Accessible Interactive Campus Directory System for

Philippine State College of Aeronautics

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Executive Summary

The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics is a system developed in order to provide a guide in way finding for the visitors and at the same time provides useful information about the school towards the users. The system is mainly used for detailing information to students, visitors and employees via interactive touch screen computer. Touch screen technology makes the computer easy to use, all you have to do is touch the icons on the screen and the information is on the way. The proposed system of the proponents basically focuses on providing a digital map of the school and giving detailed information with regards to the background and profile of the school and its facilities. The accessible computer is not only used in finding the user's desired location but also can show the school year's academic calendar of school activities and all of the school's upcoming events. With the help of this system, the students will become much more aware in an early time for important announcements. The proponents used a C++ Programming Language in developing the system, Visual Studio 2017 for Graphical User Interface design and SQL Server 2017 for the database of the system's record.

PHILIPPINE STATE COLLEGE OF AERONAUTICS	
Institute of Computer Studies	

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I.   INTRODUCTION

People are now moving to the generation of post-millennial period where technology has overpowered the society. A generation where machines, computers and modern devices become a very useful and essential tool in our daily tasks as human beings. These modern inventions started to enter the world of education and imports an abundance of features that assist students and professors in their educational needs. Different schools are starting to adopt to the rapid technological integration of the modern society that they are now altering from manual processing to automate processing to reduce the effort and time consumption. They are now using different devices, computers, applications and systems to improve the process of information dissemination and to enhance the quality of knowledge that they are imparting to their students.

According to B. McClimans (2014) education has drastically changed over the past years. There are new trends in education technology such as Interactive Kiosks that benefits University Campuses. This Interactive Kiosks presents an easy way to quickly deliver information to students, staff, faculty and visitors. Also Kiosks enhance the university experience by assisting in way-finding and other information to visitors. The utilization of Kiosks in universities continues to grow.

A lot of Kiosk manufacturers started to grow like the Olea Kiosk Solutions Incorporated and Student Kiosk Solutions. According to Olea Kiosk Inc. (2014) the Education Kiosks bring numerous benefits to Academic Institutions. The utilization of Interactive Kiosks by educational Institution is on the rise. It provides unparalleled access to information as well as a means for the school's administration to communicate with the student body, faculty, alumni and visitors. Using kiosks potentially increase revenue and endowments through advertising opportunities integrated into the kiosks. Likewise according to the website of Student Kiosk Solutions, K-12 schools, colleges and universities nationwide are implementing student kiosk solutions in schools and on campuses to address an increasing needs of student and faculty.

Philippine State College of Aeronautics is an aviation state college of the Republic of the Philippines located at Piccio Garden, Villamor, Pasay City. It was established in 1977 and is recognized as one of the top performing aeronautical engineering schools in the Philippines. As of now the PhilSCA contains 3 departments, 14 course programs, 13 school organizations and currently 4419 students in the school year 2018 - 2019. Since PhilSCA is a well-known school around the Philippines it is a good thing if it can innovate more in terms of

technology and can adapt to the latest technical trends of the school industry so that they may always belong to the top or leading schools and not left behind by the other schools. PhilSCA is handling a large amount of students and employees, it is a good thing to have enhancements in terms of information dissemination especially when this process is only done manually. A technical way of disseminating information is a big help to improve the interaction of the school to its students. An improvement in the way of information flow process can strengthen the relationship of the school to their students and employees. Also since the school is continuously accepting new applicants every semester, inquirers and visitors, it is a good thing if there is another way to inform visitors about the school such as directions and school profile.

The proponents propose an accessible interactive directory kiosk that can help visitors and new students to locate rooms, offices and other facilities and can also help the school administrators in disseminating in-demand, useful and important information for the students and employees of PhilSCA in a much faster and reliable way. This kiosk is accessible for everyone from morning until evening and can display up to date announcements and news. This kiosk is not only created to be used by the students and employees but for visitors and applicants as well.

Objectives of the Study

The main objective of the study is to develop an accessible interactive campus directory kiosk that specifically aims to:

1. Design and create an accessible campus kiosk for PhilSCA which will be capable of:

    1.1 viewing a map of the Campus;

    1.2 locating the rooms, offices and facilities;

    1.3 posting school announcements;

    1.4 spreading news from the campus student's publication;

    1.5 showcasing details about the school and its programs;

    1.6 showing the different departments, institutes, and school organizations along with their organizational chart.

2. To have an accessible interactive campus directory system using International Standardization Organizational (ISO) 25010 for software quality model in terms of;

    1.1 functional suitability;

    1.2 performance efficiency;

1.3 usability;

1.4 reliability;

1.5 security; and

1.6 maintainability

Scope and Limitations

The project will focus on developing an accessible campus kiosk that will help to identify and find directions around the campus and disseminating useful information, announcements and news to the students, employees, and new applicants. This project will be implemented in PhilSCA which will be located near the information desk at the main lobby. Students from every department, staff, instructors, and visitors are the main focus as users of this project. It is intended to be implemented by the first semester of school year 2019 - 2020.

The main feature of this system is to show directions and locations of the campus. It is a way of giving exact directions to reach the desired location with the use of arrows as directors. It also offers other features such as school announcements, news and calendar of activities to inform students about the upcoming events of the school for them to be updated to prepare, join, and

participate. The project has a feature that can help visitors and new applicants to be informed about the courses, curriculum, organizations, and college officials.

The main device to be used for the kiosk is a touch-screen monitor. The hardware requirements for this system must at least have 1.6 GHz, a 1 GB of RAM and a 50 MB of hard disk drive. This project will use an admin who is capable of managing the information and keeping it up to date using the kiosk. The kiosk is a standalone system which means the admin will update the system at the kiosk itself with the use of a USB mouse and keyboard. The quality of its performance will depend on how dedicated and hardworking the Administrator will be since regular checks are needed for maintenance and information updates. The kiosk needs electricity to operate. The information that the kiosk will display are mostly related to PhilSCA only.

II.   REVIEW OF RELATED LITERATURE

This chapter reviews Related Works and Requirement Gathering Techniques that help researchers formulating the study such as journals, books and websites. The reviews include the topics, background and functionalities.

According to **Stephanie Mewherter, 2017** "*The Future of Digital Kiosk*", Quick service restaurants around the globe used a Kiosk machine for faster ordering system. Restaurants deploying self-service technology to automate payment process and create reliable experience for customers.

The evolution of kiosk is popular around the world, it used in different way. Kiosk are used by this era in hotels, restaurants, transportation, stores, malls and even the school campuses. Continued innovation and breakthroughs in technology will only further the capabilities of digital kiosks and their ability to improve user experiences.

According to **Olea Kiosks Inc., 2014** *"Education Kiosks Bring Numerous Benefits to Academic Institutions*", The use of educational kiosks can provide a

wealth of benefits including streamlining staff in customer service positions, increased accessibility to news and events through the 24/7 availability of the kiosks, and the potential to increase revenue and endowments through advertising and ecommerce opportunities integrated into the kiosks.

According to **William and Schilit, 2018** *"Publicly Accessible Kiosk"* publicly accessible kiosk is where individuals can connect to the kiosk in which they may share or exchange information about electronic applications, books, magazines, movies, music or the like with other individuals connected to the same kiosk. Two or more mobile devices may be detected. Each mobile device may be connected to a publicly accessible interface. The capabilities of this Kiosk makes it more interactive and an innovative way of integrating socialization.

According to **Chia Min Jun, 2017** "*Interactive Multimedia Kiosk Application for Malacca Heritage",* History help us to understand the change from the past and how the cultural, social and societal values developed across the time. In Malacca, there are many heritage and historical sites and each of them has their own story. Therefore, with the help of the kiosk application, the history of each site can be displayed to all the users whenever they are using the kiosk application in Malacca. With the help of kiosk systems, it can fulfill those who lack

of information on the location of each heritage sites in Malacca since it is inconvenient in getting all the historical information for each heritage sites and lacks detailed information and tedious way of presenting the history. This is another way of using kiosks as an informative tool.

According in **iNETutor.com, 2016** *"Information Kiosk System for College Activities",* Stated in this study that with the use of Kiosk machines, the students in the campus can be updated in all information and announcements. The goal is achieved with the help of an information kiosk system that will be implemented in the school campus. With this system, every student can have complete information regarding every activity that they are interested in. Calendar of activities will update students each day. This kiosk offer features such as up to date school activities, announcements, and school calendars.

According to Nunamaker, Et al.2013"*, Embedded Conversational Agent-Based Kiosk for Automated Interviewing"*, methods and systems for interviewing human subjects are disclosed. A user interface of a computing device can direct a question to a human subject. The computing device can receive a response from the human subject related to the question. The response can be received using one or more sensors associated with the computing device. The computing

device can generate a classification of the response. The computing device can determine a next question based on a script tree and the classification. The computing device can direct the next question to the human subject using the user interface of the computing device.

Synthesis

The review of related literature has contributed to the topic which is very significant in the process of conducting the study. The researcher used both paper trails and electronic trails for gathering information in the form of written works published or unpublished such as thesis, research, books. The researcher also used internet for ingathering data in a way of sorting websites, social media news etc.

The Interactive Kiosk is a computer terminal featuring specialized hardware and software that provides access to information and applications for communication, commerce, entertainment or education. Early interactive kiosks sometimes resembled telephone booths, but have been embraced by retail, food service and hospitality to improve customer service. Interactive Kiosks are

typically placed in high foot traffic settings such as shops, hotel lobbies or airports.

Interactive Kiosk is not only used for business purposes, universities also used Interactive Kiosk or mainly known as Education Information Kiosk. A self-service Information Kiosk commonly used for students and faculty through way finding and direction assistance, automated event check – in, providing campus information, and much more.

Education Information Kiosk became popular especially among higher education. Kiosks attract to colleges and universities, particularly students and faculties considering the technological advancement of the school. Through this kiosk students and employees engaged to apply it daily because of its features that are applicable to use, a very user friendly and timely. Aside for faster dissemination of information kiosk provides quick, easy and secure access in terms of other related information.

The combined review of related literature will greatly help the researcher in pursuing the study as well as justify its importance to the campus, students, visitors and employees. Existing studies helps a lot to the researcher to formulate

and add more features for the innovation and betterment of the project. Through books and resources at the National Library, the researcher gathered information by scanning books, sorting and researching in internet sites, and watching videos that relate to the study. The researcher decided to gather acquired data that will show the improvement of the technology and incorporating the learning technology of our environment.

III.   TECHNICAL BACKGROUND

A kiosk is a small, stand-alone booth typically placed in high-traffic areas for business purposes. It typically provides information and applications on education, commerce, entertainment, and a variety of other topics. It is usually located in shopping malls, airports, museums, themed park and other business establishments. Kiosks are becoming a part of an attraction, asset or feature of any business enterprise. It assists the consumers in their needs, transactions and questions regarding the establishment. It can also be a replacement for a human employee that helps the business owners to save money because kiosks can be programmed to serve, help and satisfy customers even without a human intervention. As a natural characteristic of a computer, it helps user to save time and efforts in doing their tasks, it can do anything depending on the demand of

the owner and programmer. Integration of technology allows kiosks to perform a wide range of functions, evolving into self-service kiosk and it became popular due to the number of advantages they provide.

Another type of Kiosk that can be found in an entrance area of a mall or in other business establishments is the information kiosk or directory that has a high density of people. It became very popular due to its capability to disseminate information and useful details to locate the area. Nowadays, schools are starting to install Directory Kiosk inside their campuses to fill the needs of the students, employees, visitors, and even new applicants in their frequently asked questions and information needed and location of the offices or department.

The proponents decided to propose an accessible interactive campus directory kiosk for PhilSCA to adopt new trends in society and as part of the strategic technology trend all the colleges. The students, employees, and visitors and future student of PhilSCA due to fast changing technology that will benefit the campus in terms of accessibility and locating facilities.

IV. METHODOLOGY, RESULTS AND DISCUSSION

System Development Life Cycle (SDLC)
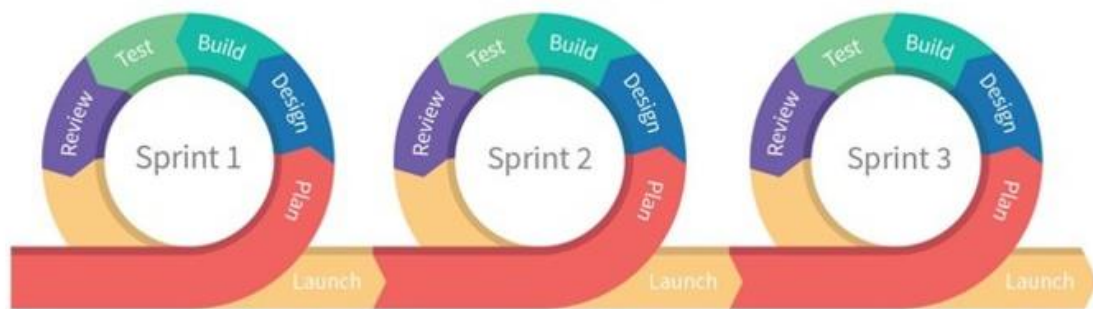
Figure 1.
Agile Method

The System Development Life Cycle (SDLC) method that the proponents are going to use is Agile Method. Agile Method is a very popular approach in the line of project management that is utilized in software development. It is a method that emphasizes collaboration, as the customers, developers and testers work together throughout the project. This method assists a project team in responding to unpredictable problems that may be encountered during the software development. It uses incremental, iterative work sequence that are

commonly known as sprints or iterations. A sprint or iteration is a period of time allocated for a particular phase of a project. At each sprint, the project is going to be tested and the results are going to be presented to the beneficiary of the project for them to validate if it still needs an improvement and additional features based from the results of the test of that sprint. It helps the project team in giving quick response from the feedback they receive on each iteration review. This sprint will continuously repeat until the beneficiary becomes satisfied to the results being presented to them by the project team on a certain sprint result. It is a very strengthening process that helps the companies design and build the right project.

The proponents will follow each process of every sprint carefully for them to be guided according to the will of the beneficiary. The proponents will work three to four weeks per sprint.

Sprint 1

At the first sprint in the Planning Phase, the proponents will think deeply about what features are they going to put into the system, what would be the system flow, what programming language will suit the project, what are the

system requirements and how it will be gathered, and it is also the start of task dissemination. In the Design Phase, the proponents will create an initial layout for the system and also researching and thinking of a good map design. The Build Phase is where all the forms inside the system will be constructed, it is also the phase where the map will be programmed. In the Testing Phase the proponents themselves will test the system first then if it is working properly they are going to let the beneficiary to test the system in a prototype form in the meantime then after that test the proponents will asks for suggestions, opinions and other positive criticism for the proponents to analyze in their Review Phase for the enhancements of the system and also in preparation for the Sprint 2.

Sprint 2

The input in the Sprint 2 will based on the outcome of the Sprint 1 so its Planning Phase will be the evaluation of the tests results of Sprint 1 for System Enhancements then in the Design Phase the proponents will focus in the adjustments of the System layout then the proponents will create and add new and more inputs to the system for the Build Phase. In the Testing Phase the proponents will then again tests the system by themselves then turn it over to the beneficiary for the testing of the improved and enhanced system but still in a

prototype form so that the proponents can add and enhanced more the system for the third sprint.

Sprint 3

The third sprint's Planning Phase is where the budget planning will be made for the hardware, software and network requirements of the actual project, the proponents will also give all of their ideas to finish the creation of the project, they are also going to design the best and final layout in the Design Phase and will complete the project construction at the Build Phase. The Installation of the hardware along with the software and the network will be made at this phase then the final Test Phase of the actual project then lastly the Review Phase if it is ready for deployment.

Since the primary requirement of Agile Method is having a strong collaboration of a project team with their project beneficiary, this method is very suitable to the project of the proponents, for the chosen beneficiary of the project is the PhilSCA which happens to be the school where the proponents are studying and because of this it is easy for the proponents to build a strong collaboration with the school organization because a daily interaction is available.

All of the information requirements can be easily acquired and discussed through the active involvement of the school to the entire project. Face to face communication and continuous inputs from the school can easily lead the proponents to the target goal. Correction and sudden changes can be coordinated as early as possible. Agile method also allows the proponents to do a beta test after an iteration review to observe if it is ready for deployment or if it still needs more enhancements. Not choosing Agile method is going to be a big mistake most especially if this method is really applicable to the project of a project team, for this model is a more efficient process for analyzing project development and it promotes a sustainable development to the entire span of the project that's why it becomes the most widely used project development method and considered nowadays as the gold standard in the software development world.

Gantt chart

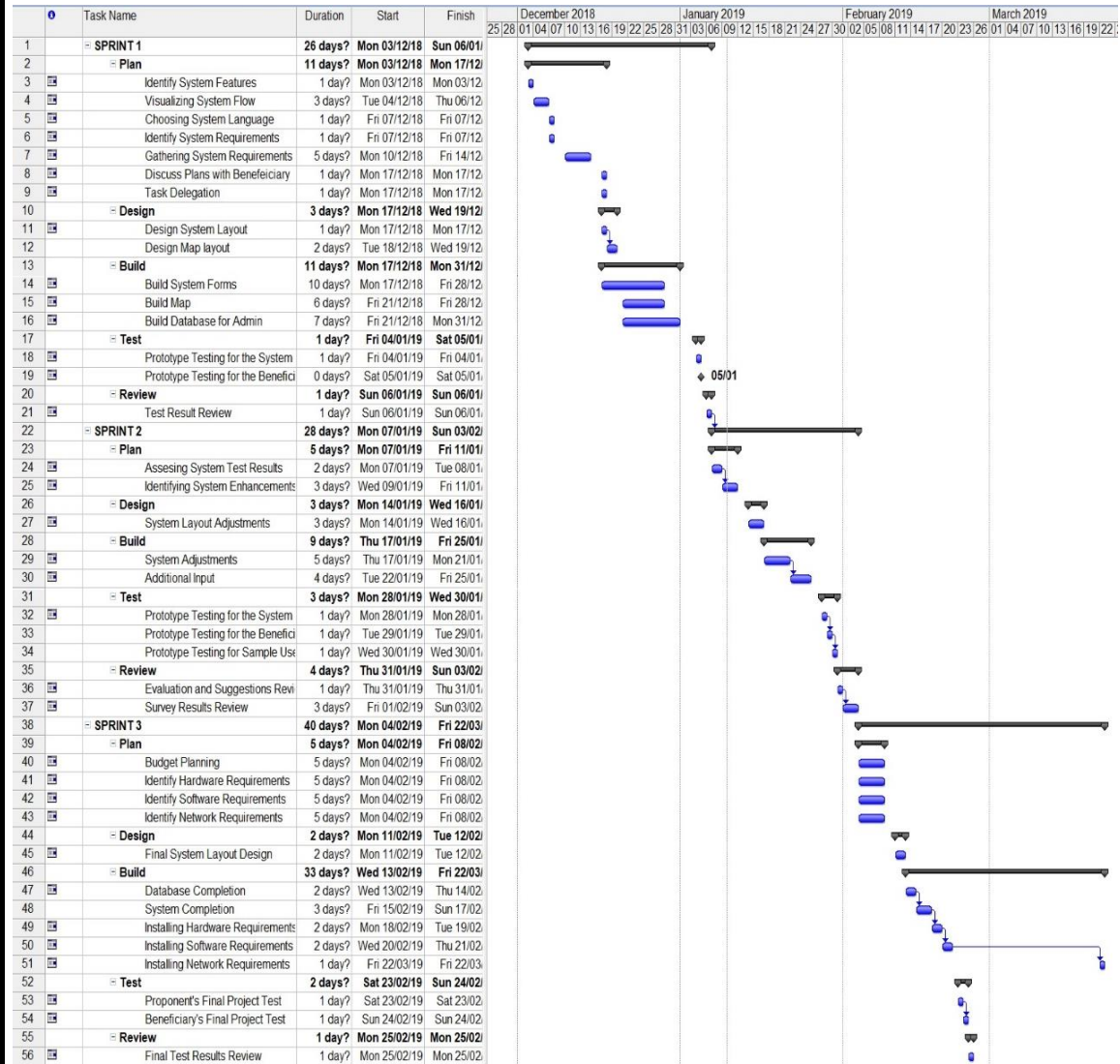|	❶	Task Name	Duration	Start	Finish
1		– SPRINT 1	26 days?	Mon 03/12/18	Sun 06/01/
2		– Plan	11 days?	Mon 03/12/18	Mon 17/12/
3	📇	Identify System Features	1 day?	Mon 03/12/18	Mon 03/12/
4	📇	Visualizing System Flow	3 days?	Tue 04/12/18	Thu 06/12/
5	📇	Choosing System Language	1 day?	Fri 07/12/18	Fri 07/12/
6	📇	Identify System Requirements	1 day?	Fri 07/12/18	Fri 07/12/
7	📇	Gathering System Requirements	5 days?	Mon 10/12/18	Fri 14/12/
8	📇	Discuss Plans with Benefeiciary	1 day?	Mon 17/12/18	Mon 17/12/
9	📇	Task Delegation	1 day?	Mon 17/12/18	Mon 17/12/
10		– Design	3 days?	Mon 17/12/18	Wed 19/12/
11		Design System Layout	1 day?	Mon 17/12/18	Mon 17/12/
12		Design Map layout	2 days?	Tue 18/12/18	Wed 19/12/
13		– Build	11 days?	Mon 17/12/18	Mon 31/12/
14	📇	Build System Forms	10 days?	Mon 17/12/18	Fri 28/12/
15	📇	Build Map	6 days?	Fri 21/12/18	Fri 28/12/
16	📇	Build Database for Admin	7 days?	Fri 21/12/18	Mon 31/12/
17		– Test	1 day?	Fri 04/01/19	Sat 05/01/
18	📇	Prototype Testing for the System	1 day?	Fri 04/01/19	Fri 04/01/
19	📇	Prototype Testing for the Benefici	0 days?	Sat 05/01/19	Sat 05/01/
20		– Review	1 day?	Sun 06/01/19	Sun 06/01/
21	📇	Test Result Review	1 day?	Sun 06/01/19	Sun 06/01/
22		– SPRINT 2	28 days?	Mon 07/01/19	Sun 03/02/
23		– Plan	5 days?	Mon 07/01/19	Fri 11/01/
24	📇	Assesing System Test Results	2 days?	Mon 07/01/19	Tue 08/01/
25	📇	Identifying System Enhancements	3 days?	Wed 09/01/19	Fri 11/01/
26		– Design	3 days?	Mon 14/01/19	Wed 16/01/
27	📇	System Layout Adjustments	3 days?	Mon 14/01/19	Wed 16/01/
28		– Build	9 days?	Thu 17/01/19	Fri 25/01/
29	📇	System Adjustments	5 days?	Thu 17/01/19	Mon 21/01/
30	📇	Additional Input	4 days?	Tue 22/01/19	Fri 25/01/
31		– Test	3 days?	Mon 28/01/19	Wed 30/01/
32	📇	Prototype Testing for the System	1 day?	Mon 28/01/19	Mon 28/01/
33		Prototype Testing for the Benefici	1 day?	Tue 29/01/19	Tue 29/01/
34		Prototype Testing for Sample Use	1 day?	Wed 30/01/19	Wed 30/01/
35		– Review	4 days?	Thu 31/01/19	Sun 03/02/
36	📇	Evaluation and Suggestions Revi	1 day?	Thu 31/01/19	Thu 31/01/
37	📇	Survey Results Review	3 days?	Fri 01/02/19	Sun 03/02/
38		– SPRINT 3	40 days?	Mon 04/02/19	Fri 22/03/
39		– Plan	5 days?	Mon 04/02/19	Fri 08/02/
40	📇	Budget Planning	5 days?	Mon 04/02/19	Fri 08/02/
41	📇	Identify Hardware Requirements	5 days?	Mon 04/02/19	Fri 08/02/
42	📇	Identify Software Requirements	5 days?	Mon 04/02/19	Fri 08/02/
43	📇	Identify Network Requirements	5 days?	Mon 04/02/19	Fri 08/02/
44		– Design	2 days?	Mon 11/02/19	Tue 12/02/
45	📇	Final System Layout Design	2 days?	Mon 11/02/19	Tue 12/02/
46		– Build	33 days?	Wed 13/02/19	Fri 22/03/
47	📇	Database Completion	2 days?	Wed 13/02/19	Thu 14/02/
48		System Completion	3 days?	Fri 15/02/19	Sun 17/02/
49	📇	Installing Hardware Requirements	2 days?	Mon 18/02/19	Tue 19/02/
50	📇	Installing Software Requirements	2 days?	Wed 20/02/19	Thu 21/02/
51	📇	Installing Network Requirements	1 day?	Fri 22/03/19	Fri 22/03/
52		– Test	2 days?	Sat 23/02/19	Sun 24/02/
53	📇	Proponent's Final Project Test	1 day?	Sat 23/02/19	Sat 23/02/
54	📇	Beneficiary's Final Project Test	1 day?	Sun 24/02/19	Sun 24/02/
55		– Review	1 day?	Mon 25/02/19	Mon 25/02/
56	📇	Final Test Results Review	1 day?	Mon 25/02/19	Mon 25/02/

Table 1
Gant Chart

The proponents will follow each process of every sprint carefully for them to be guided according to the will of the beneficiary. The proponents will work three to four weeks per sprint. At the first sprint in the Planning Phase, the proponents will think deeply about what features are they going to put into the system, what would be the system flow, what programming language will suit the project, what are the system requirements and how it will be gathered, and it is also the start of task dissemination. In the Design Phase, the proponents will create an initial layout for the system and also researching and thinking of a good map design .The Build Phase is where all the forms inside the system will be constructed, it is also the phase where the map will be programmed. In the Testing Phase the proponents themselves will test the system first then if it is working properly they are going to let the beneficiary to test the system in a prototype form in the meantime then after that test the proponents will asks for suggestions, opinions and other positive criticism for the proponents to analyze in their Review Phase for the enhancements of the system and also in preparation for the Sprint 2.

The input in the Sprint 2 will based on the outcome of the Sprint 1 so its Planning Phase will be the evaluation of the tests results of Sprint 1 for System Enhancements then in the Design Phase the proponents will focus in the

adjustments of the System layout then the proponents will create and add new and more inputs to the system for the Build Phase. In the Testing Phase the proponents will then again tests the system by themselves then turn it over to the beneficiary for the testing of the improved and enhanced system but still in a prototype form so that the proponents can add and enhanced more the system for the third sprint.

Finally the third sprint's Planning Phase is where the budget planning will be made for the hardware, software and network requirements of the actual project, the proponents will also give all of their ideas to finish the creation of the project, they are also going to design the best and final layout in the Design Phase and will complete the project construction at the Build Phase. The Installation of the hardware along with the software and the network will be made at this phase then the final Test Phase of the actual project then lastly the Review Phase if it is ready for deployment.

Data Gathering Procedures and Techniques

The researcher used a survey type of questionnaire for collecting data and information around the campus. It is a type of data gathering method that is

utilized to collect the different views of people from a particular population. The survey that the researcher used is based on ISO 1926 in terms of Functionality, Reliability, Usability, Efficiency, and Maintainability of the system.

The survey will be conducted as a random survey to the students and instructors to collect their opinion regarding to the research study entitled Accessible Interactive Campus Directory System for Philippine State College of Aeronautics with a total number of 60 participants.

Statistical Method

The researchers used descriptive statistics to organize the information after gathering the data in the survey questionnaire given to the participants of the study. In order to have a general view of the whole situation of the study, statistical tool is used. This include the scaling system which used by the researcher as a technique to monitor the participants interpretation of facts.

Percentage Distribution - The data that will be gathered through the survey questionnaire will be summarized and tabulated to indicate the number of

participants to the specific items in the questionnaire, percentage will be used to determine the frequency of participant's perceptual assessments.

$$P = \frac{f}{n}x100$$

Where:

P = Percentage

f = Frequency

n = Total number of respondents

100 = Constant

Weighted Mean – The weighted mean of a sample population or a population is computed by adding all of the observations and dividing by the number of participants. Likert scale will be used to determine the verbal interpretation of each item.

$$\overline{x} = \frac{\sum fx}{n}$$

Where:

$\overline{x}$ = Mean

∑fx = Sum of Frequency and Scores

n = Number of Participant

Table 2
LIKERT SCALE

Unit Weight	Equivalent Weighted Mean	Verbal Interpretation
4	3.25-4.0	Strongly Agree
3	2.50-3.24	Agree
2	1.75-2.49	Slightly Agree
1	1.0-1.74	Disagree

The table shows Likert scale table. It is used to understand item in the survey questionnaire. The range and interpretation of the four-point scale.

Research Design

In this study the researchers used developmental and descriptive research design for gathering data. Developmental research, as opposed to simple instructional development, has been defined as the systematic study of designing, developing, and evaluating instructional programs, processes, and products that must meet criteria of internal consistency and effectiveness. Descriptive research design is a scientific method which involves observing and describing the behavior of a subject without influencing in it any way. The technique that was used under descriptive research design is normative survey approach and questionnaire which is commonly used to explore opinions according to participant that can represent the population of users. The survey is appropriate in this study because it enables the researchers in formulation of conception. Researchers used various techniques like participating observation, group discussion, documentation analysis and questionnaire. Through the use of survey questionnaire distributed to the faculty and students of PhilSCA, the proponent opted this research to acquire data to formulate rational and sound conclusions and recommendations for the study. Researcher used developmental research design to examine changes over an extended period of time.
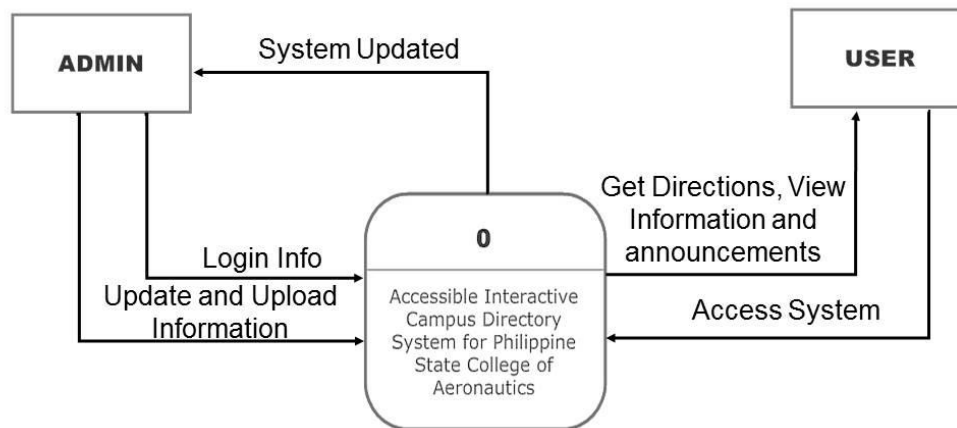
Context Diagram

Figure 2.
Context Diagram Level 0

The context diagram at Level 0 shows the general overview of the system. The admin that will have the access to use the system by logging in with a username and password. Then, the administrator will be the one who controls the system by uploading and updating the information. The users will freely use the system by searching for the specific location, viewing the information and checking the announcements from the school.
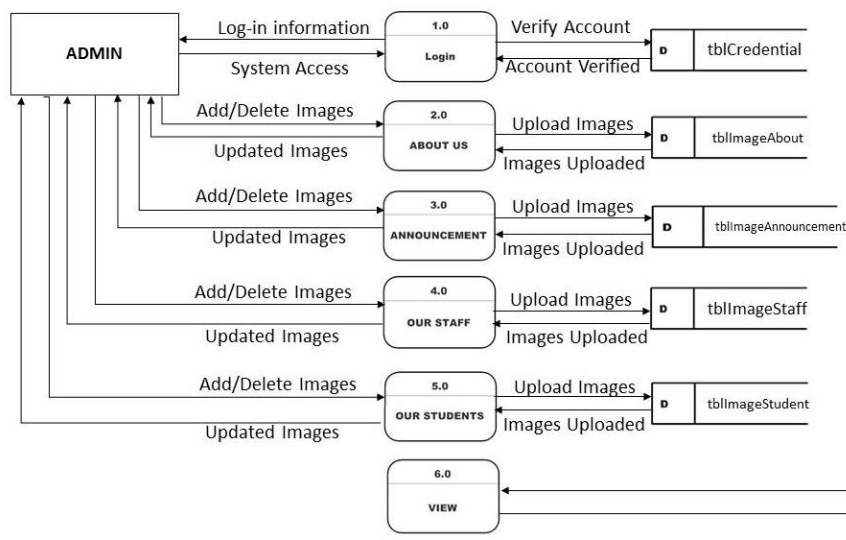
Data Flow Diagram

Figure 3.
Data flow Diagram at Level 1

 The data flow diagram at level 1 represents the flow of data from its admin

and its user. The admin has the ability to manage the data stored in the system.

The user on the other hand can only view the data.
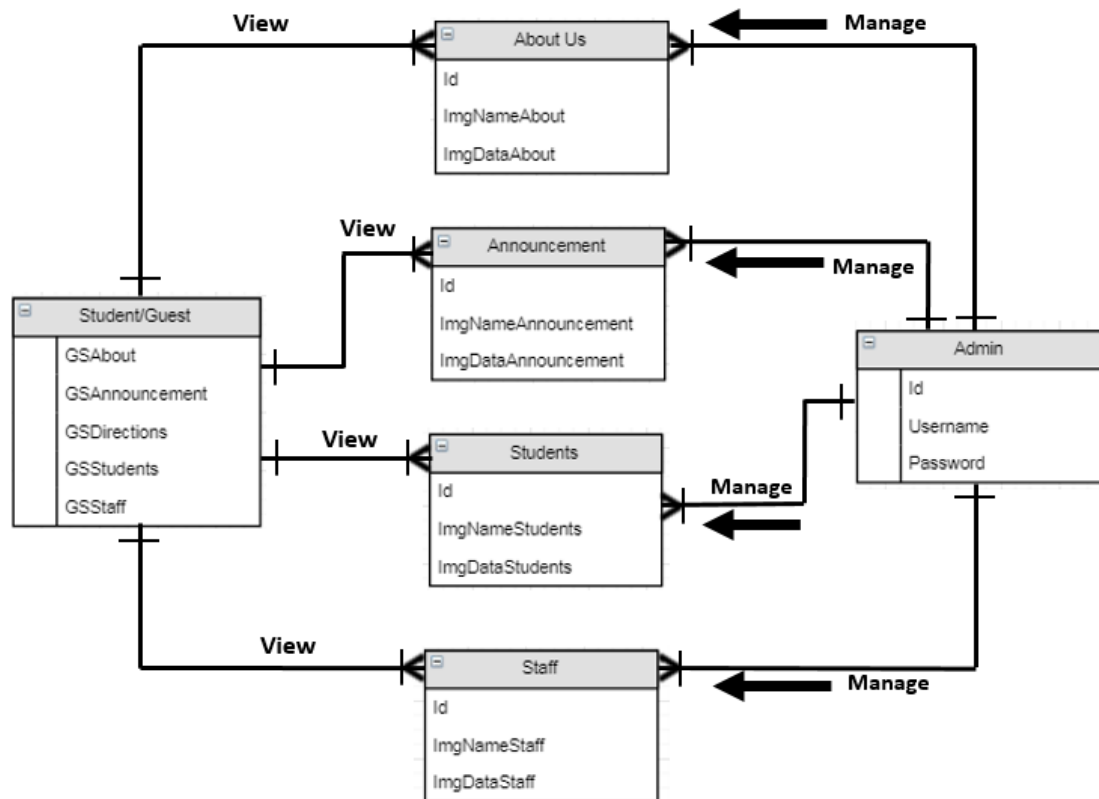
Entity Relationship Diagram

Figure 4.
Entity Relationship Diagram

The figure shown above is the Entity Relationship of admin and Student/Guest from database. Admin Manage the tables of About Us,

Announcement, Students and Staff where the Student/Guest can view the uploaded information of admin.

Data Dictionary

Data dictionary is a collection of data that maintain information describing what type of data is collected within a database, its format, structure and how the data is used. The tables below show the data dictionary of the Accessible Interactive Campus Directory System and it is important to the system because it explain all the variables names and other values really mean.

Table 3.
Description of each data used in the system

Admin Username	
Description	Input first Admin Username
Origin	Part of Admin Log In
Destination	Record in Admin Log In
Data Type	Varchar
Length	50
Limits on value	N/A
Remarks	Primary

Admin Password	
Description	Provide a password for Admin

Origin	Part of Admin Log In
Destination	Record in Admin Log In
Data Type	Varchar
Length	50
Limits on value	N/A
Remarks	None

tblImageAbout_Id	
Description	Input image/s on About
Origin	Part of Admin
Destination	Admin Table
Data Type	Int
Length	None
Limits on value	N/A
Remarks	Primary

ImgNameAbout	
Description	Input name of image on About
Origin	Part of Admin
Destination	Admin Table
Data Type	Varchar
Length	Max
Limits on value	N/A
Remarks	None

ImgDataAbout	
Description	Input data of image on About
Origin	Part of Admin
Destination	Admin Table
Data Type	Varchar
Length	Image
Limits on value	N/A
Remarks	None

tblImageAnnouncement_Id	
Description	Input image/s on Announcement
Origin	Part of Admin
Destination	Admin Table
Data Type	Int
Length	None
Limits on value	N/A
Remarks	Primary

ImgNameAnnouncement	
Description	Input name of image on Announcement
Origin	Part of Admin
Destination	Admin Table
Data Type	Varchar
Length	Max
Limits on value	N/A
Remarks	None

ImgDataAnnouncement	
Description	Input data of image on Announcement
Origin	Part of Admin
Destination	Admin Table
Data Type	Varchar
Length	None
Limits on value	N/A
Remarks	None

tblImageStaff_Id	
Description	Input image/s on Staff
Origin	Part of Admin
Destination	Admin Table
Data Type	Int
Length	None
Limits on value	N/A
Remarks	Primary

ImgNameStaff	
Description	Input name of image on Staff
Origin	Part of Admin
Destination	Admin Table
Data Type	Varchar
Length	Max
Limits on value	N/A
Remarks	None

ImgDataStaff	
Description	Input data of image on Staff
Origin	Part of Admin
Destination	Admin Table
Data Type	Image
Length	None
Limits on value	N/A
Remarks	None

tblImageStudents_Id	
Description	Input image/s on Students
Origin	Part of Admin
Destination	Admin Table
Data Type	Int
Length	None
Limits on value	N/A
Remarks	Primary

ImgNameStudents	
Description	Input name of image on Students
Origin	Part of Admin
Destination	Admin Table
Data Type	Varchar
Length	Max
Limits on value	N/A
Remarks	None

ImgDataStudents	
Description	Input data of image on Students
Origin	Part of Admin
Destination	Admin Table
Data Type	Image
Length	None
Limits on value	N/A
Remarks	None

CoO	
Description	Whether to choose Courses or Organizations for operation on Students
Origin	Part of Admin
Destination	Admin Table
Data Type	Image
Length	None
Limits on value	N/A

Database Structure

Database structure is a collection that comprise database of record type and field type definitions. It defines the information or data that can be stored in any record of that type.

	Name	Data Type	Allow Nulls	Default	Identity Increment	Description	Length
	username	varchar(50)	☐				50
	password	varchar(50)	☐				50

Table 4.
Structure of table Credentials

The table 4 shown above is the structure of table credentials which displays information about database of admin using a unique username and password serves in which username serves as the primary key.

	Name	Data Type	Allow Nulls	Default	Identity Increment	Description	Precision	Length
🔑	Id	int	☐		1			
	ImgNameAbout	varchar(MAX)	☐					MAX
	ImgDataAbout	image	☐					

Table 5.
Structure of table Image About

	Name	Data Type	Allow Nulls	Default	Identity Increment	Description	Precision	Length
🔑	Id	int	☐		1			
	ImgNameAnnouncement	varchar(MAX)	☐					MAX
	ImgDataAnnouncement	image	☐					

Table 6.
Structure of table Image Announcement

	Name	Data Type	Allow Nulls	Default	Identity Increment	Description	Precision	Length
🔑	Id	int	☐		1			
	ImgNameStaff	varchar(MAX)	☐					MAX
	ImgDataStaff	image	☐					

Table 7.
Structure of table Image Staff

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	Name	Data Type	Allow Nulls	Default	Identity Increment	Description	Precision	Length
⚷	Id	int	☐		1			
	ImgNameStudents	varchar(MAX)	☐					MAX
	ImgDataStudents	image	☐					
	CoO	varchar(50)	☑					50

Table 8.
Structure of table Image Student

The representation of the tables shown above from table 5 - 8 are the structure of tables that obtain information about several aspects of database that store in database of each tables shown above.

Test Plan

This test plan is a detailed document that describes the appropriate test strategies used to plan, organize, execute and manage the software testing activities within the project. The objective of testing is to see if the project meets all the requirement specifications and expectations of the beneficiary solved the problem and make them satisfy based on the final presentation and test of the project.

The Accessible Interactive Campus Directory System for Philippines State College of Aeronautics will be tested for its functionality on a touch screen laptop Intel Core i5, 8.00 GB RAM with 1920 x 1080 x 60 hertz resolution for testing and a touch screen monitor with an Intel Core 2 Duo processor for the final test. The project is using an Agile testing with 3 sprints and every sprint composed of iterations. At the end of each sprint the requirements identified for that iteration will be delivered to the team and will be tested. The testing includes for several functions like Login feature, adding an administrator, updating news and calendar of activities. The performance of the project for a large number of computers is out of the scope. Specifically the proponents will conduct 1 test for every Sprint or Iteration, since the proponents will run 3 sprints then 3 tests must also be made for the whole project. Every test in each sprints must be checked and test first by the developers before they turn it over to the beneficiary for testing. The first test during the Sprint 1 will focus on testing the initial System Requirements and the developed partial system. The installation and testing of the hardware requirements are not yet included at this Testing Phase. Only all of the initial layout and partial inputs will undergo through prototype testing. The second Testing Phase allocated for Sprint 2 will focus on testing all of the additional features, data and suggested add-ons of the beneficiary from Sprint 1. The developer will also test the solution of the improved system based on the Sprint 1

review phase requirement, and enhances the system goal. The same as the test at Sprint 1, this test only includes software testing of the improved prototype, for the proponents want to make sure that all of the system requirements are approved and satisfied the beneficiary first before installing its hardware requirements. Lastly for the Final Test Phase allocated at the Sprint 3, the proponents will focus on testing the fully completed project. It involves testing of the hardware and the finished system installed in it.

Test Result

The proponents have conducted several types of tests to the proposed project entitled Accessible Interactive Campus Directory System for Philippine State College of Aeronautics. This tests assure that the entire project will meet or surpass the expectations of the beneficiary as well as to achieve, accomplish and finish all of their given requirements in order to accept the project and to make sure that every aspects of the whole project is functioning based on what it has needed to be.

Test Case ID	Test Case Objective	Pre-requisite	Steps	Input Data	Expected Output	Actual Output	Status
TC_01	Test if a user can log-in even without an admin account.	-Username field and Password field should be enabled.	1. At the Welcome page touch the "Admin" button. 2. Input a non registered account and a desired password.	Username: Manny Password: 123	Display an error message :Invalid Entry	Display an error message :Invalid Entry	Pass
TC_02	Test if an admin can log-in using an incorrect password.	-Username field and Password field should be enabled.	1. At the Welcome page touch the "Admin" button. 2. Input a registered account. 3. Input a wrong password.	Username: admin Password: 456	Display an error message :Invalid Entry	Display an error message :Invalid Entry	Pass
TC_03	Test if an admin can log-in using an incorrect username to a registered password.	-Username field and Password field should be enabled.	1. At the Welcome page touch the "Admin" button. 2. Input a wrong spelling account. 3. Input a registered password.	Username: admin Password: pass	Display an error message :Invalid Entry	Display an error message :Invalid Entry	Pass
TC_04	Test if an admin can log-in using a registered username and its correct password.	-Username field and Password field should be enabled.	1. At the Welcome page touch the "Admin" button. 2. Input a registered username. 3. Input its correct password.	Username: admin Password: pass	Enter to the main admin form.	Enter to the main admin form.	Pass
TC_05	Test if an admin can add other more admin accounts.	-tblCredentials table should be enabled.	1. Open the "Visual Studio 2017". 2. Click the "Server Explorer" 3. Click the KioskSystem.mdf 4. Click the Tables. 5. Right Click the tblCredentials. 6. Input a new Username and Password. 7. Save changes and go back to the System. 8. At the Welcome page touch the "Admin" button.	Username: admain Password: 123	Enter to the main admin form.	Enter to the main admin form.	Pass
			9. Input the newly registered username and password				
TC_07	Test if all the main buttons at the Home page are functional.	-Buttons at the Home Page should be enabled.	1. Touch the "Student/Guess" Button at the Welcome page. 2. Touch every button one at a time (About Us, Announcements, Directions, Our Staffs and Our Students).	Touch buttons	Each buttons will direct users to its designated page.	Each buttons will direct users to its designated page.	Pass
TC_08	Test if all the "Back" buttons of the System will show to the users its previous page.	-All "Back" buttons should be enabled.	1. Search for all "Back" buttons of the System. 2. Touch all "Back" button of the System one at a time.	Touch buttons	All back buttons when touched will display its previous page.	All back buttons when touched will display its previous page.	Pass
TC_09	Test if all the main buttons in the admin main form are functional.	-Buttons at the admin main form should be enabled.	1. Touch the "Admin" button at the Welcome page then Login. 2. Touch every button at the admin main page one at a time (About Us, Announcements, Students and Staffs).	Touch Button	Each buttons will direct users to its designated page.	Each buttons will direct users to its designated page.	Pass
TC_10	Test if all "Add Image" buttons are functional and can add new image to the System.	-Image File. -"Add Image" button should be enabled.	1. Touch the "Admin" button at the Welcome page then Login. 2. Touch every button at the admin main page one at a time (About Us, Announcements, Students and Staffs). 3. Inside those buttons, touch every "Add Image" button. 4. After you click the "Add Image" button select an Image File. 5. Double Click the Image file or	Image File	All "Add Image" buttons are functional and imports an image to the system.	All "Add Image" buttons are functional and imports an image to the system.	Pass

			Click it then press "Open" button.				
TC_11	Test if the System can import other types of file other than an Image File.	-MS Word File - "Add Image" button should be enabled.	1. Touch the "Admin" button at the Welcome page then Login. 2. Touch every button at the admin main page one at a time (About Us, Announcements, Students and Staffs). 3. Inside those buttons touch every "Add Image" button. 4. After you click the "Add Image" button select a MS Word File. 5. Double Click the MS Word File. or Click it then press "Open" button	MS Word File	The System will accept and import the file to the system.	The System will show an error message and will not accept the Word File	Fail
TC_12	Test if the System can delete an existing image using the "Delete" button.	-"Delete" button should be enabled.	1. Touch the "Admin" button at the Welcome page then Login. 2. Touch every button at the admin main page one at a time (About Us, Announcements, Students and Staffs). 3. Inside those buttons, choose an Image at the leftmost area that you wanted to delete then touch the "Delete" button.	Image File	The chosen Image File will be deleted from the System.	The chosen Image File will be deleted from the System.	Pass
TC_13	Test if the System can recognize a wrong spelling entry at the Search Bar for the directory.	-Search field should be enabled.	1. Touch the "User" button at the Welcome page. 2. Touch the "Direction" button at the Home Page. 3. Touch the Search Bar and type a wrong spelling input location. 4. Touch the "Search" button.	Laybrari	The System will display a pop up message "Location not found".	The System will display a pop up message "Location not found".	Pass
TC_14	Test if the System can recognize a location that is not	- Search field should be enabled.	1. Touch the "User" button at the Welcome page. 2. Touch the "Direction" button at	Swimming Pool Area	The System will display a	The System will display a	Pass

	saved at the database.		the Home Page. 3. Touch the Search Bar and type a location that is not saved at the database. 4. Touch the "Search" button.		pop up message "Location not found"	pop up message "Location not found"	
TC_15	Test if the System is Case Sensitive in recognizing input at the search bar of the directory	- Search field should be enabled.	1. Touch the "User" button at the Welcome page. 2. Touch the "Direction" button at the Home Page. 3. Touch the Search Bar and type a random capital letter spelling of a location. 4. Touch the "Search" button.	LibRaRy	The System will recognize a saved location at the database and it ignores capitalizati ons as long as the spelling is correct.	The System can still recognize a saved location at the database and it ignores capitalizati ons as long as the spelling is correct.	Pass
TC_16	Test if the System can recognize a related word to the location that they are finding.	- Search field should be enabled.	1. Touch the "User" button at the Welcome page. 2. Touch the "Direction" button at the Home Page. 3. Touch the Search Bar and type a related word or other term for the location that user are searching. 4. Touch the "Search" button	Medical Office	The System will recognize a related word or other name of a location that the user is searching.	The System didn't recognize the related word or other name of the office that have been searched.	Fail
TC_17	Test if touching the "Enter" button at the	- Search field should be enabled.	1. Touch the "User" button at the Welcome page.	-Library -"Enter"	The System will	The System	Fail

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				Button	locate the searched location.	doesn't locate the searched location and nothing happened.	
	keypad will equivalently press the "Search" button.		2. Touch the "Direction" button at the Home Page. 3. Touch the Search Bar and type a random location. 4. Touch the "Enter" button from the keypad.	Button	locate the searched location.	doesn't locate the searched location and nothing happened.	
TC_18	Test if the contents that the system is displaying are capable to be zoomed.	-Don't use a mouse. -Use the touch screen feature of the hardware.	1. Do a pinching and un-pinching movement in your fingers while touching the screen of the computer.	Finger touch or drag	The system will zoom in or zoom out a desired image.	The System didn't zoom in or zoom out the image and nothing happened.	Fail
TC_19	Test if the scroll bars of the System are capable of scrolling up and down.	-Scroll Bars should be enabled.	1. Touch the "User" button at the Welcome page. 2. Touch the screen of the Home Page. 3. Swipe your finger up and down to the screen.	Finger Swipe	The system will scroll up and down.	The system snaps to the next image	Fail
TC_20	Test if the System will close after pressing the "Exit" button.	-"Exit" button should be enabled.	1. Touch the "Admin" button at the Welcome page then Login. 2. Press the "Exit" button at the admin main form.	Touch Button	The System will close.	The System will close.	Pass

Table 9.
Case Test Result

Network Plan

The proposed project is stand-alone and can be used offline. The administrator has the capabilities to edit or modify the system by using touch pad or connecting input devices such as USB keyboard and USB mouse.

Implementation Plan

An Implementation Plan is a type of plan where the researchers are preparing all of the project requirements needed such as hardware and software requirements for the actual deployment of the project. All factors that is related

for the deployment of the project must be planned strategically to assure that the project will be deployed successfully. This plan makes sure that everything is under control and everything will operate according to the plan.

The plan of the proponents for the implementation of the project is first to prepare the system, make sure that all of its features are functioning well and all of the system inputs are complete, already been encoded, programmed and ready for viewing. Next is to prepare the hardware, make sure that the Central Processing Unit is well built and check if all of the parts are properly installed. When the hardware and the system is already prepared it is time to install the system to the hardware along with the other software requirements that is needed to run the operations of the system. Finally its casing must also be considered making sure that it is clean, secured and well designed.

The location is also a must to be considered in planning the Implementation Plan. Checking if there is a power plug that can be a source of power for the hardware device. The Internet connection is also a very important factor to check, if it is available because nowadays the Internet is the standard tool for the connection of computer to other computers. Making sure that the beneficiary knows how to operate and maintain the project must also be

considered because after the deployment and turnover of the whole project to the beneficiary, they are the ones who will manage the whole project. It is up to them on how are they going to use it and what are they going to post. The process of updating and editing of all the data will be conducted on site and at the Kiosk itself. The Admin can bring a USB keyboard and a USB mouse for an easier editing and encoding of large amounts of data.

Implementation Result

1. Functional Suitability

TABLE 10.
MEAN RESULT OF THE IMPRESSION OF THE PARTICIPANTS ON THE ACCESSIBLE INTERACTIVE CAMPUS DIRECTORY SYSTEM FOR PHILIPPINE STATE COLLEGE OF AERONAUTICS IN TERMS OF FUNCTIONAL SUITABILITY

Functional Suitability	Students		Employees		Visitors	
	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Mean	Verbal Interpretation
Completeness	3.60	Strongly Agree	3.40	Strongly Agree	3.70	Strongly Agree
Correctness	3.90	Strongly Agree	3.65	Strongly Agree	3.65	Strongly Agree
Appropriateness	3.85	Strongly Agree	3.70	Strongly Agree	3.65	Strongly Agree
Average Mean	3.78		3.58		3.66	
Verbal Interpretation	Strongly Agree		Strongly Agree		Strongly Agree	
General Weighted Mean	3.67					
Verbal Interpretation	Strongly Agree					

Table 4 shows the mean result on the impression of the participants on the accessible interactive campus directory system for the Philippine State College of Aeronautics in terms of functional suitability. The students, employees and visitors agreed that the campus directory system can perform all of its specified task based on user's objectives with a mean 3.60, 3.40 and 3.70 respectively. The students, employees and visitors agreed that the campus directory system can display right and accurate output based on the users input with a mean of 3.90, and both 3.65. The students, employees and visitors agreed that the campus directory system can helps the users to accomplish their specified tasks with a mean of 3.85, 3.70, and 3.65.

Findings shows that the participants strongly agreed that the campus directory in completeness, correctness and appropriateness with a general weighted average of 3.67 in terms of functional suitability.

2. PERFORMANCE EFFECIENCY

TABLE 11.
MEAN RESULT OF THE IMPRESSION OF THE PARTICIPANTS ON THE
ACCESSIBLE INTERACTIVE CAMPUS DIRECTORY SYSTEM FOR
PHILIPPINE STATE COLLEGE OF AERONAUTICS IN TERMS OF
PERFORMANCE EFFECIENY

Performance Efficiency	Students		Employees		Visitors	
	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Mean	Verbal Interpretation
Time Behavior	3.45	Strongly Agree	3.45	Strongly Agree	3.60	Strongly Agree
Resource Utilization	3.55	Strongly Agree	3.50	Strongly Agree	3.55	Strongly Agree
Average Mean	3.50		3.47		3.57	
Verbal Interpretation	Strongly Agree		Strongly Agree		Strongly Agree	
General Weighted Mean	3.51					
Verbal Interpretation	Strongly Agree					

Table 3 shows the mean result on the impression of the participants on the accessible interactive campus directory system for the Philippine State College of Aeronautics in terms of functional suitability. The students, employees and visitors agreed that the campus directory system is a lag free and has a quick processing time and response with a mean of both 3.45 and 3.60. The students, employees and visitors agreed that the campus directory system can display right amount and data or information to its users with a mean of 3.55, 3.50 and 3.55.

Findings shows that the participants strongly agreed that the campus directory in time behavior and resource utilization with a general weighted average of 3.51 in terms of performance efficiency.

3. Usability

TABLE 12.
MEAN RESULT OF THE IMPRESSION OF THE PARTICIPANTS ON THE ACCESSIBLE INTERACTIVE CAMPUS DIRECTORY SYSTEM FOR PHILIPPINE STATE COLLEGE OF AERONAUTICS IN TERMS OF FUNCTIONAL USABILITY

Usability	Students		Employees		Visitors	
	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Mean	Verbal Interpretation
Appropriateness Recognizability	3.70	Strongly Agree	3.70	Strongly Agree	3.70	Strongly Agree
Learnability	3.75	Strongly Agree	3.80	Strongly Agree	3.85	Strongly Agree
Operability	3.65	Strongly Agree	3.70	Strongly Agree	3.95	Strongly Agree
User Interface Aesthetics	3.55	Strongly Agree	3.65	Strongly Agree	3.45	Strongly Agree
Accessibility	3.75	Strongly Agree	3.75	Strongly Agree	3.80	Strongly Agree
Average Mean	3.68		3.72		3.75	
Verbal Interpretation	Strongly Agree		Strongly Agree		Strongly Agree	
General Weighted Mean	3.71					
Verbal Interpretation	Strongly Agree					

The students, employees and visitors agreed that the campus directory system is suitable for the user's needs with a mean of 3.70, 3.70 and 3.70. The students, employees and visitors agreed that the campus directory system can be easily learned and understand with a mean of 3.75, 3.80 and 3.85. The students, employees and visitors agreed that the campus directory system can

be controlled easily with a mean of 3.65, 3.70 and 3.95. The students, employees and visitors agreed that the campus directory system is enjoyable and satisfying with a mean of 3.55, 3.65 and 3.45. The students, employees and visitors agreed that the campus directory system is available and usable to everyone who is in need of its function with a mean of both 3.75 and 3.80

Findings shows that the participants strongly agreed that the campus directory in appropriateness recognizability, learnability, operability, user interface aesthetics and accessibility with a general weighted average of 3.71 in terms of usability.

4. Reliability

TABLE 13.
MEAN RESULT OF THE IMPRESSION OF THE PARTICIPANTS ON THE
ACCESSIBLE INTERACTIVE CAMPUS DIRECTORY SYSTEM FOR
PHILIPPINE STATE COLLEGE OF AERONAUTICS IN TERMS OF
RELIABILITY

Reliability	Students		Employees		Visitors	
	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Mean	Verbal Interpretation
Maturity	3.65	Strongly Agree	3.35	Strongly Agree	3.60	Strongly Agree
Availability	3.45	Strongly Agree	3.35	Strongly Agree	3.45	Strongly Agree
Fault Tolerance	3.25	Strongly Agree	3.30	Strongly Agree	3.25	Strongly Agree
Recoverability	3.30	Strongly Agree	3.40	Strongly Agree	3.35	Strongly Agree
Average Mean	3.41		3.35		3.41	
Verbal Interpretation	Strongly Agree		Strongly Agree		Strongly Agree	
General Weighted Mean	3.39					
Verbal Interpretation	Strongly Agree					

The students, employees and visitors agreed that the campus directory system IS reliable, dependable, and can be used even in normal operations with a mean of 3.65, 3.35 and 3.60. The students, employees and visitors agreed that the campus directory system is always ready to use in its designated location during school hours with a mean of 3.45, 3.35 and 3.45. The students, employees and visitors agreed that the campus directory system can continue its operation even some of its buttons are under maintenance with a mean of 3.25, 3.30, and 3.25. The students, employees and visitors agreed that the campus directory system have a copy and back up for retrieval of lost or corrupted data with a mean of 3.30, 3.40, and 3.35.

Findings shows that the participants strongly agreed that the campus directory in maturity, availability, fault tolerance, and recoverability with a general weighted average of 3.39 in terms of reliability.

5. Security

TABLE 14.
MEAN RESULT OF THE IMPRESSION OF THE PARTICIPANTS ON THE
ACCESSIBLE INTERACTIVE CAMPUS DIRECTORY SYSTEM FOR
PHILIPPINE STATE COLLEGE OF AERONAUTICS IN TERMS OF SECURITY

Security	Students		Employees		Visitors	
	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Mean	Verbal Interpretation
Integrity	3.85	Strongly Agree	3.65	Strongly Agree	3.70	Strongly Agree
Confidentiality	3.65	Strongly Agree	3.65	Strongly Agree	3.60	Strongly Agree
Average Mean	3.75		3.65		3.65	
Verbal Interpretation	Strongly Agree		Strongly Agree		Strongly Agree	
General Weighted Mean	3.68					
Verbal Interpretation	Strongly Agree					

The students, employees and visitors agreed that the campus directory system can be only updated y the administrator with a mean of 3.85, 3.65 and 3.70. The students, employees and visitors agreed that the campus directory system program codes are can only be viewed by the administrator with a mean of both 3.65 and 3.60.

Findings shows that the participants strongly agreed that the campus directory in integrity and confidentiality with a general weighted average of 3.68 in terms of security.

6. Maintainability

TABLE 15.
MEAN RESULT OF THE IMPRESSION OF THE PARTICIPANTS ON THE ACCESSIBLE INTERACTIVE CAMPUS DIRECTORY SYSTEM FOR PHILIPPINE STATE COLLEGE OF AERONAUTICS IN TERMS OF MAINTAINABILITY

Maintainability	Students		Employees		Visitors	
	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Mean	Verbal Interpretation
Modularity	3.50	Strongly Agree	3.65	Strongly Agree	3.55	Strongly Agree
Modifiability	3.40	Strongly Agree	3.50	Strongly Agree	3.50	Strongly Agree
Testability	3.70	Strongly Agree	3.70	Strongly Agree	3.65	Strongly Agree
Average Mean	3.53		3.61		3.56	
Verbal Interpretation	Strongly Agree		Strongly Agree		Strongly Agree	
General Weighted Mean	3.56					
Verbal Interpretation	Strongly Agree					

The students, employees and visitors agreed that the campus directory system can update or change certain function with a mean of 3.50, 3.65and 3.55. The students, employees and visitors agreed that the campus directory system is customizable by the administrator without having defects or degrading the quality with a mean of 3.40, and both 3.50. The students, employees and visitors agreed that the campus directory system are checkable and subjected for validation with a mean of both 3.70 and 3.65.

Findings shows that the participants strongly agreed that the campus directory in modularity, modifiability and testability with a general weighted average of 3.68 in terms of maintainability.

V.   RECOMMENDATIONS

Based on the result of the survey that has been based on the ISO 25010 the project Accessible Interactive Campus Directory System for Philippine State College of Aeronautics is equipped with the characteristics from the Software Quality Model of ISO 25010 such characteristics are Functional Suitability, Performance Efficiency, Usability, Reliability, Security, and maintainability. The general weighted mean of each characteristics are as follows 3.67 for Functional Suitability, 3.51 for Performance Efficiency, 3.71 for Usability, 3.39 for Reliability, 3.68 for Security, and 3.56 for Maintainability. Using a Likert Scale this General weighted mean is equivalent to Strongly Agree meaning the respondents have saw and truly experienced that the software of the project have all of this good qualities in order to be considered as a good quality system.

Although the System got a high general weighted mean from the survey and all of the characteristics and sub-characteristics was graded by the respondents as Strongly Agree there is still a characteristic of the system that needs a further

improvement and this is the quality of Reliability. Based on the results from the survey the proponents observed that the Reliability got the lowest weighted mean. The Reliability only got a general weighted mean of 3.39 and even though this equivalents to a Strongly Agree rate in the Likert Scale, it is still low and needs further improvement compare to the other characteristics. Based on the analysis of the proponents to the results of the survey at the part of Reliability, the mean of the Fault Tolerance that came from the students and visitors respondents is only 3.25, this grade is almost an Agree rate at the Likert Scale. According to the interpretation of the proponents this sub-characteristic got a low grade result because the System only have 5 main buttons or part and this are the About Us, Directions, Announcements, Our Staffs and Our Students and if even just one button will going to be functional it will greatly affect the System's usefulness to its users because the system only has a limited number of features. Another sub-character that got a low mean is the Maturity, it only got a 3.35 mean from the employee respondents, this is because in the point of view of the respondents the system is a reliable and dependable system but its features and buttons are only bound to a specific operations and not for any type of operations or normal operations. The Availability which is also a sub-characteristic of the Reliability also got a low grade. It only got a mean of 3.35 from the employee respondents this is because the system is not an anywhere

can be used type of system it is not portable and it is only available to be used at its stand point. The last sub-characteristic of Reliability that got a low grade is the Recoverability. It only got a mean of 3.30 from the student respondents this is because the System is only bound to one computer. It is not networked or connected to other computers that might store back up files of the System in case of file corruption. Lastly all the files will be permanently deleted and lost if the computer broke.

Because of this weaknesses of the System the proponents are recommending for the future researchers to add more buttons, categories and features to the System to make it much more useful and reliable that the users need to use it much more often even in their normal operations and if this happen that the System got a lot more features, the proponents is suggesting to add more computers that have this system installed and ready to be use so that the system becomes much more available and helpful to many other users from a different location. Finally and the most important recommendation of the proponents for the future researchers is to network and connect the computer of this system to another main computer that will serve as the main storage of all the files of the system so in case the computer disrupt or the system malfunctions the main computer can still recover its corrupted files. Also this connection if possible can become an easier way of managing and updating all the files of the computer

that is on site. For if this plan became implemented the administrator can edit,

delete and update files of the computer that is on site from the main computer of

the admin that is located in a different office or location. In short the main

computer can remote control the other computer that is on site. All of this

recommendations surely can improve all of the System's characteristics and also

will enhance the development of this System.

VI.   APPENDICES

Relevant Source Code

login code

```
using KioskSystemv4.Admin;
using KioskSystemv4.UIs;
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Data.SqlClient;
using System.Diagnostics;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace KioskSystemv4
{
    public partial class NLogin : Form
    {
        public NLogin()
        {
            InitializeComponent();
```

```csharp
            NExit.Focus();
        }

        private void NExit_Click(object sender, EventArgs e)
        {
            //new Test().Show();
            //Hide();
            Environment.Exit(0);
        }

        private void NBtnStudent_Click(object sender, EventArgs e)
        {
            if (NBtnStudent.Text.Equals("Back"))
            {
                loginpass.Hide();
                loginuser.Hide();
                NBtnAdmin.Text = "Admin";
                NBtnStudent.Text = "Student/Guest";
            }
            else
            {
                NStudentForm nStudentForm = new NStudentForm();
                nStudentForm.Show();
                this.Hide();
            }
        }

        private void NBtnAdmin_Click(object sender, EventArgs e)
        {
            if (loginuser.Visible == true)
            {
                SqlConnection sqlConnection = new SqlConnection(@"Data
Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=C:\Database\KioskSystem.mdf;Integra
ted Security=True;Connect Timeout=30");

                //SqlConnection sqlConnection = new SqlConnection(@"Data
Source=.;Initial Catalog=KioskSystemDB;Integrated Security=True");
                SqlDataAdapter sqlDataAdapter = new SqlDataAdapter("SELECT
count(*) FROM tblCredentials WHERE username = '" + loginuser.Text + "' and
password = '" + loginpass.Text + "'", sqlConnection);
                DataTable dataTable = new DataTable();
                sqlDataAdapter.Fill(dataTable);
                if (dataTable.Rows[0][0].ToString() == "1")
                {
                    AdminHome adminHome = new AdminHome();
                    adminHome.Show();
                    sqlConnection.Close();
                    this.Hide();
                }
                else
```

```csharp
                {
                    MessageBox.Show("Incorrect username and password", "Alert",
MessageBoxButtons.OK, MessageBoxIcon.Exclamation);
                }
            }
            else
            {
                loginpass.Show();
                loginuser.Show();
                loginuser.Focus();
                NBtnStudent.Text = "Back";
                NBtnAdmin.Text = "Login";
            }
        }

        private void NLogin_Load(object sender, EventArgs e)
        {
            loginpass.Hide();
            loginuser.Hide();
            this.AcceptButton = this.NBtnAdmin;
        }

        private void loginuser_Click(object sender, EventArgs e)
        {
            Process process = Process.Start(new ProcessStartInfo(
            ((Environment.GetFolderPath(Environment.SpecialFolder.System) +
@"\osk.exe"))));
        }

        private void loginpass_Click(object sender, EventArgs e)
        {
            Process process = Process.Start(new ProcessStartInfo(
            ((Environment.GetFolderPath(Environment.SpecialFolder.System) +
@"\osk.exe"))));
        }
    }
}
```

Student form code

```csharp
using System;
using System.ComponentModel;
using System.Diagnostics;
using System.Windows.Forms;

namespace KioskSystemv4.UIs
{
    public partial class NStudentForm : Form
```

```
{

    NLogin cLogin = new NLogin();


    public NStudentForm()
    {
        InitializeComponent();
        Filler();
        GSAbout.Show();
        GSAbout.BringToFront();
    }


    private void NDirections_Click(object sender, EventArgs e)
    {
        GSDirections.Show();
        GSDirections.BringToFront();
        rborg.Hide();
        rbcourses.Hide();
    }
    private void Filler()
    {
        GSAbout.Dock = DockStyle.Fill;
        GSDirections.Dock = DockStyle.Fill;
        GSAnnouncement.Dock = DockStyle.Fill;
        gsStudents1.Dock = DockStyle.Fill;
        gsStudents21.Dock = DockStyle.Fill;
        gsStaffs1.Dock = DockStyle.Fill;
    }
    private void NAbout_Click(object sender, EventArgs e)
    {
        GSAbout.Show();
        GSAbout.BringToFront();
        rborg.Hide();
        rbcourses.Hide();
    }

    private void NStudentForm_Load(object sender, EventArgs e)
    {
    }

    private void button3_Click(object sender, EventArgs e)
    {
        GSAnnouncement.Show();
        GSAnnouncement.BringToFront();
        rborg.Hide();
        rbcourses.Hide();
    }
```

```csharp
        private void button4_Click(object sender, EventArgs e)
        {
            //gsStudents1.Show();
            //gsStudents1.BringToFront();
            gsStaffs1.Show();
            gsStaffs1.BringToFront();
            rborg.Hide();
            rbcourses.Hide();
        }

        private void button5_Click(object sender, EventArgs e)
        {
            rborg.Show();
            rbcourses.Show();
        }

        protected override void OnClosing(CancelEventArgs e)
        {
            Environment.Exit(0);
        }

        public static void SetDoubleBuffered(System.Windows.Forms.Control c)
        {
            if (System.Windows.Forms.SystemInformation.TerminalServerSession)
                return;
            System.Reflection.PropertyInfo aProp =
typeof(System.Windows.Forms.Control).GetProperty("DoubleBuffered",
            System.Reflection.BindingFlags.NonPublic |
            System.Reflection.BindingFlags.Instance);
            aProp.SetValue(c, true, null);
        }

        protected override CreateParams CreateParams
        {
            get
            {
                CreateParams cp = base.CreateParams;
                cp.ExStyle |= 0x02000000;
                return cp;
            }
        }

        private void backbtn_Click_1(object sender, EventArgs e)
        {
            rborg.Hide();
            rbcourses.Hide();
            cLogin.Show();
            Hide();
        }
```

```csharp
        private void rborg_CheckedChanged_1(object sender, EventArgs e)
        {
            gsStudents1.Show();
            gsStudents1.BringToFront();
        }
        private void rbcourses_CheckedChanged_1(object sender, EventArgs e)
        {
            gsStudents21.Show();
            gsStudents21.BringToFront();
        }

        private void tableLayoutPanel2_Paint(object sender, PaintEventArgs e)
        {

        }
    }
}
```

Directions code

```csharp
using KioskSystemv4.Resources.UDStrings;
using KioskSystemv4.UIs;
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace KioskSystemv4.StudentGuest.Floorplans
{
    public partial class CoveredCourt : Form
    {

        public CoveredCourt()
        {
            InitializeComponent();
        }
        NStudentForm cStudentForm = new NStudentForm();

        protected override void OnClosing(CancelEventArgs e)
        {
            Environment.Exit(0);
        }

        private void CoveredCourt_Load(object sender, EventArgs e)
```

```csharp
        {
            pictureBox1.Image = Properties.Resources.CC;
        }

        private void button1_Click(object sender, EventArgs e)
        {
            cStudentForm.Show();
            Hide();
        }
    }
}


using System;
using System.Drawing;
using System.Windows.Forms;
using KioskSystemv4.UIs.BAFLoorPlan;
using KioskSystemv4.Resources.UDStrings;
using KioskSystemv4.StudentGuest.Floorplans;
using System.IO;
using System.Collections.Generic;
using System.Data.SqlClient;
using System.Diagnostics;
using System.Linq;

namespace KioskSystemv4.UserControls.StudentGuest
{
    public partial class UserControl2 : UserControl
    {
        Process process;
        UDStringVariables uDStringVariables = new UDStringVariables();
        string GifPaths = "C:\\Database\\Gifs";
        List<string> filler = new List<string>();
        string[] ArrayList;

        public UserControl2()
        {
            InitializeComponent();
        }

        private void UserControl2_Load(object sender, EventArgs e)
        {
            AutoCompleteStringCollection mylist = new
AutoCompleteStringCollection();
            mylist.AddRange(DirSearch());
            comboBoxSearch.AutoCompleteCustomSource = mylist;
            comboBoxSearch.AutoCompleteMode = AutoCompleteMode.SuggestAppend;
            comboBoxSearch.AutoCompleteSource = AutoCompleteSource.CustomSource;
            this.DoubleBuffered = true;
```

```csharp
        }

        private void button1_Click(object sender, EventArgs e)
        {
            BuildingAFloorplan buildingAFloorplan = new BuildingAFloorplan();
            buildingAFloorplan.Show();
            Hide();
        }

        private void button2_Click(object sender, EventArgs e)
        {
            BuildingBFloorplan buildingBFloorplan = new BuildingBFloorplan();
            buildingBFloorplan.Show();
            Hide();
        }

        private void button3_Click(object sender, EventArgs e)
        {
            BuildingHangar buildingHangar = new BuildingHangar();
            buildingHangar.Show();
            Hide();
        }

        private void button4_Click(object sender, EventArgs e)
        {
            CoveredCourt coveredCourt = new CoveredCourt();
            coveredCourt.Show();
            Hide();
        }
        private void showHide()
        {
            comboBoxSearch.Hide();
            btnSearch.Hide();
            button1.Hide();
            button2.Hide();
            button3.Hide();
            button4.Hide();
            button5.Show();
        }
        private void btnSearch_Click(object sender, EventArgs e)
        {
            showHide();
            using (KioskSystemEntities db = new KioskSystemEntities())
            {
                displayGif();
                UC2tableLayoutPanel.SendToBack();
            }
        }
```

```csharp
        string[] DirSearch()
        {
            foreach (string file in Directory.EnumerateFiles(GifPaths, "*.*",
SearchOption.AllDirectories))
            {
                string extensionLess = file.Substring(0, file.Length - 4);
                extensionLess = extensionLess.Substring(17);
                filler.Add(extensionLess);
            }
            ArrayList = filler.ToArray();
            return ArrayList;
        }



        public void displayGif()
        {
            using (KioskSystemEntities db = new KioskSystemEntities())
            {
                bool hold = false;
                foreach (String img in ArrayList)
                {
                    for (int i = 0; i < ArrayList.Length; i++)
                    {
                        if (comboBoxSearch.Text.ToString() == ArrayList[i])
                        {
                            pictureBox1.BringToFront();

                            pictureBox1.ImageLocation = GifPaths + "\\" +
ArrayList[i] + ".gif";
                            showHide();
                            button5.BringToFront();
                            hold = true;
                            break;
                        }
                    }
                }
                if (hold == false)
                {
                    MessageBox.Show("Location not found.", "Alert",
MessageBoxButtons.OK);
                }
            }
        }

        private void comboBoxSearch_SelectedIndexChanged(object sender, EventArgs
e)
        {
            process = Process.Start(new ProcessStartInfo(
```

```
        ((Environment.GetFolderPath(Environment.SpecialFolder.System) +
@"\osk.exe"))));
        }

        private void button5_Click(object sender, EventArgs e)
        {
            comboBoxSearch.Show();
            btnSearch.Show();
            button1.Show();
            button2.Show();
            button3.Show();
            button4.Show();
            button5.Hide();
            pictureBox1.Image = null;
            pictureBox1.SendToBack();
        }

        private void comboBoxSearch_Click(object sender, EventArgs e)
        {
            Process process = Process.Start(new ProcessStartInfo(
            ((Environment.GetFolderPath(Environment.SpecialFolder.System) +
@"\osk.exe"))));
        }

        private void comboBoxSearch_SelectedIndexChanged_1(object sender,
EventArgs e)
        {

        }
    }
}
```

about code(displaying image in student form)

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Drawing;
using System.Data;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using System.Data.SqlClient;

namespace KioskSystemv4.UserControls.StudentGuest
{
    public partial class UserControl1 : UserControl
    {
```

```csharp
        public UserControl1()
        {
            InitializeComponent();
            GetPics();
        }

        private void GetPics()
        {
            string constring = @"Data
Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=C:\Database\KioskSystem.mdf;Integra
ted Security=True;Connect Timeout=30";
            using (SqlConnection con = new SqlConnection(constring))
            {
                using (SqlCommand cmd = new SqlCommand("select ImgDataAbout from
tblImageAbout ORDER BY ID DESC", con))
                {
                    DataTable dt = new DataTable();
                    SqlDataAdapter sda = new SqlDataAdapter(cmd);
                    sda.Fill(dt);
                    dataGridViewAbout.DataSource = dt;
                }
            }

            //foreach (DataGridViewImageColumn column2 in
dataGridViewAbout.Columns)
            //{
            //    column2.ImageLayout = DataGridViewImageCellLayout.Stretch;
            //}
        }

        private void dataGridViewAbout_CellContentClick(object sender,
DataGridViewCellEventArgs e)
        {

        }
    }
}
```

floorplan code(manual viewing)

```csharp
using KioskSystemv4.Resources.UDStrings;
using System;
using System.ComponentModel;
using System.Windows.Forms;

namespace KioskSystemv4.UIs.BAFLoorPlan
{
```

```csharp
public partial class BuildingAFloorplan : Form
{
    UDStringVariables uDStringVariables = new UDStringVariables();

    public BuildingAFloorplan()
    {
        InitializeComponent();

    }
    NStudentForm cStudentForm = new NStudentForm();

    protected override void OnClosing(CancelEventArgs e)
    {
        Environment.Exit(0);
    }

    private void BAFloorplan_Load(object sender, EventArgs e)
    {
        comboBox1.DropDownStyle = ComboBoxStyle.DropDownList;
        comboBox1.DataSource = uDStringVariables.Floors;
    }

    private void floorselection()
    {
        switch(comboBox1.SelectedIndex)
        {
            case 0:
                pictureBox1.Image = Properties.Resources.A1;
                break;
            case 1:
                pictureBox1.Image = Properties.Resources.A2;
                break;
            case 2:
                pictureBox1.Image = Properties.Resources.A3;
                break;
            case 3:
                pictureBox1.Image = Properties.Resources.A4;
                break;
            default:
                break;
        }
    }

    private void comboBox1_SelectedIndexChanged(object sender, EventArgs e)
    {
        floorselection();
    }

    private void panel1_Paint(object sender, PaintEventArgs e)
    {
```

```
        }

        private void pictureBox1_Click(object sender, EventArgs e)
        {

        }

        private void button1_Click(object sender, EventArgs e)
        {
            cStudentForm.Show();
            Hide();
        }
    }
}
```

admin code(add/delete about us)

```csharp
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Data.Entity.Validation;
using System.Data.SqlClient;
using System.Diagnostics;
using System.Drawing;
using System.IO;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using KioskSystemv4;

namespace KioskSystemv4.Admin
{
    public partial class AdminAboutUs : Form
    {
        string fileName, sFileName;

        List<tblImageAbout> list;

        AdminHome adminHome = new AdminHome();

        public AdminAboutUs()
        {
            InitializeComponent();
            btnLoad_Click();
        }

        Image ConvertBinaryToImage(byte[] data)
```

```csharp
        {
            using (MemoryStream ms = new MemoryStream(data))
            {
                return Image.FromStream(ms);
            }
        }

        byte[] ConvertImagetoBinary(Image img)
        {
            using (MemoryStream ms = new MemoryStream())
            {
                img.Save(ms, System.Drawing.Imaging.ImageFormat.Jpeg);
                return ms.ToArray();
            }
        }

        protected override void OnClosing(CancelEventArgs e)
        {
            Environment.Exit(0);
        }

        private void AdminAboutUs_Load_1(object sender, EventArgs e)
        {
        }

        private void btnOpen_Click()
        {
            using (OpenFileDialog ofd = new OpenFileDialog()
            {
                Filter = "JPG(*.jpg, *.jpeg) | *.jpg; *.jpeg | GIF(*.gif) |
*.gif",
                ValidateNames = true,
                Multiselect = false
            })
            {
                if (ofd.ShowDialog() == DialogResult.OK)
                {
                    fileName = ofd.FileName;
                    sFileName = ofd.SafeFileName;
                    pictureBox1.Image = Image.FromFile(fileName);
                    btnSave_Click();
                }
            }
        }

        private async void btnSave_Click()
        {
            using (KioskSystemEntities db = new KioskSystemEntities())
            {
                tblImageAbout pic = new tblImageAbout()
```

```csharp
                {
                    ImgNameAbout = sFileName,
                    ImgDataAbout = ConvertImagetoBinary(pictureBox1.Image)
                };
                db.tblImageAbouts.Add(pic);
                try
                {
                    await db.SaveChangesAsync();
                    MessageBox.Show("Image uploaded successfully", "Message",
MessageBoxButtons.OK, MessageBoxIcon.Information);
                    btnLoad_Click();
                }
                catch (DbEntityValidationException dbEx)
                {
                    foreach (var validationErrors in dbEx.EntityValidationErrors)
                    {
                        foreach (var validationError in
validationErrors.ValidationErrors)
                        {
                            Trace.TraceInformation("\nProperty: {0} \nError: {1}",
                                              validationError.PropertyName,
                                              validationError.ErrorMessage);
                        }
                    }
                    MessageBox.Show("Error", "Message", MessageBoxButtons.OK,
MessageBoxIcon.Error);
                }
            }
        }

        private void btnLoad_Click()
        {
            listViewFile.Items.Clear();
            using (KioskSystemEntities db = new KioskSystemEntities())
            {
                list = db.tblImageAbouts.ToList();
                foreach (tblImageAbout img in list)
                {
                    ListViewItem list = new ListViewItem(img.ImgNameAbout);
                    listViewFile.Items.Add(list);
                }
            }
        }

        private void btnDelete_Click()
        {
            try
            {
```

```csharp
                using (SqlConnection con = new SqlConnection(@"Data
Source=(LocalDB)\MSSQLLocalDB;AttachDbFilename=C:\Database\KioskSystem.mdf;Integra
ted Security=True;Connect Timeout=30"))
                {
                    con.Open();
                    using (SqlCommand command = new SqlCommand("DELETE FROM
tblImageAbout WHERE ImgNameAbout = '" + listViewFile.FocusedItem.SubItems[0].Text
+ "'", con))
                    {
                        command.ExecuteNonQuery();
                    }
                    MessageBox.Show("Image deleted successfully", "Message",
MessageBoxButtons.OK, MessageBoxIcon.Information);
                    btnLoad_Click();
                    con.Close();
                }

            }
            catch (SystemException ex)
            {
                MessageBox.Show(string.Format("An error occurred: {0}",
ex.Message));
            }
        }

        private void button1_Click_1(object sender, EventArgs e)
        {
            btnOpen_Click();
        }

        private void button2_Click_1(object sender, EventArgs e)
        {
            btnDelete_Click();
        }

        private void listViewFile_SelectedIndexChanged_1(object sender, EventArgs
e)
        {
            if (listViewFile.FocusedItem != null)
            {
                pictureBox1.Image =
ConvertBinaryToImage(list[listViewFile.FocusedItem.Index].ImgDataAbout);
            }
        }

        private void btnExit_Click(object sender, EventArgs e)
        {
            adminHome.Show();
            Hide();
        }
```

Evaluation tool or test Documents

"SURVEY QUESTIONNAIRE"

"ACCESSIBLE INTERACTIVE CAMPUS DIRECTORY SYSTEM FOR PHILIPPINE STATE COLLEGE OF AERONAUTICS"

Good Day!

We, the undersigned are presently conducting a capstone project entitled "**ACCESSIBLE INTERACTIVE CAMPUS DIRECTORY SYSTEM FOR PHILIPPINE STATE COLLEGE OF AERONAUTICS**". In this regard, may we respectfully request for your cooperation and time in answering a series of questions appertaining to above mentioned project title. Rest assured that all data gathered from this survey questionnaire will be treated with utmost confidentiality.

Thank you and God bless!

Researchers,

Alolino, Mary Grace D.
Mores, Antoneth
Rutor, Allan Jay G.
Subulo, Alyssa Faye C.
Yumang, Vince Genard G.

Name (Optional): _____

Part I. Demographic Profile of the Participants
Instruction: Put a check (✓) on the space provided that corresponds to your profile.

For Students ( )	For Employees ( )	For Visitors ( )
Department: ICS ( )INET ( ) ILAS ( ) IGS ( ) **Year:** 1st ( ) 2nd ( ) 3rd ( ) 4th () 5th() **Course:** BSAIS( ) BSAeE( ) AB COMMUNICATION( ) AB SAFETY&SECURITY( ) AB LOGISTICS( ) AB TOURISM( ) AAMT( ) AAVT( )BSAMT( ) BSAVT( ) BSAIT( ) BSAT( ) MPA( ) MEAM( )	**Status of Appointment:** Teaching Personnel ( ) Non-Teaching Personnel ( )	**Purpose of Visit:** Admission ( ) Job Inquiries ( ) Appointment ( ) Document Needs ( ) Others ( ) Please Specify: _____

Part II. Instruction: Rate the following characteristics of **ISO 25010**for Software Quality Characteristics by checking on the scale to indicate its degree of emphasis on each of the following statements. Each scale has a corresponding verbal interpretation as shown below

Scale	Verbal Interpretation
4	Very Satisfactory
3	Satisfactory
2	Fair
1	Poor

FUNCTIONAL SUITABILITY	4	3	2	1
Completeness: The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics can perform all of its specified tasks based on user objectives.				
Correctness: The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics displays right and accurate output based on the user's input.				
Appropriateness: The functions of the Accessible Interactive Campus Directory System for Philippine State College of Aeronautics helps the users to accomplish their specified tasks.				
PERFORMANCE EFFICIENCY				
Time Behavior: The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics is lag free and has a quick processing time and response when it is performing its functions.				
Resource Utilization: The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics displays right amount and type of data or information to its users.				
USABILITY				
Appropriateness Recognizability: The user can identify whether the usage of The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics is suitable for their needs.				
Learnability: The usage of The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics can be easily learned and understand.				
Operability: The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics can be controlled easily.				
User Interface Aesthetics: The usage of The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics is enjoyable and satisfying.				
Accessibility: The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics is available and usable to everyone who is in need of its functions.				

RELIABILITY				
Maturity: The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics is reliable, dependable and can be used even in normal operations.				
Availability: The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics is always ready to use in its designated location during school hours.				
Fault Tolerance: The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics can continue its operation even some of its buttons are under maintenance or under construction.				
Recoverability: All files of The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics have copy and back up for retrieval of lost or corrupted data.				
SECURITY				
Integrity: Editing and updating of the data of The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics can only be done by the administrator.				
Confidentiality: There are non-public data from The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics such as program codes that are only available for the administrator.		·		
MAINTAINABLITY				
Modularity: An update or change in a certain function of The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics can only affect the other functions minimally.				
Modifiability: The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics is customizable by the administrator without having defects or degrading its existing quality.				
Testability: Updates and modifications of The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics are checkable and are subjected for validation.				

Part III. Recommendation and Suggestions

Instruction: Put a check on the box on the list below that you want to recommend or suggest for our proposed projectAccessible Interactive Campus Directory System for Philippine State College of Aeronautics.

The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics can be placed in building A and B for easy accessible to the users.	
Integration of OSA (Office of Student Affairs) activities in the Accessible Interactive Campus Directory System for Philippine State College of Aeronautics using real-time process.	

The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics should have a larger and wider screen size.
The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics Include basic profile of teaching and new teaching personnel.
The Accessible Interactive Campus Directory System for Philippine State College of Aeronautics should have a registration for the user.
Others: (Please specify)

Sample Input/Output/reports

Users guide

This document explains all of the system routines of the proposed project entitled "Accessible Interactive Campus Directory System for Philippine State College of Aeronautics" using a touch screen monitor. This will serve as a guide on how to use this system properly by the Administrator as well as the Students or Guests.

I. Users Manual

1. View About Us

1.1 Touch the "About Us" button to see the school profile such as PhilSCA History, Vision, Mission and PhilSCA Hymn.

2. View Announcements

   1.1 Touch the "Announcements" button to see some important announcements from the school as well as the school's calendar of activities.

3. View Directory

   3.1 Click the "Direction" button and it will show you a 3D representation of the school.

3.2 Tap the search bar and type the location that you are looking for then press the "Search" button.

3.3 The kiosk will show you an arrow that will guide you on how to get to your searched location.

4. View Staffs

4.1 Click the "Our Staffs" button to see the college officials of the school along with their positions.

5. View Students

5.1 Click the "Our Students" button to see all the different student organization of the school.

Process/Data/Information Flow

Screen Layouts
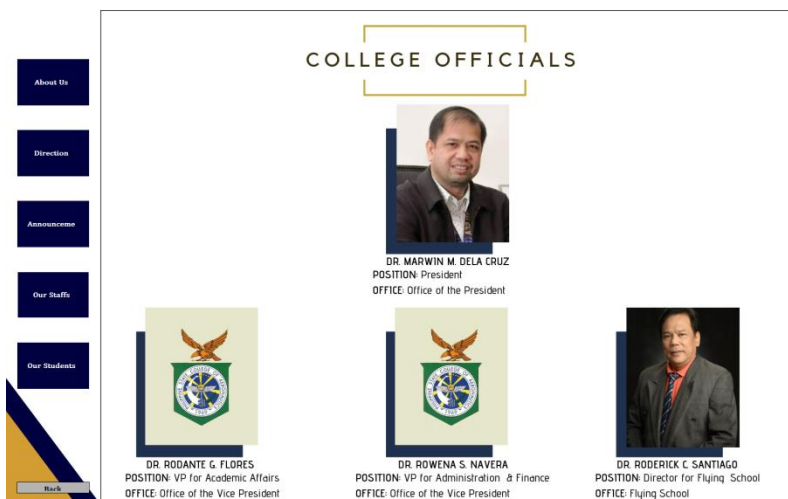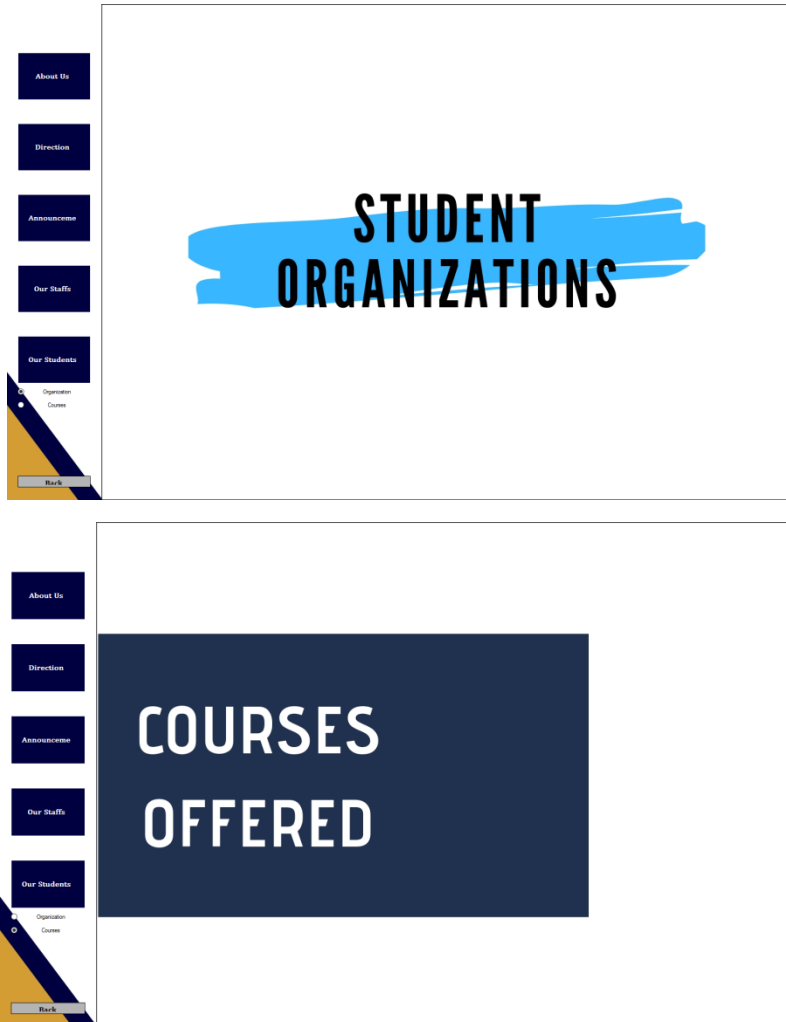
Test Results

      The proponents have tested every single part of the project from the codes up to its Graphical User Interface and its functions. This tests includes testing the Log-In form if a user can Log-in to the main system if a correct, registered and match Username and

Password has been encoded and the result is the that the user can Log-in with that condition on the other test the proponents tests if a user can log-in even without an administrator account at the database of the system, using an incorrect password, using a correct password but unregistered username, using a username and password that have special characters and using a correct a username and password but didn't match, all of this tests resulted the same, the System will display an error message saying Invalid Entry. The proponents also tested here if an admin can add more other admin accounts and it resulted as yes it is possible.

Another part of the test that the proponents have conducted is testing all the main buttons located at the admin main form if it is clickable and will direct the administrator to its right and designated forms. This buttons such as the "About Us" button, "Announcements" button, "Staffs" button and "Students" button are very important to be checked if it is functioning well because this buttons will lead the administrator to a form that will enable him to add, delete and edit an information to a certain category. This test resulted to a positive outcome because every main buttons at the admin main form are functional.

The function of the System that can modify and edit an information have also been tested. The buttons that are concerned in modifying and editing information are "Add Images" button and "Delete" button this buttons can be found inside the main buttons of the admin main form. The test resulted to a positive outcome each "Add

Images" button allows an admin to choose and import an Image File that is stored inside the storage of the computer over to the System. This test also shows that only Image Files such as JPEG, GIF and PNG are possible to be imported to the system while other types of files such as Word Files and Spreadsheet Files cannot. The function to delete an information to the System using the "Delete" button have also been tested and proven to function accordingly.

Buttons at the Home Page is also a must to be considered, the list of the main buttons that have been tested here are "About Us" button, "Direction" button, "Announcements" button, "Our Staffs" button and "Our Students". Clicking this buttons will display its programmed forms that contains all of the information allocated for a certain main button or category. For every form inside a main button, there is a "Back" button. This button will redisplay a previous form or the screen before the screen that has that "Back" button. All of the tests in this part resulted a positive outcome because all the "Back" buttons are functioning well and also all the main button at the Home page.

Another important test that has been conducted was the testing of the directory feature of the System. The proponents tested it by typing different inputs at the search box such inputs are a location name that is not registered at the database, a wrong spelled location name, other term of a location name or related word to the location name and a location name that has different capitalization in its letters. All of this tests resulted a same output and this output is that the system will going to display a pop-up

message saying Location not found while on the other hand if the users input a registered location from the database the system will display an arrow that will serve as a mapping direction guide going to the location that they searched. The proponents also tested if the System is capable of adding new locations and if a location of an office is interchangeable or can be switch with the other offices' location. This group of tests didn't come well at first because the proponents are having difficulties in mapping out and coding every locations of the school but at the later time the problem have been solved and done what is needed to do for the feature of the directory.

Almost all of the tests resulted as successful and it performs its needed functions but there are also other parts of the test that fail and didn't meet the expectations of the proponents as well as the beneficiary and one of this is that the information that the system displays are cannot be zoomed. Another one is that the only files that can be imported to the System are Image files, the System cannot recognize the related word or other name of the office that have been searched and the System didn't recognize the Enter key of the keyboard as the same as the function of a search button.

Sample Generated Outputs
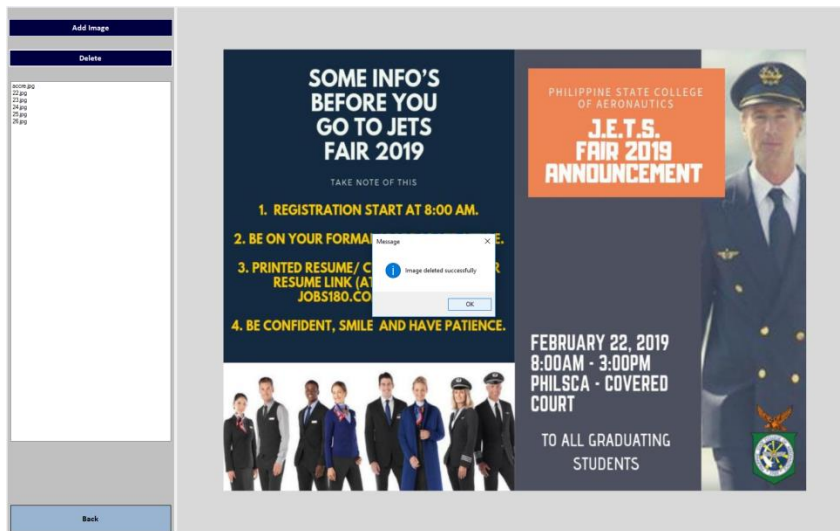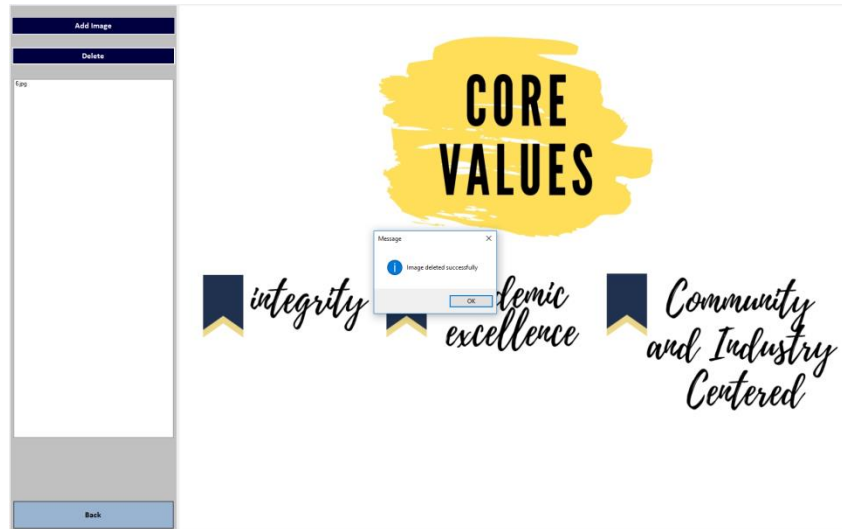
Pictures showcasing the data gathering