



## DESIGN AND DEVELOPMENT OF ALUMNI MANAGEMENT SYSTEM

Mandeep Jain

[mandeepjain567@gmail.com](mailto:mandeepjain567@gmail.com)

UG student, Department of Computer Science  
Geetanjali Institute of Technical Studies, Udaipur  
Rajasthan 313001, India

Kartik Agarwal

[kartikagrawal7196@gmail.com](mailto:kartikagrawal7196@gmail.com)

UG student, Department of Computer Science  
Geetanjali Institute of Technical Studies, Udaipur  
Rajasthan 313001, India

Dalpat I

[dalpat999.dc@gmail.com](mailto:dalpat999.dc@gmail.com)

UG student, Department of Computer Science  
Geetanjali Institute of Technical Studies, Udaipur  
Rajasthan 313001, India

Vishal Jain

[vishalgitscse@gmail.com](mailto:vishalgitscse@gmail.com)

Assistant Professor, Department of Computer Science  
Geetanjali Institute of Technical Studies, Udaipur  
Rajasthan 313001, India

Jyoti Atoliya

[Jyotiatiya444@gmail.com](mailto:Jyotiatiya444@gmail.com)

UG student, Department of Computer Science  
Geetanjali Institute of Technical Studies, Udaipur  
Rajasthan 313001, India

Priyansha Lodha

[priyanshalodha2000@gmail.com](mailto:priyanshalodha2000@gmail.com)

UG student, Department of Computer Science  
Geetanjali Institute of Technical Studies, Udaipur  
Rajasthan 313001, India

**Abstract:** Employability of graduates is one of the indicators being assessed by Higher Education Institutions (HEIs) to find out whether the quality of education they provide is suitable to the needs of the industry. This study was conducted to develop an alumni tracking system designed to allow the University to purposefully trace its alumni using the internet. The system can be used as a tool in finding out important information about the manner of their employment status and in identifying which skills are essential in their present work.

This information in return can help the HEI determine the improvement that they need to do with the existing curriculum. It can also generate comprehensive reports which are necessary for planning, program implementation and any decision-making purposes.

**Keywords:** alumni, alumni tracking, curriculum, employment, higher education institutions, online alumni tracking

### 1 INTRODUCTION

Higher learning institutions (HEIs) must maintain close supervision among their students to ensure that they are getting adequate preparation to guarantee stable employment and top national board examination. This could also help assess the usefulness of the academic program offering of the HEIs. According to Quiteis, et

al. (2019), tracer study results could help assess the usefulness of the programs as well as their effectiveness, and eventually its success or failure [1]. In fact, Commission on Higher Education (CHED) has been firm on its stand that part of the moral responsibilities of HEIs is to know the whereabouts of their alumni-

the kind of employment they have, their success and difficulties while seeking for jobs and while on-the-job. They are very rich sources of information which can help improve the HEIs'.

market relevance to address the following job-related problems (cited by Garcia, 2016): Imbalance between the supply of and demand for higher education graduates in the Philippines (Duguay and Padua, 2001) and mismatch between the level of competencies gained by graduates of HEIs and the expectations of industry resulting to unemployment (DOLE Report, 2008).

The same situations prevailed in later years. An article of Bernab published in Philippine Daily Inquirer on October 28, 2013 reported a World Bank study in 2011 which found that tertiary education failed to meet its potential because HEIs were operating as—disconnected individual institutions, rather than as parts of a larger ecosystem that included employers and companies.

In 2012, unemployment rate was placed at 16 percent in the second quarter of 2012, albeit lower than the 16.6 percent recorded in the same period in 2011, and the largest

roups of unemployed or underemployed in the Philippines were college graduates.

Incompetency and the lack of skills for jobs available were often the reasons for graduates' failure to land jobs. Bernabe also reported what UP President Pascual stressed that youth unemployment was alarming and the pressures of globalization were compelling HEI to produce graduates that were—business-ready or graduates who could be readily employed right after graduation which relieved the industry of providing the initial training for its recruits.

The reasons above motivated the researcher to design and develop an online system that could help HEI to track the whereabouts of its graduates in all of its academic programs. It was in September 2019 when the researcher made a bold decision to do an alumni tracking system as part of the academic requirements of the student-researcher involved in this study. It was made possible through the involvement of all program deans and other stakeholders of the HEI where this study was initially conducted.

### Conceptual Framework

The October 2020-2021 graduates, the more recent graduates, were prioritized in the implementation of the proposed alumni tracking system because they were the ones who could provide more reliable recollections of their college education or experiences and more realistic information on their biographical and educational profiles as well as their employability in terms of job search methods, waiting time, employment status and monthly salaries.

Figure 1 below shows the research paradigm of the study.

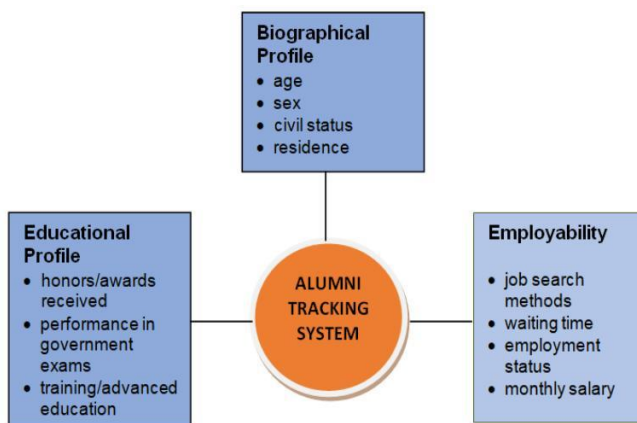


Figure 1. Research Paradigm

### Statement of the Problem

This study generally aimed to design and develop an online alumni tracking application. Specifically, this study sought answers regarding the similarities and differences of the existing alumni tracking system and the one being proposed in this study. It also tried to find out ways on documenting the requirements of the system in terms of hardware and software and creating blueprints of the proposed online alumni tracking system.

### 2 METHODOLOGY

#### Research Design

The developmental research design was used in this study. It involves situations in which the product-development process is analyzed and described, and the final product is evaluated. This study aims to develop a system that is designed to assist HEI in tracking its graduates.

#### Respondents

The respondents of this study were composed of 10 college deans and program chair persons from one state university in Nueva Ecija, Philippines. The purposive sampling procedure was used in selecting them. They were chosen on the basis of ability to provide information needed in the development of the proposed system.

### 3 RESULTS AND DISCUSSION

#### Current System vs Proposed System

At present, the University under survey uses the traditional manual system in tracking its alumni. This activity is spearheaded by the Alumni Office which is under the umbrella of Office of Student Affairs (OSA). Generally, tracking of alumni is done per college. Every college is regularly conducting homecoming activities as a means of getting in touch with their alumni and in trying to see the relevance of the curriculum in the industry where they are working. Other means to collect data is through the use of Google forms especially to those graduates who are working abroad. House-to-house method of data gathering is also employed to gather data.

The proposed system on the other hand, is designed and developed to automate the gathering of alumni information. The alumni tracking application is a web-based system that is accessible to all alumni. It can also be used as a website/medium for graduates and their respective college alumni coordinators to stay in touch with each other. Important data from the alumni are solicited through this platform. These data, particularly on their employment, can be used as

asesinmakingstrategicdecisions,i.e.curriculumrevision,r  
 esearchagendapreparation,potentialextensionactivitiesa  
 mongothers.Thewebsitecanbeaccessedusingamobiledevi  
 cethroughwhichcollegegraduatescanupdatetheircurren  
 temploymentstatusandotherinformation.Allthecollectedda  
 tashallbestoredina server.

### SystemRequirements

#### Hardware

Theresearchersmadeusedofdevicescapableofconnectingt  
 hesystemtotheinternet.Listedbelowisthehardwarerequire  
 mentinorderforthesystemtobeusedefficientlyand  
 effectively.

SUPPORTEDPLATFORMS		
Windows7-32/64bit Windows8-32bit/64bit Windows10-32bit/64bit Linux-32bit/64bit		
COMPONENT	MINIMUM	RECOMMENDED
RAM	4GB	8GB2
Processor	IntelCore2 DuoAMDA6	IntelCorei3 AMDA8
GraphicsDisplayBuilt-In		
HardDiskSpace250GB		1TB+

ItiscanalsobeinstalledonanymobiledeviceslikeAndroidor  
 IOS,withatleast2GBofmemory.

#### Software

Thefollowingprogramswereutilizedindesigningand  
 developingtheproposedssystem:

HypertextMarkupLanguage(HTML)5.0orhigher.Thisscr  
 iptinglanguageisusedtoaddparagraphs,headings,imagesa  
 ndlinkstothewebpage[5].Inthisstudy,thisisveryusefultool  
 indesigningtheinterfaceofthesoftwareincludingitshyperl  
 inks.

Notepad++.Assoftwarethatisusedtoeditthesourcecode[6]  
 .Inthisstudy,thisisusedasthemainsourcecodeeditorindi  
 signinganddevelopingthealumnitracingssystem.

PHP(HypertextPreprocessor).AnHTML-  
 embeddedscriptinglanguageandinterpreter[7].Itisusedto  
 developtheproposedssystembyconnectingittothedatabase.

PhpMyAdmin.Itisusedtoperformdifferenttaskssuchasma  
 nagingdatabases,tables,columns,relations,indexes,  
 users, andusers'permission.

JavaScript.Itisusedinthedevelopmentoftheproposedwebs  
 iteforthepurposeofvalidation.Inaddition,italsosupportsex  
 ternalapplicationslikePDFdocuments.Itcanalsoloadconte  
 ntintoadocumentwhenevertheuserrequiresitwithoutevenr  
 eloadingtheentirepage.Generally,thissoftwareisusedinth  
 eproposedsystemtomakethewebpagesfunctional.

Bootstrap.Itisafreefront-  
 endframeworkforfastersystemandextandeasierwebdevel  
 opment.ItincludesHTMLandCSSTheresearchersalsopre  
 paredlevel0dataflowbaseddesigntemplatesfortypograph  
 y,forms,buttons,tables,navigation,modals,andimagecaro  
 uselsandsoon[10].ItalsoincludesoptionalJavaScriptplug-  
 insandalsogivestheabilitytoeasilycreateresponsivedesign  
 s.

JSON.Itisusedassyntaxforstoringandexchangingdata.Itis  
 writtenwithJavaScriptobjectnotation[11].Thissoftwareis  
 usedtocreatethedashboardwhichshowsthesurveystatistic  
 sthroughgraphpresentations.

Ajax(AsynchronousJavaScriptAndXML).Itisatechnique  
 foraccessingwebserversfromawebpage.Itallowswebpage  
 tobeupdatedasynchronouslybyexchangingdatawithaweb  
 serverbehindthescenes[12].Thismeansthatitispossibletou  
 pdatepartsofawebpage,withoutreloadingthewholepage.It  
 alsohelpsPHPtoexecutealltheprogramscconnectedtoit.

FontAwesome.ItisafontandicontoolkitbasedonCSSand  
 LESS.FontAwesomehasa20%marketshareamongthosewe  
 bsiteswhichusetthird-  
 partyfontscriptsontheirplatform.Thisisusedbythedevelop  
 erstoenhancetheappearanceoftheicons,picturesandfontco  
 lors.

#### RequirementDocumentation

Theresearchersdecidedtocreateasystemthatcanhelptheun  
 iversitytotrackitsalumniaseasilyandtosecuretheinformation  
 solicitedfromthem.Theythoughtthatthissystemcanprovid  
 einnovativewayfortheuniversitytocommunicatewithitsgr  
 aduates.TheyalsoaddedsomespecialfeatureslikeSMSnoti  
 ficationtoencouragealumnitoregularlyupdatetheirinfor  
 mation.Diagramspresentedbelowareusedasblueprintsindi  
 signinganddevelopingthesystem.

Thefigurebelowshowsthecontextleveldataflowdiagram(  
 DFD)usedbytheresearchersasguideindesigninganddevel  
 opingthealumnitrackingssystem.

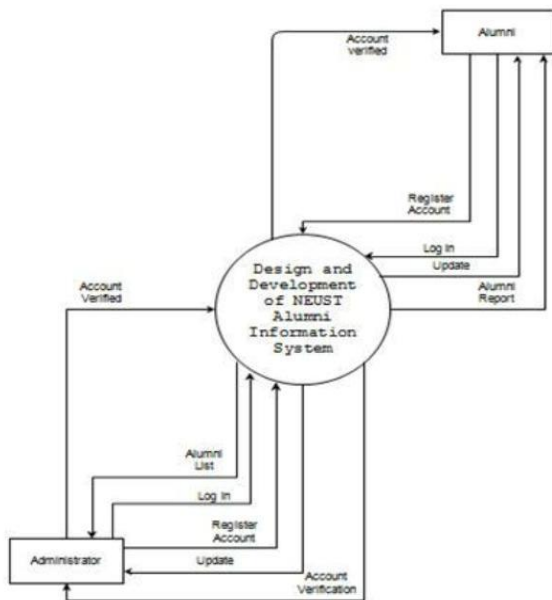


Figure2.ContextLevelDFD

Specifically, figure 2 is used by the researcher to define and clarify the boundaries of the proposed system and it also identifies the flows of information between the system and its external entities into sub-processes. Level 1 DFDs also identify data stores that are used by the major processes.

diagrams for system administrator (figure 3-a) and for end-users (figure 3-b). These diagrams are used to give an overview of the full system.

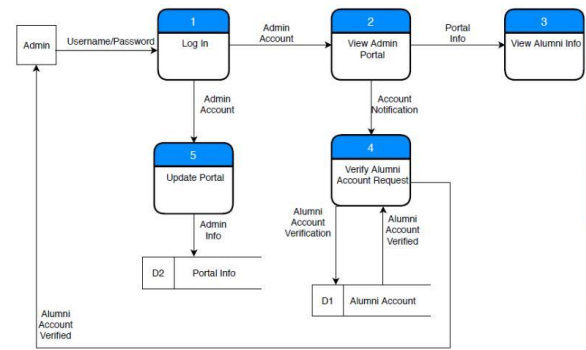


Figure3-a.Level 1DFDforSystemAdministrator

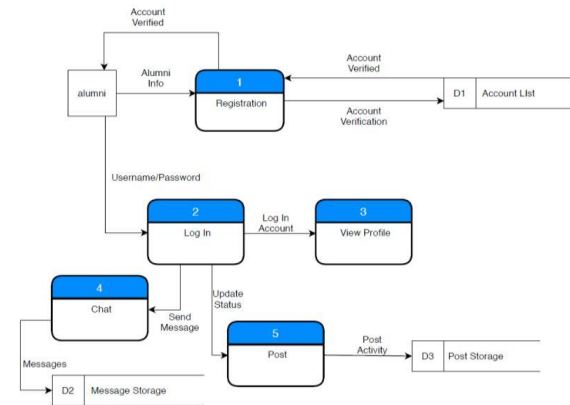


Figure3-b.Level 1DFDforEnd-Users(Alumni)

The diagrams above also show that major processes in addition, the researchers also prepared two (2) use case diagrams, 1 for system administrator module and another one for the alumni. These diagrams show the interactions among the elements of the system (see figure 4-a and 4-b).

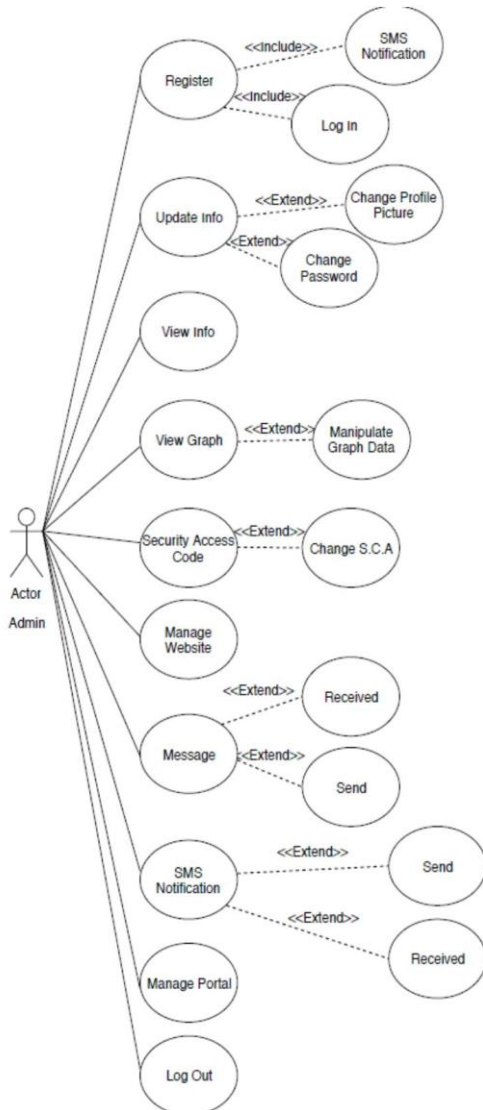


Figure4-b. UseCaseDiagram–Alumni

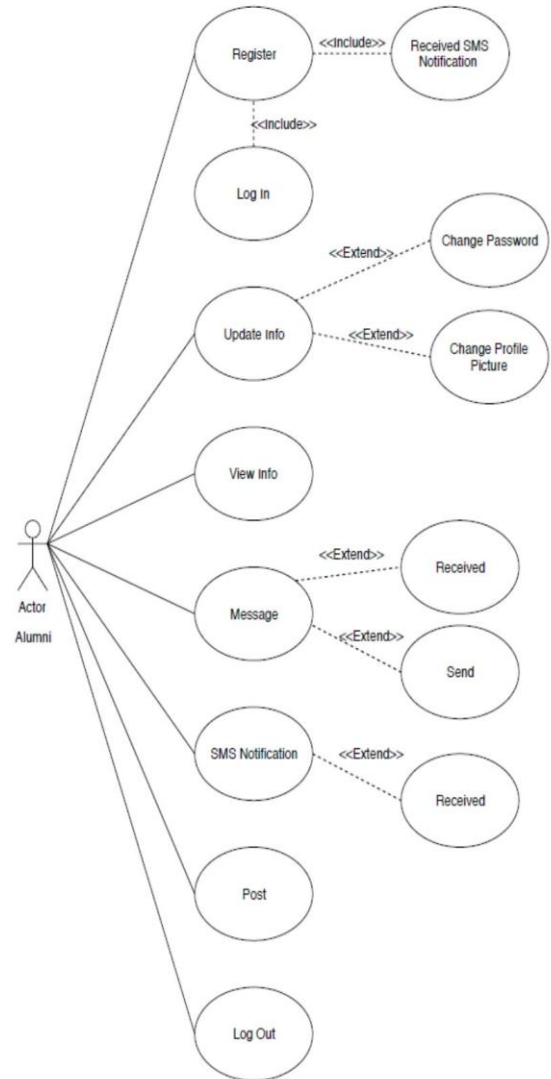


Figure4-a. UseCaseDiagram–Administrator

#### 4 CONCLUSIONS

Admittedly, alumni are a valuable asset of the institution of higher education. Thus, the more alumni communication is intact, the greater opportunities for feedback and knowledge development. An alumni portal facilitates the promotion of research, the exchange of experience, in addition to providing personal, professional and academic networking. The developers decided to create the Alumni Portal System to help the university track the alumni and to gather their information through an online portal without hassle.

Alumni can use their own mobile devices to register, monitor and update their current status. In view of the above, the developers would like to recommend that additional verification procedure be made to ensure that only bona fide alumni can register

in the system. Main innovations encompass the inclusion not only of the alumni, but also of the current students to the alumni portal, therefore, the link with the university is strengthened from the beginning with a tendency to bolster the bond between the students (current and alumni) and the educational institution.

#### 5. ACKNOWLEDGMENT

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