

AMERICAN JOURNAL OF GEOSPATIAL TECHNOLOGY (AJGT)

ISSN: 2833-8006 (ONLINE) VOLUME 2 ISSUE 1 (2023)

> PUBLISHED BY E-PALLI PUBLISHERS, DELAWARE, USA



Volume 2 Issue 1, Year 2023 ISSN: 2833-8006 (Online) DOI: <u>https://doi.org/10.54536/ajgt.v2i1.1425</u> https://journals.e-palli.com/home/index.php/ajgt

Web-based Faculty Development Management System

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Article Information

ABSTRACT

Received: March 22, 2023

Accepted: April 01, 2023

Published: April 06, 2023

Keywords

Web Application, Information, Faculty Profiling, Professional Growth As the world kicks back from the aftermath of the COVID-19 pandemic, educational institutions have thus embraced the significant contribution of digitization in their day-today operations. As a university, Cebu Technological University Tuburan Campus had also implemented hybrid transactions, providing digital measures to most of its processes including delivery of instructions, students information systems as well as biometric daily time record. This project was developed to provide a database for faculty profile which is responsive to the professional growth of faculty members in order to provide ready reference where needed like organizational changes, among others. The system was built using PHP, HTML, CSS, Bootstrap, JavaScript, and MySQL. Upon testing, the web-based faculty development management system was able to accept faculty registration, handle profile enhancement by individual faculty users as well as output reports according to pre-specified keyword such as subjects handled, designations, academic rank and educational background. Further improvements of the system were also noted like research expertise matching for the purposes of peer reviews and references for consultancy and expert opinions.

INTRODUCTION

The rapid advancement of technology has helped a lot to the progress of many industries. However, others are still left behind in adapting the new methods that can make work easier and secure. Previously, departments implemented the profiling of instructors or teachers manually, and kept in a hard copy. This kind of practice has encountered several issues that greatly affect the possibility that the data will be lost in events of physical damages and also time consuming. Based on the report of the Technology Needs Assessment that we conducted, a respondent from Putat National High School stated that a profiling that is done manually is time-consuming, and that it would be great if they have an application for the profiling process. A respondent from Ireneo V. Diamante National High School also stated that manual profiling will consume a lot of time, and documents are prone to physical damages. Another respondent from the CAS Department of Cebu Technological University has stated the current system for the profiling, can consume a lot of time, especially when updating the profile of an instructor.

LITERATURE REVIEW

A study by Morales et al (2020) entitled "Teacher Profiling System for Novaliches High School" the study used the Systems Development Life Cycle (SDLC) method to study how the system would work, determine the users' needs, and recommend a solution of fast and accurate in profiling process. Flowchart, ERD, and UML were used to represent the system's data flow. Sotto et al (2020) titled "Proposed Profiling System Teacher at Cielito Zamora High School " used Quantitative research to design the

¹ Cebu Technological University Tuburan Campus, Philippines * Corresponding author's e-mail: <u>naomi.bajao@ctu.edu.ph</u> system. The data were stored and organized in a database that can be updated, thereby making the information accurate and secure of the teachers. To lessen the problem regarding in loads of papers, the researchers used the systems development life cycle waterfall method as the framework of defining tasks and creating performed at each step in the software development process inorder to improve the security of storing data of information in the study "Profiling System in Bigkis Pagkakaisa Ancop Canada Homes." by Villamor et al (2020). Susilowati et al (2018) entitled "Using Profile Matching Method to Employee Position Movement" used a Waterfall Method to identify and gather all the requirements inorder to determine the result in Profile Matching process, it can be a process of comparing select the individual's competence in job competency and performances. The system is designed to improve the profiling process of each individual by storing information securely. The implementation of these technologies and the methods has led to the development of an efficient and a reliable system. Huang (2019) undertook a thorough analysis of the literature to better understand faculty productivity in higher education, and he established a research agenda for the future. The study looked at 106 papers from 1990 to 2017 that covered a wide range of fields and research designs. The study discovered that individual characteristics such as age, gender, and discipline, as well as contextual factors such as institutional regulations, resources, and culture, impact faculty output. The author also found numerous elements that improve teacher productivity, including as mentorship, cooperation, and work-life balance assistance. Li and Lu's (2021) research, on the other hand, sought to provide a mechanism for university professor profile based on citation networks. The authors employed network analysis to discover significant markers of research impact, cooperation, and interdisciplinary research by analyzing the citation networks of faculty members at a Chinese institution. According to the study, faculty members with more citations had better academic ranks, greater teaching experience, and more research partnerships. Faculty members with more diversified citation sources are more likely to collaborate on interdisciplinary research.

The researchers of this study developed a faculty development management system, a web application that will help the faculty members in updating their information easily, expertise, add the achievements that they have made along the way, and update the seminars that they have attended. The aim of this study was to put an end to traditional and manual methods of profiling and develop a web application with a database that displays the profile of an instructor from a faculty with his/her achievements, and seminars that has attended.

MATERIALS AND METHODS

The system was developed using the agile methodology, which is a successive development technique that flows like an agile model through all phases of the project. It flows as follows: analyze and acquire all the specific requirements such as the functions and features of the project, Creating the Design of the system, Development of all the gathered requirements and design of the project, then the Testing if it's functional or have some errors, and lastly the Deploying of the created system.



Figure 1: System Flowchart

Figure 1 shows the system flowchart of the project. When the user opens the website, he/she will be directed to the Login page but if the user doesn't have an account, he/she will need to register and then back to log in in order to access the website. If the user is not a faculty or an admin, he/she will be going to the browse page only to search faculty. But if the user is a faculty, he/she will be directed to the profile page in which the faculty has to manage his/her profile and also can upload certificates of seminar, etc. And if the user is an admin, he/she will be directed to a dashboard page wherein the admin can see the lists of users, and can monitor faculty's information and also the administrator can generate reports about the certification of seminars of the faculty. And if the users are done, he/she can log out of the website.

Figure 2 shows the use case diagram of the proposed system. Users can manage profile, add subject, add designation, upload certificates and can log in. The administrator can log in , search, add users, view reports, view designation, and view training & seminars. The guest can login and search faculty.



Figure 2: Use Case Diagram



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A Profile	Instructor	Email	fl@gmail.com	
Designation Subject	Rate	Password	*****	
File	File Uploads	Confirm	*****	
\varTheta Logout				
	About Me	image	Choose image	Browse
			Submit	
	III Subjects Programming , Advanced Database Management .			

Figure 3: Faculty Profile Page

Figure 3 shows the profile page of the faculty wherein they can add or edit their information . Whether he/ she can upload a picture to his/her profile . He/She can

view all the information that he/she input because it will display here in the profile page area.

=			× 8
Designation			
			2. Add New Positio
OFFICE	FACULTY	DESIGNATION	ACTION
MS Office	Naomi A, Bajao	Director	
	E Designation	E Designation MSOffice Naurri A. Bipto	E Designation MS Office Norri A, Bajoo Director

Figure 4: Faculty Designation Page

Figure 4 shows the designation page of the faculty wherein the faculty can add new positions. He/she can also edit/

remove the information that he/she has input. He/she can review all the displayed information of his/her designation

Home					 Add New Su
Subject		1.22			
Designation		Code	Title	Units	Option
Generate Reports	1	5005	Advanced Database Management	3.1	B, 1
r Ratings	2	5014	Networking	3	B. B
Netifications	3	5003	IT Elective I	2	B. 8
Logout	4	5002	Programming	3	
	5	5001	HEI	2	

Figure 5: Faculty Subject Page

Figure 5 shows the subject page where the faculty can add new subjects. He can also review all of his/her handled subjects. And also he/she can edit or remove the subject handled if he/she wants to delete.

Figure 6 shows the Trainings/Seminars of the uploaded

faculty certificates, it will appear here. He/she can review who the sponsors of the seminar that they had attended and the number of hours and also he/she can remove the certificate that he/she uploaded if he/she want.



😂 faculty	=							X (B)
2 Profile								
ch Designation	Files							
🛤 Satject							2 Add	New Seminar
Trainings & Seminars							Provide State	
E‡ Logout	TITLE OF LEARNING AND DEVELOPMENT INTERVENTIONS/TRAINING PROGRAMS	INCLUSIVE DATES OF ATTENDANCE		NUMBER OF HOURS	TYPE OF LD(Managerial/Supervisory	CONDUCTED SPONSORED BY	CERTIFICATES	ACTION
		From	To		/ Account only			
	MICROSOFT OFFICE SPECIALIST	2023-01-25	2023-01-28	30	SUPERVISORY	JAE-ANN V. SARUCAM	MALLEN- Research- Form-2.pdf	1

Figure 5: Faculty Training/Seminars Page

RESULTS AND DISCUSSION

System Software Specifications

Table 1 shows all the Software Used in the Development of the System. The Operating system, Bootstrap/Text Editor helps to develop the system of the researchers. The operating system is the foundation upon which all other software is installed and runs. Bootstrap includes HTML, sublime text and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many others, as well as optional JavaScript plugins. XAMPP allows the developer to create a local web server environment.

Table 2 shows the list of test cases used to evaluate the performance of the system. It includes the modules of Admin, Faculty and Guest side.

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Table 1: Software Specifications

Software	Version	Description
Operating System	Windows 10-64-bit	It manages the hardware and software resources of a computer. It is the foundation upon which all other software is installed and runs.
Bootstrap/ Text Editors	4	A free front-end framework for faster and easier web developmentBootstrap includes HTML,sublime text and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many other, as well as optional JavaScript plugins
XAMPP	3.3	A web server, a database management system, and scripting languages. XAMPP stands for Cross-Platform (X), Apache (A), MariaDB (M), PHP (P), and Perl (P).

Table 2 : Test Case

Module	Function	Expected Result
Admin	Log in	-Prompt login information for a successful login
		-Should prompt access denied for empty or wrong access inputs
	View Record Summary	-Should display records or information of the faculty members and
		also can view the list of visitors and view summary of every subject,
		designation and certifications.
	Edit/Remove	-Should be able to edit/remove whether in designation and subjects
	Designation or Subjects	
	Add User	-Be able to to add and create account of the faculty
	Search Faculty	-Be able to search information about the faculty.
Faculty	Log In	-Prompt login information for a successful login
		-Should prompt access denied for empty or wrong access inputs
	ManageProfile	-Be able to edit his/her profile subject/designation
	Information	-Should upload his/her profile achievements/certificates
		-Should update profile information



	Upload Certifications	-Be able to upload certifications of seminars.
Guest	Log In	-Prompt login information for a successful login
		-Should prompt access denied for empty or wrong access inputs
	Search Faculty	-Can view only the faculty by searching .

Module	Function	Expected Result	Pass	Fail	Remarks
Admin	Login	-Should prompt incorrect username/password and	1		Good
		username/password required if the field is empty.			
	View RecordFaculty	-Should display record or list of the faculty and users	1		Good
	and lists of Guest	-Should be able to view the lists of guests			
	Search record	-Be able to search the information of the faculty	1		Good
	Edit/Remove	-Be able to remove the role of the faculty	1		Good
Faculty	Login -Should prompt incorrect username/password and		1		Good
		username/password required if the field is empty.			
	Manage Profile &	-Should be able to add and update profile information	1		Good
	Certification	whether his/her designation or subject			
		-should upload his/her certificates about seminars, etc			
Guest	Login	-Should prompt incorrect username/password and	1		Good
		username/password required if the field is empty.			
	Search faculty	Can search and view faculty using keywords	1		Good

Table 3 shows the user acceptance test results for the admin, faculty, and guests. All the tests listed in the table have passed, indicating that the system meets the requirements and expectations of the users.

Table 4 appeared that the data consisted of responses to a survey that was given to 7 individuals, with 4 identified as faculty, 3 as a visitor. Then after the survey, the data suggested that the majority of respondents had their

User#	Role /Job Title	Q1	Q2	Q3	Q4	Q5	Q6	Q 7	Q8	Q9	Q10
1	Faculty	5	4	5	4	4	4	4	5	5	5
2	Faculty	4	4	4	4	5	4	4	4	4	4
3	Student /Guest	5	5	5	5	5	3	5	5	5	5
4	Faculty	5	4	5	4	5	5	5	5	5	5
5	Faculty	4	4	4	4	5	3	4	4	3	4
6	Staff/Guest	4	4	5	4	5	5	5	5	4	4
7	Student /Guest	4	5	5	4	5	5	5	4	5	5
Average	2:	4.2	4.3	4.4	4.3	4.5	4.	4.3	4.3	4.2	4.2

Table 4: Usability Survey Result

Average Equivalent:

1	Unable to perform task $(1.00 - 1.30)$
2	Unable to complete task $(1.31 - 2.60)$
3	Task completed with significant error(s) $(2.61 - 3.40)$
4	Task completed with minimal error(s) (3.41 – 4.20)
5	Task completed correctly (4.21-5.00)

positive feedback on the questions given. As a result, it was considered that the task was completed correctly. However, it could be seen that question 6 had the lowest average which was considered as tasks were completed with some minimal errors to improve.

CONCLUSION

The web-based faculty development management system

was proven and tested that were found reliable in profiling the faculty. The system's storing the information of the instructors and providing a platform for generating faculty members' portfolios helped the system to achieve the main objectives. It will be used for improving the profiling process of instructors in a faculty, through displaying and letting the faculty members update their own data in the web application such as expertise, achievements, and seminars that he/she has attended. This system will be useful for the faculty/instructors in Cebu Technological University - Tuburan Campus specifically in the Bachelor of Science in Information Technology Department.

Acknowledgement

The researchers wish to extend their gratitude to Cebu Technological University Tuburan Campus Information Technology Department for the allowing the conduct of this study as well as the testing of the system in the university.

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