**Online Dormitory Mobile Application Using Apache Cordova**

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**ABSTRACT**

Every semester, around 2000 UPLB students are accommodated by 10 university dormitories inside the campus. As of now, the Student Housing Division of the University Housing Office keeps track of student dormers and their transactions through manual paper-work. This study aims to develop a mobile application that will allow student dormers and dorm managers to manage the online reservation, payment transactions, requesting of late/overnight permits, incident reporting and other services using their smart phones. The study also aims to determine the advantages and disadvantages of using Apache Cordova (Phonegap) in developing hybrid mobile applications. A simple random sampling of 20 student dormers and 5 dorm managers from different dormitories will test and rate the mobile application.

**INTRODUCTION**

The Student Housing Division of the University Housing Office (UHO) is a unit of the University of the responsible for dormitory and housing management for its students, guests and staff [8]. The university currently has 10 dormitories for its students, 5 of which can accommodate New Freshman (NF) students. With over 11,000 students in UPLB, the Student Housing Division of the UHO caters to students coming from various parts of the country. Among the services of student dormitories are namely, student accommodation, management of dormitory fees, incident reporting, late/overnight permit and issuance of clearance – all of which are done by paper work. Manual processing of these transactions can be very tedious and error-prone especially on generating fees and reports.

As of now, the UHO’s website http://uho.uplb.edu.ph can be accessed by students and allow them to view announcements and download forms. Upon completion of the requirements, the students are asked to submit the requirements personally or through a courier. Application forms are then processed on a “first-come, first-served” basis [3]. This is a big factor for all the students who apply for a slot looking for a place to stay inside UPLB. Out of the students who applied last semester, only 2271 of them got accommodated because of the limited number of slots. Some students who come from places far from UPLB travel to Los Banos even if they don’t have a place to stay yet just to ask for a vacancy or to submit the requirements.

Having said these, it is now obvious that there is a need for improvement in the accessibility of the dorm’s services. With the popularity of smart phones nowadays, such necessity can be addressed by creating a mobile application for university dormitories. The Online Dormitory Mobile Application should allow the students to pre-enlist and provide basic information before submitting the rest of the requirements. In that way, students will be given a fair chance on their ‘first-come, first-served’ policy.

Incident reporting will also be done easier with the use of the mobile application. It will allow students or personnel to take a photo of the incident and report events on the spot to address problems sooner. Late and overnight permits, which should be accomplished by student dormers that need to go beyond curfew hours, can be requested by the dormer or issued by the manager without personally going to the office and avoid the hassle. The application will also allow student dormers to view announcements from the dormitory management disseminate information faster.

**RELATED WORK**

Several studies have been conducted about dormitories inside and outside of UPLB. The UPLB Dormitory Tracking System and Report Generating Prototype by Torrizo is designed to help dormitories keep track of residents, transients and transactions made by the dormers such as statement of accounts and job requests [6]. It was developed using Active Server Pages (ASP) and MySQL for the backend. UPLB Dormitories Online Database Management System is also a web-based application which had features like Torrizo’s study with additional features such as online reservation and incident reporting [9]. It was developed using PHP and MySQL. Both studies were intended to replace the manual processing of transactions but they were not proposed to the Student Housing Division. Another study entitled University Dormitory Management System Based on Agile Development Architecture uses the idea of agile development architecture in order to meet the changing demands of student dormitory management at a university [5]. It was based on .net platform and was developed using C# and SQL 2005. The system was intended to change the traditional manual management of transactions and can easily cope up with the dynamic conditions of dormitory management. Also, the Web-based incident reporting system created a general form that can be used for different types of incidents, making reporting and processing fast easy and reliable [1]. The study showed that paper-based incident reporting suffers from management complexities resulting in many incident reports delayed or never investigated, so problems occur again.

There are also recent studies which tackle the advantages and disadvantages of developing hybrid mobile applications; one of which is a mobile application by Geronimo on 2015 [4]. This study developed an application for Manila Doctors Hospital using Phonegap and runs in Android OS devices. It also discussed the benefits and issues about developing mobile applications using web standard models and incorporating it with a cross-platform framework. The results showed that the development and testing was easier and faster, however, it was slower when compared to applications developed using native Android.

Past studies which developed dormitory management systems lacked features that will keep users from using the system every now and then. Creating a online mobile application will improve the accessibility of the dormitory’s services by using his/her smart phone instead of a laptop with internet connection.

**METHODOLOGY**

The primary goal of the Online Dormitory Mobile Application is to assist the dormers and the dormitory management from the heavy and complicated manual labor by automating some of the services of the dormitory in a timely and efficient manner. The dormitory managers will use a dormitory database management system which will allow the dormitory management to manipulate data to and from the mobile application. The following shows the functionalities of the mobile application and how it is different from the manual process.

**New Application**

Students who wish to apply for a dormitory reservation slot are asked to fill out necessary information such as name, student number, course, address, contact number, and STS bracket using the mobile application. After the management confirms a slot for the student, only then will the student submit the other requirements such as clear copy of admission slip, residence hall agreement and notarized waiver contrary to the manual process of reservation where the student goes to his/her desired dormitory and brings all requirements.

**Incident Reporting**

An incident report or accident report form (Form B-017) can be filled out using the application. Instead of going to the office and accomplishing the forms in paper, concerns can be immediately reported which would minimize the chances of an incident being ignored. The mobile application can make use of the device’s camera to take a photo of the incident/accident and call emergency assistance using push-to-call hotlines.

**Late/Overnight Permit**

Late and overnight permit forms can be accomplished without going to the dormitory manager’s office. After sending a request together with the details, the dormitory manager decides whether to accept, deny or ask the student to come to the office for an interview.

The Online Dormitory Mobile Application will be implemented using Apache Cordova and Ionic – hybrid mobile application frameworks which utilizes web standard technologies namely HTML5, Cascading Style Sheets (CSS), and Javascript to create a mobile application which can be built into different mobile platforms using a single code base. The mobile application will be built in Android OS for ease in testing and debugging. Meanwhile, the Dormitory Database Management System will be implemented using PHP and MySQL with CodeIgniter as PHP framework.

**EVALUATION**

To evaluate the system, a simple random sampling will be used. The application will be tested by 20 student dormers from different year levels and courses and 5 dormitory managers from different university dormitories inside the campus. The testers will be given evaluation forms to rate the application. First, the testers will be asked if what phone/s do they own and their respective operating system/s to determine the preference of students on the different mobile platforms. Then, the testers will be asked questions concerning their internet connection availability and GPS. After that, the testers will be given time to familiarize themselves with the features and user interfaces. Then, questions will be asked over their preference between the mobile application and the manual process. Finally, the tester will be asked to rate the features, ease of use, and user interface in a scale of 1-10.

**TIMELINE**

This Undergraduate Special Problem will be done in the University of the Philippines Los Banos on December 2015 to June 2016.

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