



An Android Mobile App Support System for Students at Tertiary Levels

Soyemi, J. & Alawode, A.

Department of Computer Science

The Federal Polytechnic

Iloro, Nigeria

E-mail: Jumoke.soyemi@federalpolyilaro.edu.ng/ademola.alawode@federalpolyilaro.edu.ng

Phone: +2348052848284/+2348023584050

ABSTRACT

The traditional method of using Students' Handbook to inform the Students about the Rules and Regulations of Institutions and Students Union Constitutions is not making the information to be at the finger-tip of the Students at all times. This gives room for various excuses from Students whenever they erred. Also, there is no electronics Lecture Alert System for students, since they keep their lecture time table manually. Finally, Students do the calculation of their GPA/CGPA manually and often times get wrong results leading to unnecessary agitations. Lastly, the amount incurred in printing the Handbook is enormous. This study developed an Android based Application to ameliorate the above stated challenges and hence supports Students in some of their activities that are done manually. The application is implemented as a student's organizer through Android mobile phones.

Keywords: Student handbook, Android based application, GPA/CGPA, Time-table, Tertiary levels

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1. BACKGROUND TO THE STUDY

The interactivity of students with mobile devices is fast increasing, but their productivity on meaningful mobile applications is not encouraging which resulted into wastage of time spent while interacting with the device. Recently, all students are technologically inclined and flow with the trends in technological innovations. The era of internet recently experienced an explosion in the various applications it's able to support. The fact that the online environment is interactive in nature expanded various options of the phone usage (Soyemi and Olasina, 2016). Majority of research done so far, discovered that the use of mobile phone in schools by students is problematic because of the conflicting priority of young people, parents and teachers in relation to the mobile phone device, with teachers more concerned about issues such as discipline in the classroom and parents worried about means of contacting their children at every point in time (Soyemi, Oloruntoba and Okafor, 2015).



Therefore, using what they are very good at (interacting with Mobile devices), to do that which is needful, helpful, supportive and informative will be a research in the right direction. The Student Handbook contains rules and regulations that each student should be acquitted with to guide and guarantee their successful stay on campus. The irony of this is that most students after admission collect these handbooks and keep without going through only to bring out when they err. This has landed quite a number of students into trouble leading to their rustication and expulsion because of their ignorance. This study therefore developed an Android Application that makes the rules and regulations contained in the student handbook available electronically on their mobile devices and also support Students in other activities that are done manually such as keeping electronic copy of their lecture-time table that gives alerts of their lecture periods instead of keeping on paper and calculation of their GPA/CGPA.

The paper is divided into five sections. Section one gave a general introduction of the study, section two reviewed the study. Methodology of the study was done in section three. Section four presented the result and discussed the same while section five concludes the study.

2. LITERATURE REVIEW

2.1 Mobile/Android Phones

Today, mobile phones are widely available to majority because of the low cost making the operating system the most widely used mobile operating system. The portability of the phone is a major advantage providing a means of communication that has recently developed into meaningful use in schools, although, its use has been of both positive and negative effect among students. Android is a smart phone operating system developed by Google. It makes use of touch input for manipulating objects on the screen and uses the virtual keyboard. The Android mobile phone has the advantages such as large screen for display, cost effectiveness when compared to Apple, Blackberry or similar phones and easy accessibility to several Android Apps among others (Soffar, 2016).

2.2 Student Handbook

The student handbook contains rules, guidelines and regulation on how to behave, comport and relate with others within the institution to enable successfully completion of the students stay in such an institution. The student handbook is important for students to read and understand, so they can fully engage in all facets of being a student. When students become a member of any institution (for example, in the Federal Polytechnic Ilaro), they swear to an oath and also sign an undertaking to abide by the rules and regulations contained in the student handbook and that any contrary act against such rules and regulations should attract the penalties outlined in the handbook. The Handbook rules apply as long as students are enrolled in an institution, thus it is essential for parents to understand this information so that it can further help them to guide their wards right (George Fox University, 2016). The handbook is published annually to make copies available to new intakes in the beginning of every session



Apart from academic grooming, another goal of a higher institution of learning is to help develop a unique individual to be educated as a whole person, intellectually, emotionally, socially, ethically, and spiritually. Such development and learning as an individual occur, in part, when student engage in relationships with others and in activities that optimally challenges (Student Handbook, 2016).

Several Apps for educational use have been developed which includes applicable for ubiquitous learning, campus routing, class identifiers, mobile security, (Guo, Bhattacharya, Yang, Qian, and Yang (2013).

The Federal Polytechnic Ilaro handbook contains all the rules and regulations, offences and penalties to guide each student to have a successful stay on campus (FPI Student Handbook, 2016). This handbook is usually distributed at the point of registration to fresh students. From our findings, more than 80% of these students usually fail to read the handbook. It is often when they landed themselves in trouble that they begin to lament that they were never aware such rules existed.

2.3 Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA)

The grade point average and cumulative grade point average are computed to show students' quality of performance per time and these are necessary to determine whether student qualify for certain academic actions or not. The grade point average is the weighted mean value of all points earned through examination in a semester (Armstrong, 2012). The calculation of GPA is done by multiplying course units by the equivalent grade point, then the total grade point got per course is added together and then the sum is divided by the number of units taken to determine the semester GPA. Meanwhile, the CGPA is the computation of the average of all of a student's total earned points divided by the possible number of points (Warne, 2017). The Federal Polytechnic Ilaro student handbook also contains information on how to calculate grade point aggregate and cumulative grade point aggregate.

These wealth of important information are rarely made used of by students because of the platform of presentation. Using what the students know best to use (mobile phone) to pass the essential information across is a research on the right path. Android is an operating system for mobile devices, one of the most used in the world today. Android is now used in more devices, including smart phones and more users than any other mobile operating system (Hwansoo and Jinhyung, 2015).



3. METHODOLOGY

3.1 Data Gathering and Analysis

The recent copy of Student Handbook for the institution was obtained. The Hardcopy of the Student Handbook collected was converted to softcopy form that will be deployed for the application. The required information on how to calculate GPA/CGPA manually was extracted and analysed using the institutions' specific grade point system as the case study. This enabled the computerization of the entire procedures.

3.2 Design of the User Interface and Modules

The design of different forms required for user interaction will be developed. The interface will be user friendly

The design of a model that represents the modular structure of the Students Handbook, which comprises of Rules and Regulations Module (RRM), GPA Calculation Module (GPA-CM) and Lecture Time Table Alert Module (LTTAM) was carried out.

3.3 Software Requirement

For the front end development, Java development kit (JDK 1.6) was the compiler used. NetBeans IDE 8.0 was the development environment for the application and phone Gap for building the mobile application.

The database used as the backend is MySQLite. MySQLite Java Helper consist all the code that was used for the database.

4. RESULTS AND DISCUSSION

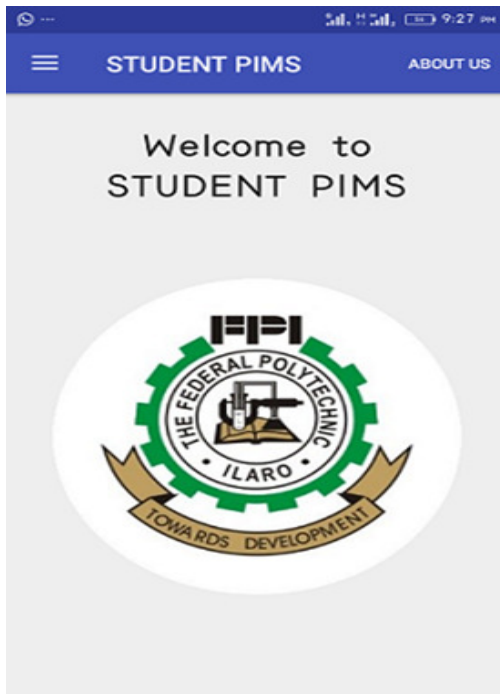


Fig. 1 Home page of the App

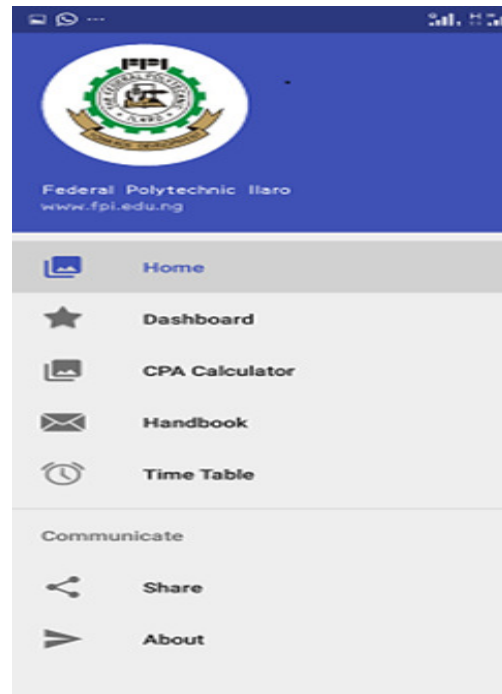


Fig. 2 Main menu of the App

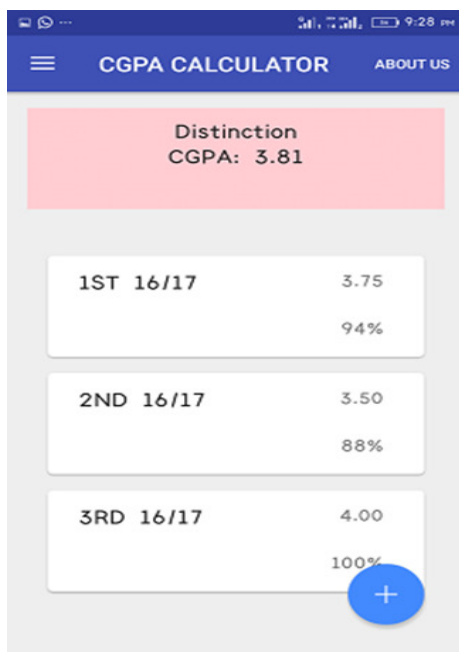


Fig. 3 GPA Calculator as a feature App



Fig. 4 Organizer for Lecture time table

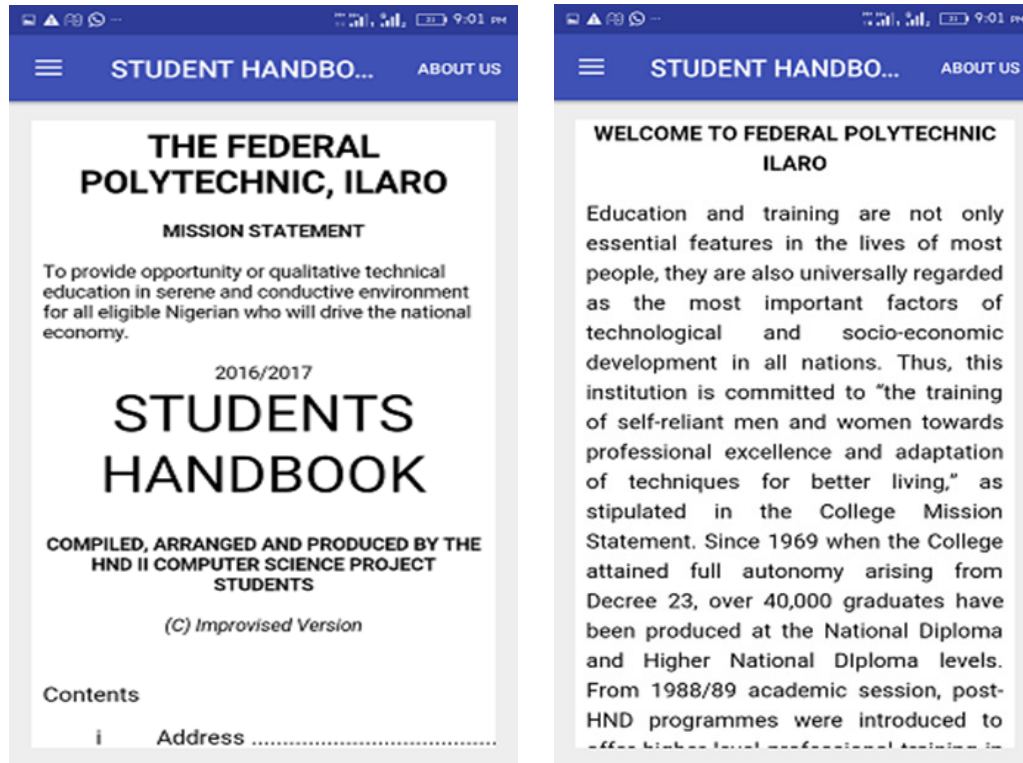


Fig. 5. Student Handbook, another feature of the App

Figure 1 is the home page of the student application with the institution logo and the name PIMS adopted for the System. Figure 2 is the main menu of the android application which displays all functions of the application such as GPA calculator, e-copy of Student handbook and lecture time-table organizer and alert system. The GPA calculator as presented in figure 3 computes the student GPA per semester based on the scores and unit of courses supplied by the student. From the information supplied, the students' GPA is computed and displayed. Figure 4 shows display page of another feature in the application that enables a student put together their lecture time table electronically. The feature incorporates an alert system that reminds the student of each period of lectures.

Finally, figure 5 is a screen shot of the student handbook which is another feature of the application that makes the electronic version of the students' handbook available on the student Android mobile phone for easy accessibility of the information contained. The above student app is to serve as an organizer that helps the student out and ease off major tasks required to be done manually be performed and also make certain information useful for students' consumption accessible all the time.

5. CONCLUSION



This study presented an android mobile-based student support application meant to ease the computation of grade point, cumulative grade point, managing time-table and making accessible an electronic form of the student handbook to students in the tertiary institution. The application was successfully developed, tested, and found to be working as expected. It is capable of storing and processing students' results and functions as an organizer for students' lecture and exam time table with high speed and accuracy. It is easy to use due to the graphical user interface (GUI) rather than command-line approach, reasonably secure, and enforces data integrity resulting from the use of a relational database management system.

With this application, student can actually confirm their GPA/CGPA with that released from the school authority, be prompt to classes with the alert system incorporated in their time-table. Finally, before embarking on anything that can put the student in trouble, the student handbook is accessible in an electronic format, making the information to be at the fingers-tip of the Students at all times. The students' app has been deployed on the Google play store for students at the Federal Polytechnic, Ilaro. The same can be extended to any institution of learning.

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