Multi-Platform College Resource Management System

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Abstract - *ExamPrep has been developed with an intention to cater to various needs of the students. This application serves as a digital library and can be used to access various e-resources which are provided by the college like question papers and study material in pdf formats. The application has been developed especially for the Android Operating System and uses Google Firebase as a backend for data storage and manipulation. The user interface (UI) has been designed with a special focus on ease of access and so that the application can be installed on older and less powerful devices as well, ensuring that each and every student can use this application. The application also provides a facility of uploading resources to the application and can be done by both faculty and students. Apart from that, the application also uses Chrome Custom Tabs and provides an in-app browser. The 'Other Features' section of the application provides various useful links that can be accessed through these custom tabs. In the future the application shall receive various updates and the application has been designed for further expansion and increased functionality.*

Key Words: Android Operating System, Google Firebase, Digital Library

1. INTRODUCTION

The era of mobile technology opens the windows to the android app. The websites are vanishing and the mobile phones are emerging. And the android apps have become a part of our daily routine. We are introducing 'YCCE ExamPrep.apk', the android application software which would help the students of YCCE to quickly view the previous examination papers and they will be also provided with some quick links to the college website, online payments, notice board, etc. YCCE ExamPrep is an app created on android platform for the convenience of the YCCE students. This app primarily focuses on delivering students with the previous year mid-semester and end-semester examination papers. This app also provides features to view study material related to the subject. The study material and the previous examination papers would be uploaded by the subject teachers.

2. LITERATURE SURVEY

Library is the heart of every institution. According to M. Mansoom Raza, (2004) "The technological advancement accompanied with global influence of information technology has drastically affected the routine task of national libraries to a greater extent. It has affected publishing, acquisition, storing services of any library. It would be appropriate to use the term "digital service" to encompass the use of electronic services designed to improve access to traditional library collection as well as digital collection. Library plays an important role in sustaining the open access initiative (Das, 2008) [3].

Digital Library Federation defines digital library as: "Organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, maintain the integrity of, and make sure the persistence over time of collections of digital works in order that they're readily available to be used by an outlined community or set of communities"[4].

Digital libraries are an emerging concept in Nigeria, although today's libraries within the developed countries are routinely providing information and services in digital form. Borgman (1999) agrees with Digital Library Federation (1998) which states that digital libraries have unique characteristics different from traditional libraries and their approaches towards information provisioning. From a standard librarian's point of view, digital libraries present a transformative model of a large-scale, user-centric organization that's moving towards an integrated form with various components. However, the most purpose of digital libraries remains according to that of traditional libraries. The aim of digital libraries is to arrange , distribute, and preserve information resources even as it's for traditional libraries. Lynch (1994) says that, "digital Libraries provide users with coherent success to a really large, organized repository of data and knowledge." consistent with Trivedi (2010), the aim of a digital library includes:

- To expedite the systematic development of procedures to gather, store, and organize information in digital form.

- To promote efficient delivery of data economically to all or any users.

- To encourage cooperation and collaboration in research, computing, and communication networks.

- To bolster communication and collaboration between and among different educational institutions.

- To take leadership role within the generation and dissemination of data

Digital libraries promise new societal benefits. One is elimination of the time and space constraints of traditional libraries. Unlike libraries that occupy buildings accessible only to those that rehearse their doors, digital libraries reside on inter-networked data storage and computing systems which will be accessed by people located anywhere within the world. When the whole potential of a digital library is realized for an exact community, people shall be ready to access all human knowledge hosted therein digital database from any location. Digital libraries that are accessible over the web provide opportunities to advance knowledge and to dramatically improve the standard of life. On the opposite hand, open access to knowledge may be a key contributor in providing universal access to information and knowledge. The difficulty of open access is recently gathering global encouragement and support. The National Knowledge Commission of India commissioned in 2005 is encouraging open access. The commission's success is due to its belief that "Open access material stimulates research and helps students, teachers and researchers across the world"[4].

Zuccala, et al. (2008), say that the term open access has been given a spread of definitions while its meaning remains evolving. However, following the Budapest Open Access Initiative meeting, a definition was produced as quoted in Bailey (2006): First, open access works are freely available. Second, they're 'online', which might typically mean that they're digital documents available on the web. Third, they're scholarly works... Fourth, the authors of those works aren't purchasing their efforts. Fifth, as most but not all authors of peer-reviewed journal articles aren't paid and such works are scholarly, these articles are identified because the primary sort of open access material. Sixth, there are an unprecedented number of permitted uses for open access materials; users can copy and distribute open access works without constraint. Lastly, there are two main open access strategies:
1. self-archiving
2. open access journals.

One may ask: who may be a digital librarian? Gibbons (2004) reason that since the range of digital content are often vast, it incorporates text, audio, video, images, learning objects and datasets, born of digital. Digital librarians can be thought of as "bridges" between digital tools and consumers because they work with physical media that have been digitised, such as scanned files. This suggests that he or she must be skilled within the use of data communication technology (ICT). Igun (2010) cited Zhou (2005) who declares that the ICT/digital librarian must be able to: design, maintain and transmit added-value information products; protect digital property in network environments; and ensure information security [4].
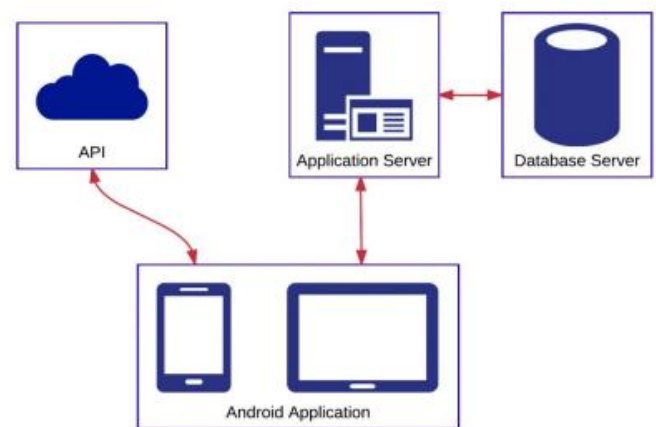
3. ARCHITECTURE AND DESIGN

Figure 1. System Architecture Layout

The project has been divided into two teams:
1. Front-end
2. Back-end teams.
The front-end team is liable for design and implementation of the UI and data visualization using Android Studio. The back-end team is querying and filtering the info from the environmental data API which can be displayed within the app. The back-end team is additionally providing a database system to store images uploaded by users of the app. When working with new technologies it's critical to try to do plenty of research and obtain conversation in what's available.

4. COMPONENTS AND REQUIREMENTS

HARDWARE REQUIREMENTS

Computer:

- RAM: 4 GB DDR3 RAM

- Hard disk drive: 250 GB

- Monitor: 15" Colour TFT Monitor

Mobile:

- Internal Memory: 32GB

- Processor: Dual core 1.2 GHz Cortex-A9

- RAM: 4GB

- Display Resolution: 480*854 pixels

SOFTWARE REQUIREMENTS

Computer:

- Operating System: Windows 10

- IDE: Android studio, Microsoft Visual Studio

- SDK: Android SDK 4.4

- Language: Java, XML, React

- Database: Google Firebase

Mobile:

- Operating System: Android 4.2(Jelly Bean).

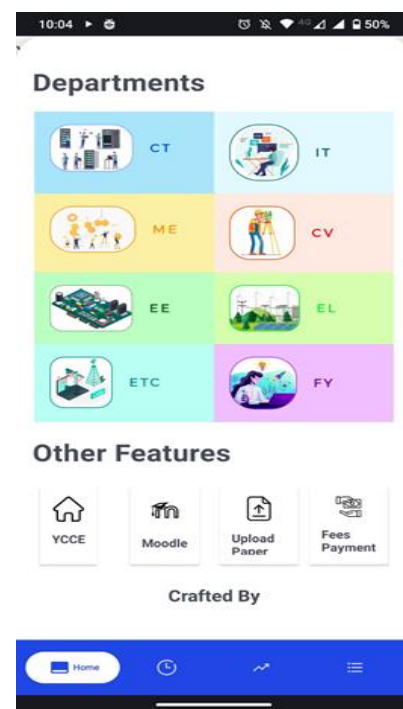## 5. SCREENSHOTS AND EXECUTION

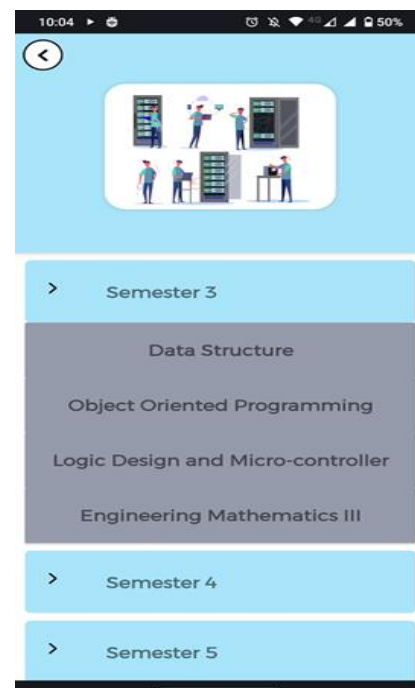*Figure 2. Android Application Home Screen*
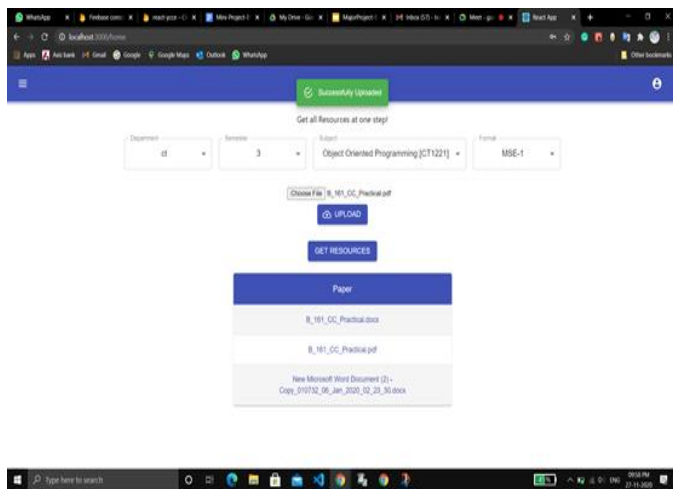

Figure 3. Departmental Screen

Figure 4. Resource Uploading in Web Application

Figure 5. Sample Resource Display

5. CONCLUSION AND FUTURE SCOPE

The app is currently in its alpha version. The app will receive many updates in future and thus improvement in app UI, stability of the app, optimization of code will be taken care of.

We also intend to add more features in the app like to display the attendance of the student adding time tables in the app of the respective semesters. Till this current state of the project, we manage to change the user interface design of app for better user experience and also codebase has gone through major refactoring as we shifted from java to kotlin language and this change was time consuming, but it will ensure the maintainability of app in future.

6. REFERENCES

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