

Moving Towards Global Technological Advancement: Basis for the E-Clearance Program Development

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Abstract

Finding a better way to facilitate the signing of student clearance in a private school, the researchers developed an e-clearance system that automates and centralizes the clearance system. The system was designed to facilitate the fast processing of student clearance, to allow users to access the system online, and to save cost that the paper clearance entails. The system has three actors (students, administrator, and office heads), uses PHP programming language and MYSQL for database. There were 18 out of 25 Office Heads participants conducted during the testing and evaluation of the system. In the testing stage; network, database, functionality and efficiency of the system were tested. In the evaluation stage, an evaluation form was given to participants to evaluate the functionality and efficiency of the system. The study identified some functionalities and efficiencies that were suggested by the Office heads. The researchers also recommend working on mobile-based system of e-clearance in the future.

Keywords: Clearance, technology, web application, e-clearance, system administrator

Introduction

Technology provides tremendous impact in the society gearing towards global advancement for schools, banks, hospital, and hotels. In school, college students used technology to everyday communication in Internet, Instant Messaging, Blogs and networking websites[1]. Thus, a web portal is designed for clearance to provide access by graduating students[2].

The online clearance will help ease the queuing of the school process [3] and can be an effective information management of the school [4]. A study by [5] stated that clearance is a certificate of disengaging students as a process of clearing the academic requirements.

Exploring more the benefits of technological advancement, [6] encouraged colleges and universities to use a web-based system in recruitment, enrolment, communication, and assessment. The web-based tools were found to be of great help in meeting goals for recruitment, in streamlining the enrolment process, in communicating with potential students and families in real-time and in accelerating assessment process. Such technological advancement creates easier opportunities for everyone on campus to connect, share, ask, and work with one another.

Currently, this school under study and many other schools in the country issue and process clearance manually. Paper clearance relies heavily on printing, which is costly. However, by using an automated system, paper printing is done away, reducing expenses. Other disadvantages of the manual system that a paperless system addresses are (1) costly, (2) time-consuming, and (3) stressful as one has to move from one office to the next and join a long queue.

As people of this generation use computers to make their task more productive and efficient, the need for a computerized clearance system becomes more apparent. Many educational institutions here and abroad have already adopted system automation for data keeping. Given such development, an automated online clearance has a great advantage to the students, hence the conduct of this project.

Theoretical Framework

The development of the automated system was anchored on the Input-Process-Output (IPO) Model. Figure 1 shows the following phases: input, process, and output.

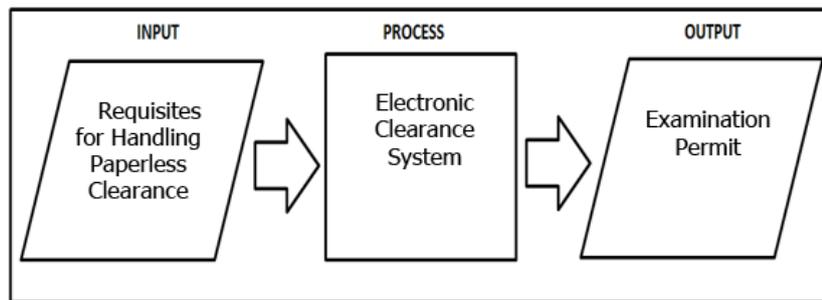


Figure 1. IPO Model of Electronic Clearance System

The requisites of handling paperless or e-clearance are (1) specific clearance instruction such as clearance to be signed with respective chairman office heads(2) clearance accessibility such as student's and office head log-in. The e-clearance system are student's requirements and the office heads checking of each requirements. The output is the release of examination permit and students can take the examination.

Operational Framework

This study used the System Development Life Cycle (SDLC) in the development of the system. This model consists of five stages as follows: Requirements Gathering, Analysis and Design, Implementation, Tests and Evaluation, and Maintenance.

This section presents the results of the stages of the study.

Requirements Gathering

To determine the user requirements of the system, the researcher surveyed the school processes student clearance was made. Figure 2.0 shows the current clearance system of the school. The signing of the paper clearance starts at the Registrar's Office and ends at the Cashier Office. Students have to move from office to office. If students have requirement deficiencies, they have to return to the office for clearance signing. Once cleared, the students get their examination permit. Such system is time-consuming and costly due to clearance printing.

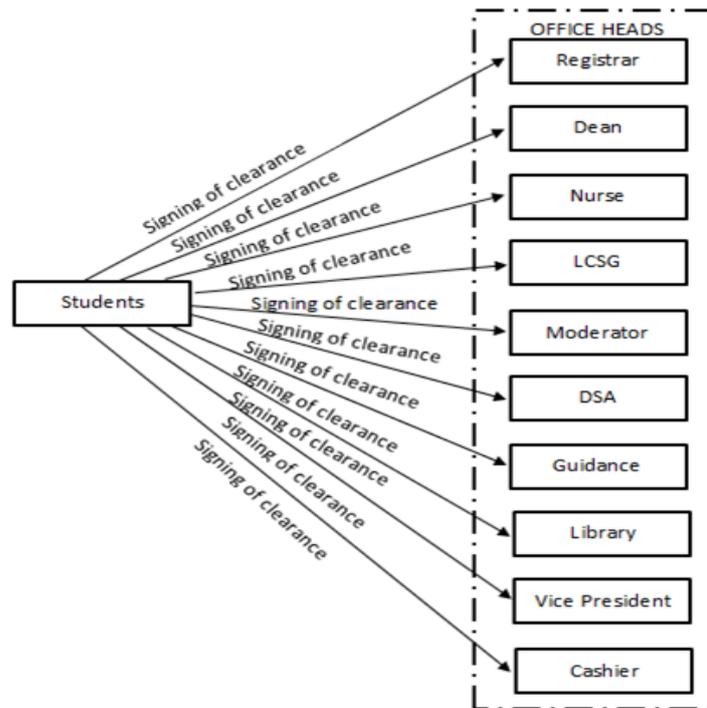


Figure 2.0 Manual System

Results of the Survey

There were 105 students from different year levels and programs who were asked to answer the survey questionnaire. Most of the students revealed the following reasons for not liking the current clearance system: (1) the clearance slip easily gets crumpled and lost, (2) joining a long queue is time-consuming, (3) transferring from one office to another is tiring, (4) having made to return or wait because the office head is not around is frustrating, and (5) paying a fee for a lost clearance is costly.

The following are the most common suggestions cited by the students to address their concerns: (1) automating the system, (2) strictly requiring the signatories to be around during clearance period, (3) centralizing the clearance system, and (4) making the clearance system online.

Analysis and Design

Data on the manual clearance system and the students' feedback about the system were used as basis for the creation of an electronic system. Figure 3 shows the proposed system. Students will have to login to access the system. They then browse the e-clearance to view the offices with their respective signatories, requirements, and status. A "CLEARED" mark indicates that the requirements have been complied. If an office has "NOT YET CLEARED" mark in the status box, it means that the requirements must be complied. The status box gets updated upon compliance of a requirement. "Students have to visit offices only for the submission of a requirement. In this proposed system, students are spared from joining a long queue, from waiting for the arrival of the signatories, and from losing the clearance slip.

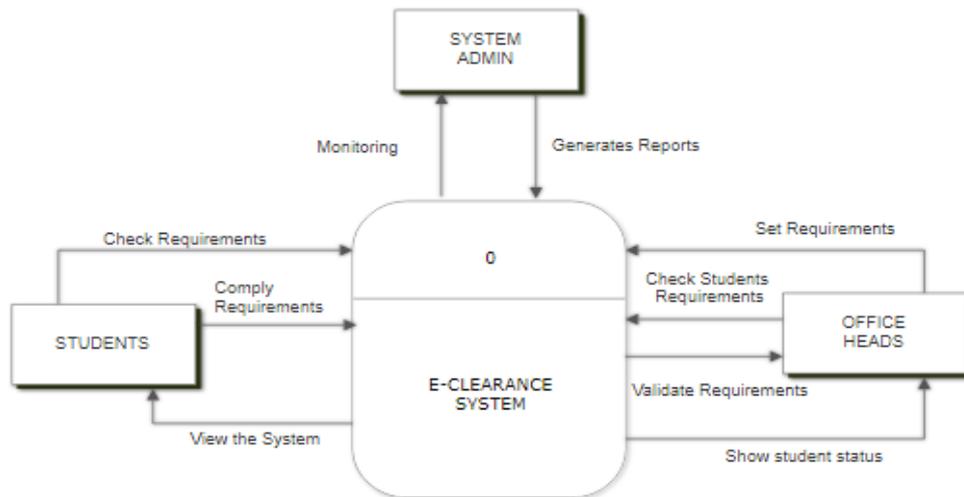


Figure 3.0 E-Clearance System

Implementation

The e-clearance system was deployed in the main server. Figure 4.0 shows the current setup of the college hardware infrastructure. The main server is beside the President’s Office with Linux server installed. Each office is installed with Windows 7 Operating System.

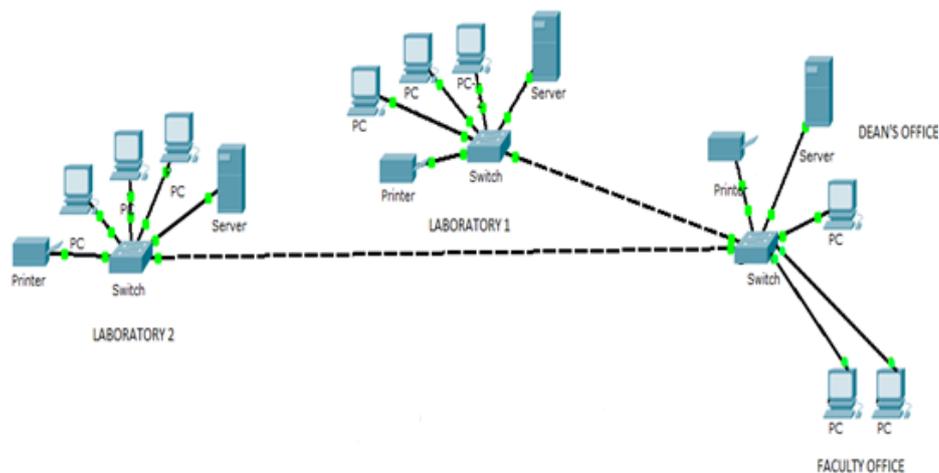


Figure 4.0 Current Setup of Lourdes College Hardware Infrastructure

Test

After the installation and configuration, the proposed system was tested.

A network was tested to check the system connections in the different offices in the college. An ip address was set just for this system. The web address <http://eclearance.lccdolocal/> was used so that every Office head and student can open in Figure 5.0.

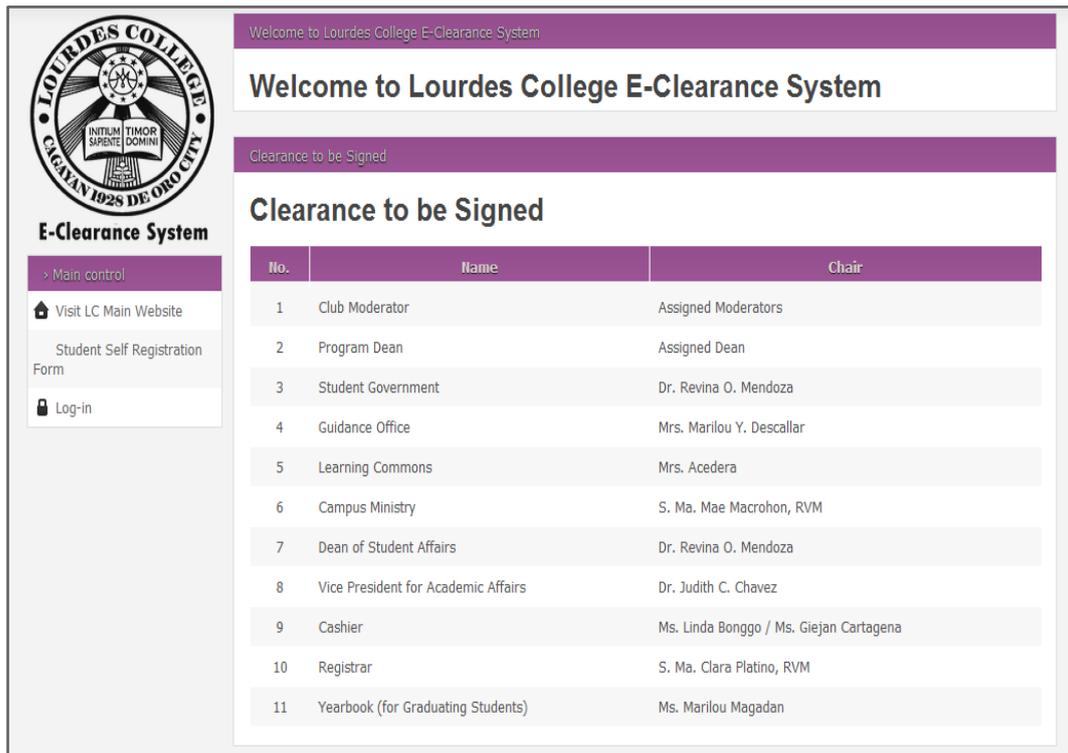


Figure 5.0. The Main Page of the E-Clearance System

A database was tested to determine whether the Office Heads and students can properly log in. Figure 6.0 shows the username and password was given to them.

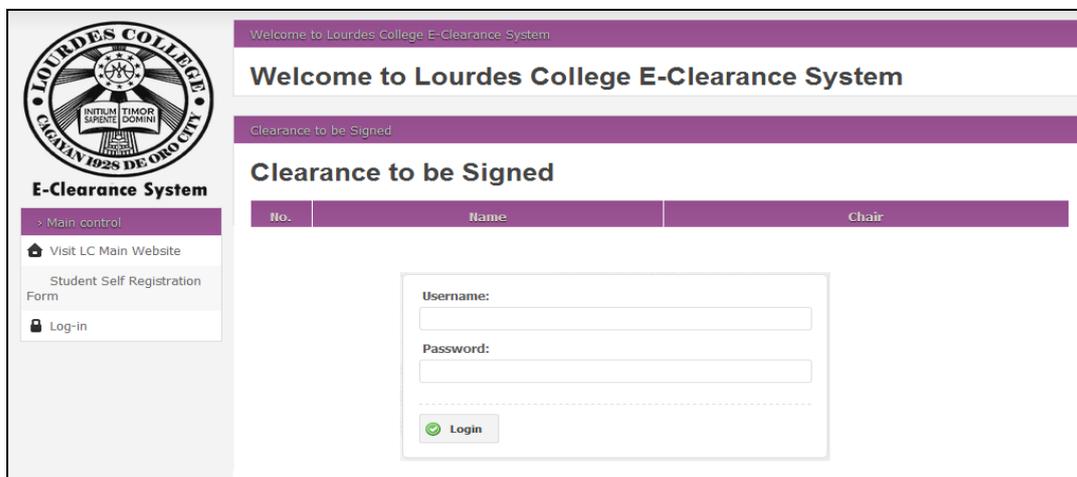


Figure 6.0 E-Clearance username and password

In the program dean's panel, Figure 7.0 shows all the students under the program. If the dean selects one student to be cleared, he/she will just click the pen button at the right side of his panel. After the dean clicked, it opens and Figure 8.0 shows the student for the clearance status. If the student did not submit the requirements, the dean will just put comments in the REMARKS.

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E-Clearance System
> Main control

Edit Student Clearance Status for Icadiz

Search Using Lastname

Name	Course & Year	Status	
BACULPO, HERBERT ASHLEY	BSIT - 1	NOT YET CLEARED	
DALOGDOG, ENRICK E LENARD	BSIT - 1	NOT YET CLEARED	
DAVIS, ANDRE ANTHONY	BSIT - 1	NOT YET CLEARED	
DEMECILLO, LOYD NIÑO	BSIT - 1	NOT YET CLEARED	
GALAM, IAN JHEREMY	BSIT - 1	NOT YET CLEARED	
GALARRITA, ANN ELOISA	BSIT - 1	NOT YET CLEARED	
HOMILLADA, ANDESON	BSIT - 1	NOT YET CLEARED	
LLESIS, SHEM PAUL	BSIT - 1	NOT YET CLEARED	
MAXON, JANIENE TANGERINE	BSIT - 1	NOT YET CLEARED	
REMENTINA, IVES MATTHEW	BSIT - 1	NOT YET CLEARED	
REYCITES, KING JAMES	BSIT - 1	NOT YET CLEARED	
REYES, MELVIN JEAN	BSIT - 1	NOT YET CLEARED	
ROCA, REMEELYN	BSIT - 1	NOT YET CLEARED	
YAMARO, SHERWIN	BSIT - 1	NOT YET CLEARED	

Figure 7.0 Program Deans Panel

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E-Clearance System
> Main control

Edit Student Clearance Status for IT

Edit Student Clearance Status

Name: BACULPO, HERBERT ASHLEY

Course: BSIT - 1

Clearance Status:

REMARKS:

Visit Main Website: [Lourdes College](#)

Figure 8.0 Student Clearance Status

Figure 9.0 shows the Program Dean’s panel with the students cleared of all the requirements in his/her program and the rest of the office heads.

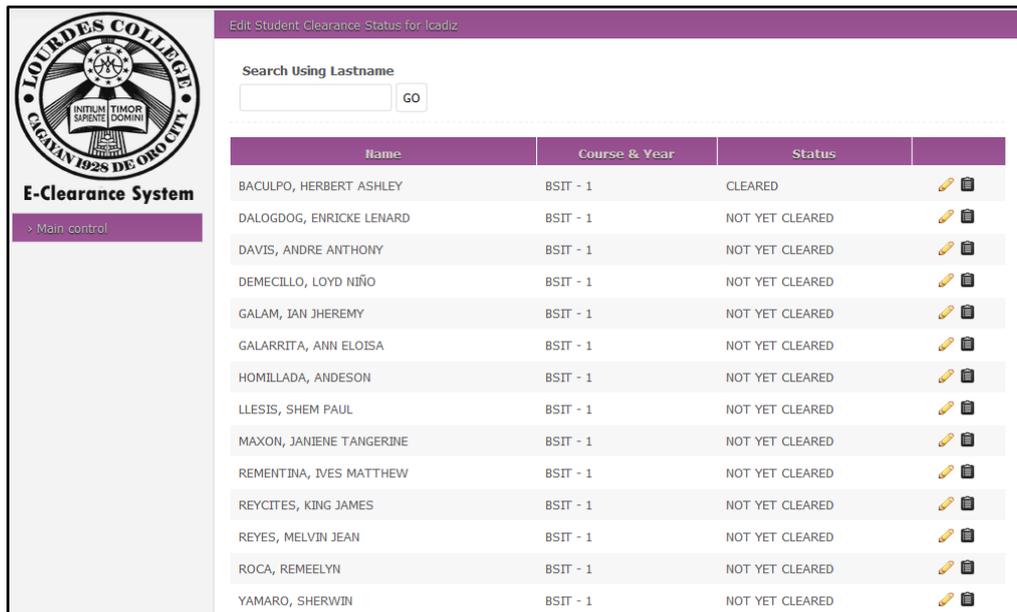


Figure 9.0 Dean’s Panel showing cleared students

Evaluation Result

After the testing, the office heads and students of the Lourdes College were asked to evaluate the system in terms of its functionality and efficiency. Eighteen (18) out of twenty-five (25) participants attended the orientation of E-Clearance System and 105 students of different programs such as business, accountancy, information technology, hotel and restaurant management, education, Nursing, pharmacy, library science, and arts and sciences. Table 1.0 and 2.0 shows the result of the evaluation.

Table 1.0 System functionality evaluation ratings

	OFFICE HEADS			STUDENTS		
	Mean	Standard Deviation	Verbal Description	Mean	Standard Deviation	Verbal Description
1. Log-in the system is easy.	4.89	0.32	Very High	4.46	0.50	Very High
2. Browsing the image and replace image are easy.	1.83	1.50	Low	2.08	1.17	Low
3. Setting the requirement is easy	1.50	1.15	Very Low	2.06	1.18	Low
4. Clicking the edit button is fast.	4.89	0.32	Very High	4.48	0.50	Very High
5. Check button of clearance status is easy.	4.83	0.38	Very High	4.50	0.50	Very High
6. Text field of remarks is easy to write.	4.72	0.46	Very High	4.53	0.50	Very High
7. Save status button is easy.	4.89	0.32	Very High	4.45	0.50	Very High
8. Clicking the log-out is fast.	4.89	0.32	Very High	4.37	0.49	Very High
Over all	4.06	0.44	High	3.87	0.67	High

Functionality. Table 1.0 shows the 18 Office Heads and 105 student’s participant evaluation of the proposed system’s functionality. As revealed the overall functionality was rated satisfactory as reflected the overall mean of 4.06 (High) for office heads and 3.87 (High) for students. Among the indicators of functionality, browsing the image and replace image are

easy (1.83) for office heads and (2.08) for students; and setting the requirement is easy (1.50) for office heads and (2.06) for students obtained the very low rating while other functionalities has (4.89) for office heads and (4.53) obtained the very highest rating. It indicates that the proposed system has functional components that work efficiently.

Table 2.0 System efficiency evaluation ratings

	FACULTY			STUDENTS		
	Mean	Standard Deviation	Verbal Description	Mean	Standard Deviation	Verbal Description
1. Clicking the main control is fast.	4.89	0.32	Very High	4.49	0.50	Very High
2. Searching the student's last name is fast.	4.56	0.98	Very High	4.44	0.50	Very High
3. Clicking edit student's clearance button is fast.	4.61	0.98	Very High	4.39	0.49	Very High
4. Viewing the student status is fast.	4.59	1.00	Very High	4.47	0.50	Very High
5. Display of student is arranged.	4.72	0.75	Very High	4.50	0.50	Very High
6. Display of student according to program.	4.33	1.14	Very High	4.54	0.50	Very High
Over All	4.62	0.74	Very High	4.47	0.5	Very High

Efficiency. Table 2.0 shows the 18 Office Heads and 105 student's participant evaluation of the proposed system's efficiency. As revealed the overall efficiency was rated very satisfactory as reflected the overall mean of 4.62 (Very High) for office heads and 4.47 (Very High) for students. Among the indicators of efficiency, display of student according to program (4.33) for office heads and Clicking edit student's clearance button is fast (4.39) for students obtained the lowest rating while clicking the main control is fast (4.89) for office heads and Display of student according to program (4.54) for students got the highest rating. Results of the evaluation indicated that the proposed system works very efficiently.

Conclusion and Recommendation

The manual processing of student clearance has negative implication on time, cost, and responsibility. On time, students spend so much time waiting in a long queue for their turns and effort moving from one office to the other. On cost, the school spends money for the printing of paper clearance every semester. On responsibility, both students and office heads spend much time for clearance, sacrificing other important functions or activities. The paperless clearance system eliminates those disadvantages of the manual system. Hence, the e-clearance offers the academic constituents convenience in the processing of student clearance.

The researcher will work on mobile e-clearance application in the near future. A study by [7] cited some benefits of technological advancement in shifting the academic environment from traditional settings to mobile learning. The portability of the mobile makes it easier and comfortable for students.

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