

PSAS INFORMATIVE INVENTORY MAPPING APPLICATION

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Abstract

Geographic Information System (GIS) application is an important tool or software. Therefore, to replace the existing manual maps, the PSAS Informative Inventory Mapping Application was developed digitally. This project aims to develop a GIS database using a phone application for each building in the Sultan Azlan Shah Polytechnic area. It also aims to test how the PSAS Inventory Informative Mapping Application works for new students (semester 1) and external users. The PSAS Informative Inventory Mapping application has been developed using the open source QGIS software & has been digitized using Google Maps as a base map. The data entered includes information about building name, building ID, building area, inventory for the Civil Engineering Department and pictures and videos of different buildings based on location at Sultan Azlan Shah Polytechnic. A needs analysis has been carried out to ensure that the products produced can meet the needs of users. Questionnaires that have been done to external users, the study sample consists of 52 external student respondents, public and private visitors. The survey of external visitors found that 78.8% strongly agreed with the percentage of the design and functionality of the application, and 80.8% strongly agreed with the digital presence of the PSAS plan, including the PSAS-informed inventory mapping application. A total of 213 first semester students participated in the survey and showed that 63.95% strongly agree with the design of the application, 66.35% agree with the functionality of the application and 64.66% are very satisfied with the use of the application. In conclusion, this developed application has helped users with a complete database as well as pointers that save them time with digital technology.

Keywords: Digital transformation, GIS, Inventory mapping, PSAS, QGIS.

INTRODUCTION

In the era of Artificial Intelligence (AI), advanced tools like Geographic Information Systems (GIS) play a crucial role in addressing data-driven challenges. At Politeknik Sultan Azlan Shah (PSAS), traditional manual maps have proven inefficient for modern needs. These limitations affect not only campus navigation but also broader operational efficiency.

The PSAS Informative Inventory Mapping Application is a digital solution designed to replace outdated manual systems. It leverages GIS technology to create a comprehensive, user-friendly platform that enables efficient location searches. This study explores the development, deployment, and impact of this application, emphasizing its role in bridging traditional practices with modern technology.

RESEARCH METHOD

1. Research Design

The project employed a combination of quantitative and qualitative methods, involving surveys, interviews, and GIS-based design processes.

2. Data Collection

- Primary Data: Surveys and interviews with students, visitors, and faculty members.
- Secondary Data: Campus maps and inventory details from PSAS archives.

3. Development Process

The application was developed using QGIS software, incorporating spatial data digitized from Google Maps. Features like building IDs, multimedia links, and navigational tools were integrated into the system.

4. Analysis Techniques

Data were analyzed using descriptive statistics to assess user satisfaction and identify areas for improvement.

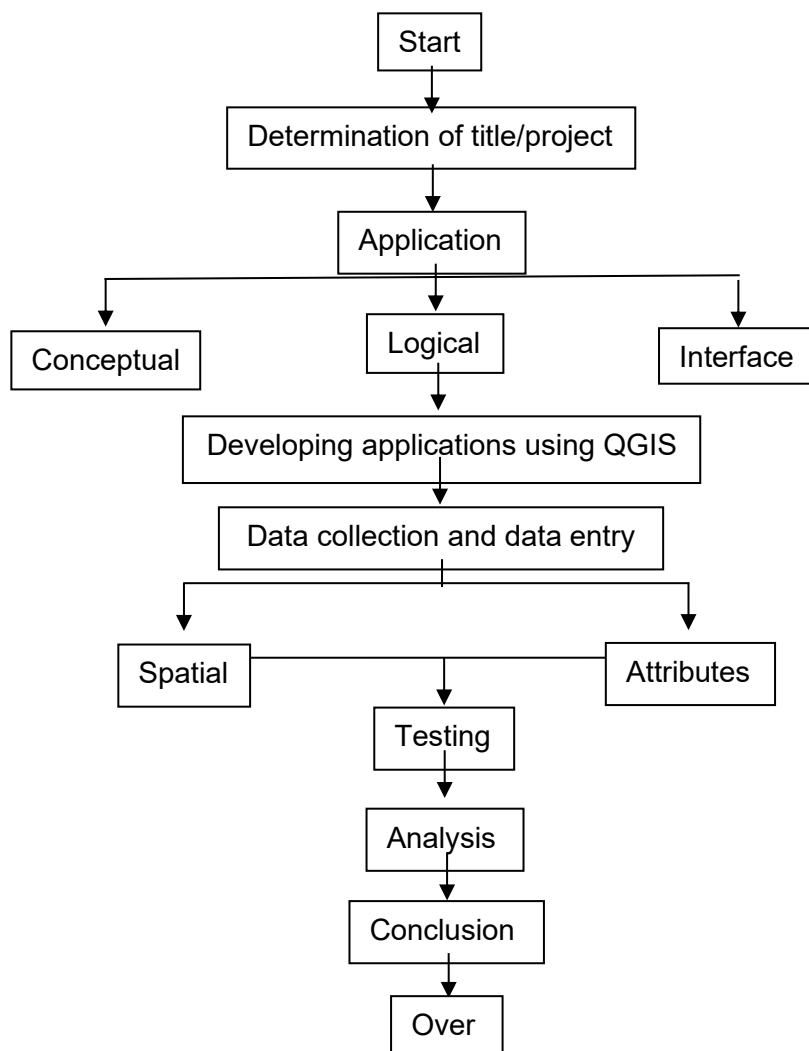


Diagram 1: Product flow chart

RESULTS AND DISCUSSION

1. User Demographics

- External Visitors: 52 respondents, including students and professionals.
- First-Semester Students: 213 participants from various departments at PSAS.



Figure 1. Image of result digitized map

2. Application Features

Key features include:

- Comprehensive Database: Building names, IDs, dimensions, and multimedia content.
- User-Friendly Interface: Intuitive design tailored for new users.

Table 1: Percentage of application design for external visitors

No	Question	Respondent (%)				
		STS	TS	TP	S	ST
Application design						
1	Display of interesting applications.	-	-	1.9	19.2	78.8
2	Clear Information.	-	-	1.9	21.2	76.9
3	Easy to understand.	-	-	5.7	15.4	78.8
4	Attractive design.	-	-	5.7	15.4	78.8
5	The sentences is easy to understand.	-	-	-	19.2	78.8
6	Button functions are easy to identify.	-	-	3.8	17.3	78.8

Table 2: Percentage of application design for semester 1.

No	Question	Respondent (%)				
		STS	TS	TP	S	ST
<i>Application design</i>						
1	Display of interesting applications.	1	0.5	8.8	25.5	64.2
2	Clear Information.	1	0.5	7.4	30.4	60.8
3	Easy to understand.	1	0.5	6.4	30.4	61.8
4	Attractive design.	1	0.5	7.4	25.0	66.2
5	The sentences is easy to understand.	1	0.5	4.4	29.9	64.2
6	Button functions are easy to identify.	1	0.5	7.8	26.0	64.7

3. User Feedback

Surveys revealed high satisfaction rates:

- Design and Functionality: 78.8% of external users rated it as excellent.
- Efficiency: 66.35% of students found the application significantly reduced navigation time.

Table 3: Semester 1 student and external visitors respondents regarding satisfaction with the use of the application.

No	Question	Respondent (%)				
		STS	TS	TP	S	ST
Satisfaction with application use						
1	This 'PSAS informed Inventory Mapping' application is very user friendly.	1	0.5	6.4	27.7	64.4
2	The attached information is easy to use and interesting.	1	0.5	3.9	28.4	66.2
3	Videos and images in this mapping application help in location search.	1	0.5	4.9	27.1	66.0
4	This mapping application provides clear and through information.	1	0.5	4.9	29.1	64.5
5	Using the application is easier than manually.	1	0.5	7.5	24.9	66.2

4. Knowledge

Without utilizing any financial resources. However, Encik Sulaimi Bin Ahmad of Institut Tanah dan Ukur Negara (INSTUN) provided assistance and collaboration for this project.

Table 4: Application determination

No	Description	Image of the application
1	- QGIS Software A geographic information system, QGIS, which is open source, can be used to design, analyze, and display entire geographic databases, as shown in the figure.	
2	- My Maps Software The picture displays the My Maps logo, which was used to create the educational PSAS Inventory Mapping program. Users can make, save, and share maps based on Google Maps using a tool called My Maps, which was created by Google. Users can also change the location and add details like building names, movies, or more descriptions to the chosen area, as well as add layers of data organized by facility.	

CONCLUSION

The PSAS Informative Inventory Mapping Application successfully addresses campus navigation challenges. By providing detailed maps and inventory data, it enhances user experience and operational efficiency. This application serves as a model for other institutions aiming to

modernize their navigation systems. Future enhancements could include real-time navigation and broader integration with institutional databases.

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