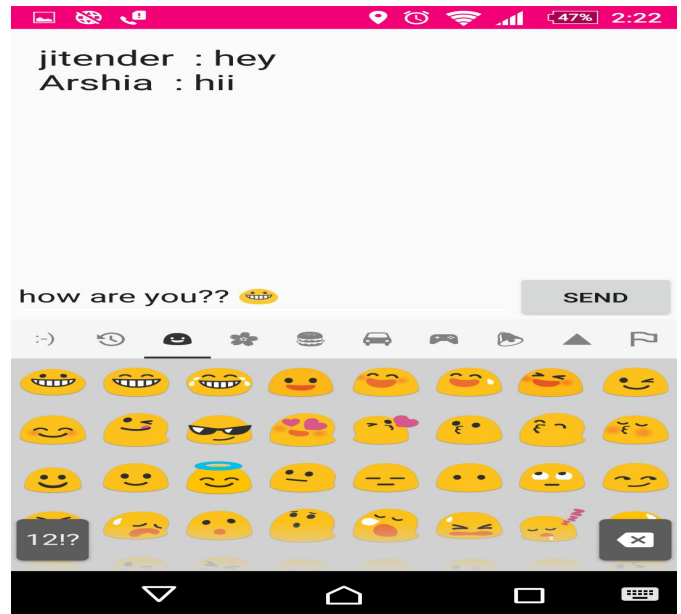


Figure. 9(a). Submodule of Campus2Campus Module

The screenshot shown above is the submodule of the Campus2Campus module. This module is named as UniChat which is the short hand notation of University chat in which students of different colleges can create a group of common interest and chat among themselves to share their views and experience on a particular topic. You can use emojis to express yourself better. This submodule is connected to the Firebase database and all the chat data gets stored into the cloud database. As Firebase is a realtime database. The chat data gets displayed there in real time.

G. Your Companion Module

The following screenshot is the next and a useful module of this app called as “Your Companion.” Going by the name of the module, this acts as an assistant of any student which can assist them regarding different things like places near you which are of utmost importance for a student. Other than that it can also help a student connect to the university library and also get the University map to reach University.

For this module, different Google APIs are used like Google Map API and Google Places API.

For the library, University website is used to collect data which is stored in the University database.

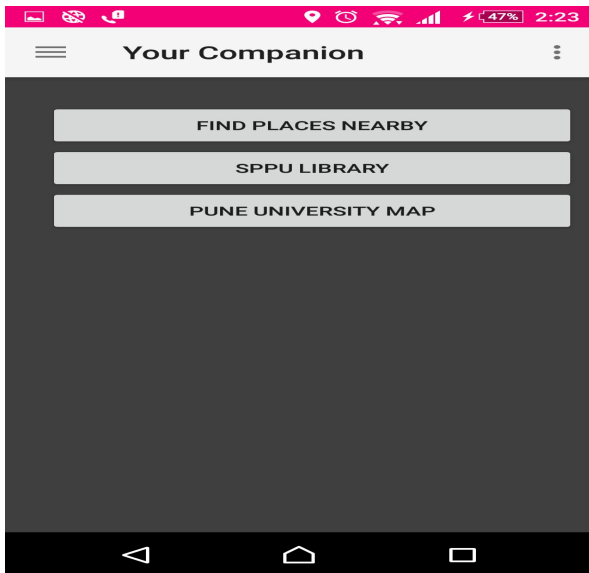


Figure 10. Your Companion Module

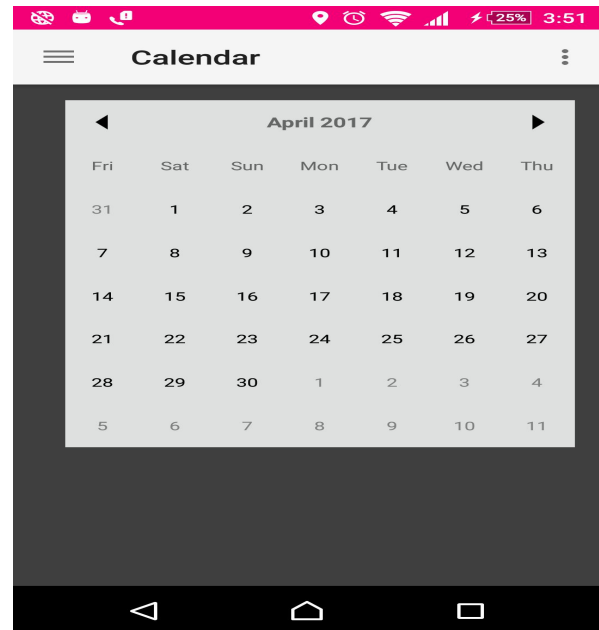


Figure 11. Calendar Module

One of the most important and useful module of the app, the “Calendar”, whose screenshot is shown above (Fig 11). This module helps students keep track of the events taking place in different colleges. The students can check the dates of the special events that are going to take place. Apart from the events, one can also get to know about the official holidays declared by the University. As soon as one selects a particular date from the calendar, all the events on that day will be displayed on the screen. The dates would be marked by the college admin through the ConnectUniv website. Only, the admins of different colleges will have the permission to mark the dates on the calendar. As soon as the date is marked, it will be reflected on the App.

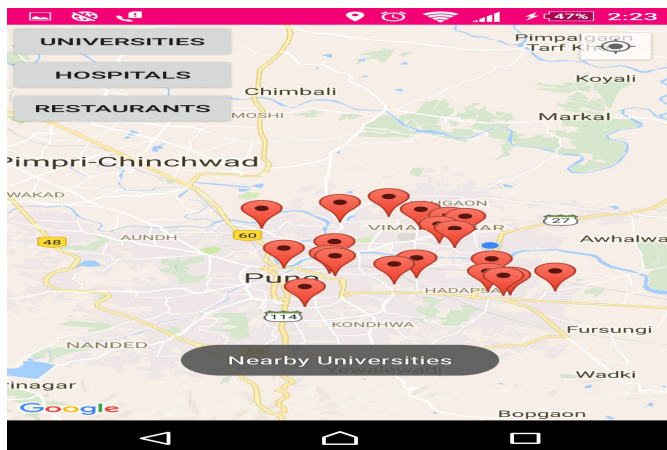


Figure 10(a). Submodule of Your Companion Module

The above screenshot is the submodule of the “Your Companion” module called as “Find Places Nearby.” It helps student find the important places near them like Universities, Restaurants and Hospitals. There are many more places that are going to be added in the future. A student can get all the options for a particular type of place to visit with the address of that place. As Google APIs are used for this module, one can make use of Google navigation from this module to go to that place.

H. Your Companion Module

I. About Module

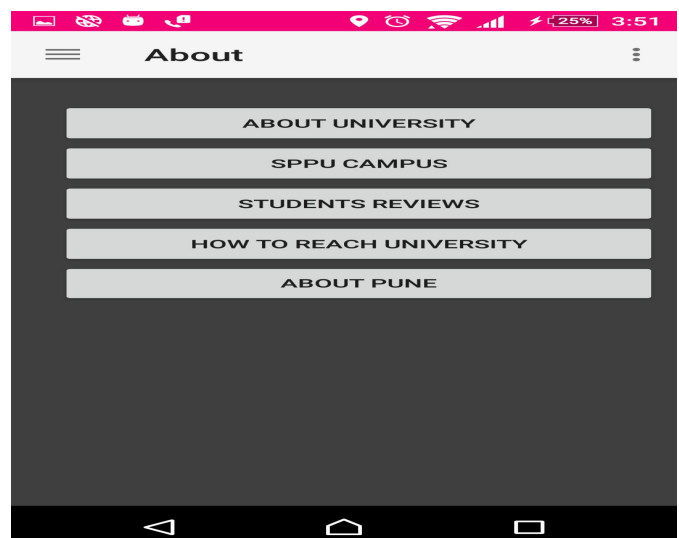


Figure 11. About Module

The above screenshot is the last module of our app. This is a static module yet helpful for the students to know about the University. This information is available on the University website but there are so many links present on that website that the students ignores them and gets frustrated. So, in this module the information is provided in a more simpler and well structured manner.

The submodules of this module are: About University, SPPU Campus, Students Reviews, How to reach University and About Pune. One can get the information about the above mentioned topics simply by choosing one of the options. By using this module, the students doesn't need to open the website again and again and browse through different links present there. Below is screenshot (Fig.11(a)) of the submodule of About Module named as "About University" displaying the information about the University.

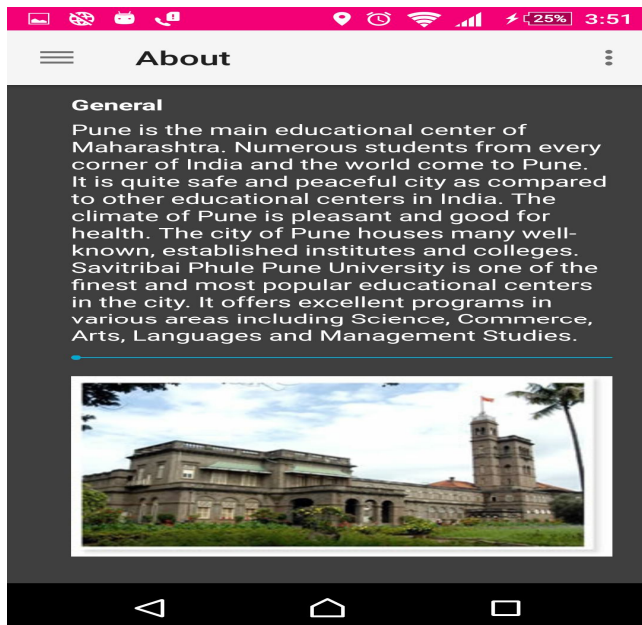


Figure 11 (a). Submodule of About Module

IV. RESULTS AND DISCUSSIONS

A. ConnectUniv outline algorithm

```

Algorithm ConnectUniv ()
//Input: User's choice by touching on the screen.
//Output: Appropriate actions performed according to the input.
Int ch;
Print "login (0) or signup (1)"
If ch <- 0 then
    CUniLogin ();
else
    CUniSignUp ();
Print " Display Menu (Newsfeed, Entertainment,
    
```

```

Campus2campus, Academics, Calendar)
If Choice <- "Newsfeed"
    then Newsfeed ()
If Choice <- "Campus2Campus"
    then Camups2Campus ()
If Choice <- "Academics"
    then Academics ()
If Choice <- "Entertainment"
    then Entertainment ()
If Choice <- "Calendar"
    then Calendar ()
else
    Wait for user's response
end
    
```

B. ConnectUniv login algorithm

```

Algorithm CUniLogin ()
Int i
Print "Enter User Id and Password "
for i <- 1 to 3
    correct <- Check with the database
    If correct then
        return ()
    else
        Print " invalid UserId and Password"
        Print " Re-enter your login details"
        i++
    end
end
    
```

C. ConnectUniv SignUp algorithm

```

Algorithm CUniSignUp ()
Print "Enter your details including UserId and Password"
Load this data into the Database
CUniLogin ()
end
    
```

A. ConnectUniv- Newsfeed Module algorithm

```

Displays the list of updates sent from the ConnectUniv website by the admin.
If (An News Item selected)
    Detailed Info about that news item
end
    
```

D. ConnectUniv- Academics Module algorithm

```

Algorithm Academics ()
    Display the menu for the Academics (Syllabus, Ebooks,
    
```

Question Bank, Exam Schedule, Result and Exam Form Online)

```

If Choice <- "Syllabus" then
    Display Syllabus details from the Database
If Choice <- "EBooks" then
    Display EBooks' details from the database
If Choice <- "Question Bank" then
    Display the Question Banks
If Choice <- "Exam Schedule" then
    Display Exam Schedules
If Choice <- "Result" then
    Display results
If Choice <- "Exam Form Online" then
    Display Exam Form Online
end

```

E. ConnectUniv- Campus2Campus Module algorithm

Algorithm Campus2Campus ()

```

Display the menu for the Campus2Campus
If Choice <- "Chat room" then
    Display Chatroom details from the Database
If Choice <- "College Info." then
    Display College information from the Database

```

F. ConnectUniv Your Companion Module algorithm

Algorithm YourCompanion ()

```

Display the menu for the YourCompanion
(Places near you, University Library, University Map)
If Choice <- "Places near you" then
    Display places details from the Google maps and places API
If Choice <- "University Library" then
    Display University Library information from the University Website
If Choice <- "University Map" then
    Display University map from the Google maps
end

```

G. ConnectUniv Calendar Module algorithm

Algorithm Calendar ()

```

Displays a Calendar with Events dates and holidays marked on it
if(date clicked)
    if(event/holiday found on that date)
        Display the events and holidays on that date
    else
        Displays nothing
    end
end
end

```

H. ConnectUniv About Module algorithm

Algorithm About()

```

Display the menu for the About (About University, About SPPU Campus, Students Reviews, How to reach Univerity, About Pune)

```

```

If Choice <- "About University" then
    Display the Information about University
If Choice <- "About SPPU Campus" then
    Display details about SPPU Campus
If Choice <- "Students Reviews" then
    Display Students Reviews
If Choice <- "How to reach Univerity" then
    Display information about How to reach Univerity
If Choice <- "Result" then
    Display results
If Choice <- "About Pune" then
    Display information about Pune

```

V. RESULTS AND DISCUSSIONS

Usage of different features of the App

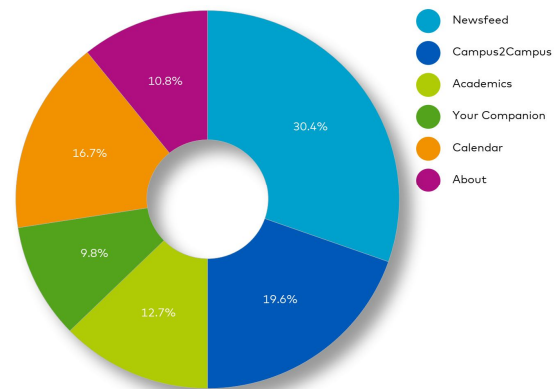


Figure 12. Features usage graph

According to the first survey done on students of our college, these (Fig. 12) are the results. Currently, this has been done on just one college. More surveys like these needs to be done to find the trend of using the different features by the students of other colleges too.

As shown in the graph, Newsfeed Module(having 30.6% share) is the most popular among the students and rightly so. It provides them with instant updates with push notifications and details about the future events. The second most popularly used feature is Campus2Campus(19.6% share) as it allows students of different colleges to connect among themselves.

Apart from these two, Calendar(16.7% share) and Academics (12.7% share) are also frequently used by the students as it provides the events dates and academics related stuff to the students respectively. The remaining two modules, "YourCompanion" and "About" have a share of 9.8 and 10.8 percent respectively.

VI. CONCLUSION

ConnectUniv is a boon to the students of every college under a University. It is a better alternative as it uses NoSQL cloud database which is realtime database rather than the existing solutions available which uses SQL databases. Its better because NoSQL are better in handling unstructured data like photos and videos. Also it is a faster and a cost efficient method to get updated with the latest events going on in the University. It also helps students connect with each other irrespective of the college they are studying in. In this paper we investigated about the students preferences of a mobile application for their university so that their daily life complexity could be reduced. The features that are mentioned in this paper are decided after taking suggestions from the students. Each and every module of this application serves a purpose which helps students in different aspects of their college life. The limitation of this study is that almost everything related to academics is taken from the existing University website. Its should have its own data in our solution's database so that the Academics module can extract information from our own database and not from the University website. Apart from that some security issues needs to taken care of and for which there is a need to find solution. Submodule like UniChat needs to have a better security so that it can only be accessed by the authorized students and nobody other than them. Nevertheless, the app will be really helpful for the students as soon as it launched and hopefully it makes the life of the students better and shows the results as desired.

REFERENCES

- [1] Jitender Sharma, Arshia Shaikh, Sayali Kadam, Trinani Zalpuri: ConnectUniv: An Application bridging the gap between the Students and the University, 2016 (Review Paper)
- [2] Patrick Hung, Jeanne Lam, Chris Wong, Tyrone Chan: A Study on Using Learning Management System with Mobile App , 2015.
- [3] Sharmila Devi, Mohammad Rizwan, Subhash Chander: Mobile Applications and its implications in Education, 2012
- [4] Yu Lun , Hu Zhi-Yi: Learning Anywhere Anytime with Mobile Devices, 2010
- [5] Seyed Hadi Mirisae, Abdullah Mohd Zin: Determining IT students problems in a University environment and proposing a solution by a wireless organizer, 2008

- [6] Kyle Bowen, Matthew D. Pistilli: Student Preference for Mobile App Usage, 2012
- [7] Lisa Massi, Patrice Lancey, Uday Nair, Rachel Straney, Michael Georgiopoulos, and Cynthia Young: Engineering and Computer Science Community College Transfers and Native Freshmen Students, 2012
- [8] Cario Chacn-Rivas, Csar Garita: Mobile Course: Development of a mobile app to access University courses information, 2013