

GIS-BASED STUDENT PROFILING SYSTEM BASIS FOR MARKETING PREDICTIVE ANALYTICS

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ABSTRACT: *The aim of the study is to design and develop a GIS (Geographical Information System) -based Student Profiling System for Surigao del Sur State University Cantilan Campus. The system is to be used purposely to visualize data representations using GIS mapping. It visualizes the demographic distribution of the students' location in specific Municipalities and Barangay. Also, the population and location of currently enrolled students in all programs offered can be viewed. Likewise, with the integration of the data charts in the system, the population of the students from public and private school feeders can also be observed. A developmental approach is employed in the development of the system. The researcher adopted the Rapid Application Development (RAD) technology as applicable to create a prototype that allows selected respondents to provide response and request for any improvement of the functionalities of the system. The researcher recommends that the University may facilitate the implementation and utilization of the system that serves as a central data provider and the basis for marketing predictive analytics. These data could be used in the intelligent recruitment scheme, marketing strategies, planning, proposed development programs, and monitoring of the University.*

Keywords: GIS, Student Profiling

1. INTRODUCTION

Many of the universities now are using GIS (Geographic Information Systems) Technology for the purposes of evaluating students' enrollment, mapping locations of current students, and visualizing the demographic distribution [1]

This notion comforts the difficulty in tracking students' locations in specific municipalities/barangays, the population of currently enrolled, the population of secondary feeders public, and private. These are just a few salient features of GIS Technology provides, in which the university desires to acquire.

With, GIS purposively creates and integrates different kinds of geographic information, such as digital maps, aerial photographs, satellite images, and Global Positioning System (GPS) data, as well as associated tabular database information.

Currently, the university is still engaged in the manual process of monitoring the location and population of the students, especially in tracing the graduates in every program. Likewise, the marketing strategies and recruitment schemes of the university still need to be improved.

This paper aims to develop a holistic GIS-based Student Profiling System for Surigao del Sur State University – Cantilan Campus. In accordance with one of the university's missions is to produce competent and skilled graduates prepared for gainful employment.

With this, GIS can support in assisting administrators in an array of decision-making processes through the analysis of geographic statistics, identifying the pros and cons of prospective decisions and charting out the future course of action [2]

Furthermore, the developed GIS-based Student Profiling System will be a central data provider. In the same way, data will be used in the proposed development programs, marketing strategies, intelligent recruitment schemes, and monitoring of the university.

2. MATERIALS AND METHODS

This study aimed to:

1. Design and Develop a GIS-Based Student Profiling System.
2. Visualize data representations thru GIS Mapping
 - 2.1 Location of students in specific Municipalities and Barangay.
 - 2.2 Population and location of currently enrolled students in all programs offered.
 - 2.3 The population of students from public and private high school feeders.
3. Utilize the system for intelligent recruitment schemes, marketing strategies, planning, and monitoring.

Conceptual Framework

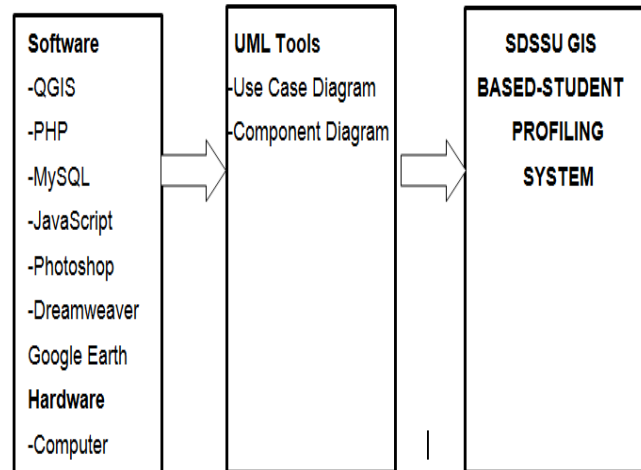


Figure 1. Conceptual Framework of the Study

The conceptual framework of the study illustrates in figure 1. The input shows the materials needed in the study such as the Software which uses QGIS to create a mapping, PHP, MySQL, JavaScript, Photoshop, Dreamweaver, Google Earth, and the hardware like a computer that will be used to perform the system. The process performs the modeling tools that enable to aid in the enhancement process of containing programs and documents. Wherein documents used the Use Case Diagram and Component Diagram. The output is the utilization of the GIS-Based Student Profiling System that

will serve as the data provider. Furthermore, the System Development Life Cycle (SDLC) serves as a guide in the development of the system. In addition, Jivara emphasizes the standard phases include detailed design, general design, investigation, installation, and review, analysis, and implementation. [3] The system development life cycle provides a framework for managing the system development process and produces a desired result or product.

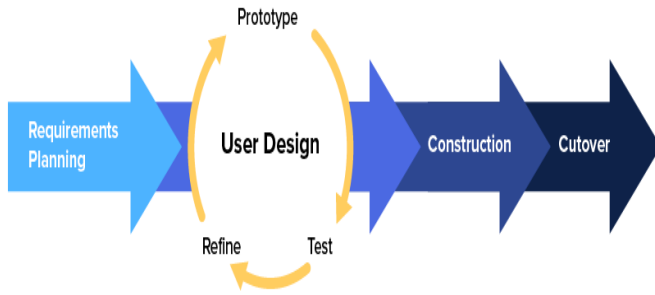


Figure 2. Rapid Application Development

Figure 2 is the Rapid Application Development (RAD) used by the researchers in the development of the system. RAD profoundly defined by Hirschberg as essential software development in general serving as methodology or choice of architectures and tools, design analyses and requirements, selection of personnel and management, construction, implementation, and support. [4]

Developers working in a fast-moving environment like software development favored the RAD model because of its advantage in fast project improvement. Allowing Modern software development demands the use of Rapid Application

Prototyping. Since it is known a cheaper, better, and faster Model.

It divides the process into four distinct phases. First is the Requirement Planning Phase, this includes processing requirements, scheduling, and control scope. Next is the User Design Phase, the developer and clients work hand in hand to ensure that all the requirements in every step of the design process are being met. Then, the Construction Phase, where the pre-release testing activity and prototypes from the design phase convert into a working model. Lastly, the Cutover Phase, involves testing, user training, installation of the new system, and keep the system running and improve.

3. RESULTS AND DISCUSSION

This states the functions and features of the developed system. These include the important operations that a system must be able to perform. GIS-based Profiling System graphically visualizes the location of students on specific municipalities and barangay. Also, the population and location of currently enrolled students on all programs offered can be viewed through GIS Mapping. Likewise, the integration of data charts in the system, the population of the students from public and private high school feeders can also be observed. As emphasized by Read et.al spatial approaches based around GIS offers various benefits in educational marketing concerns, like widening participation strategies, mapping, and analysis of participation rates, profiling of local areas to develop a range of courses designed to appeal to the customer segments therein and detecting changes in enrolment patterns. [5]

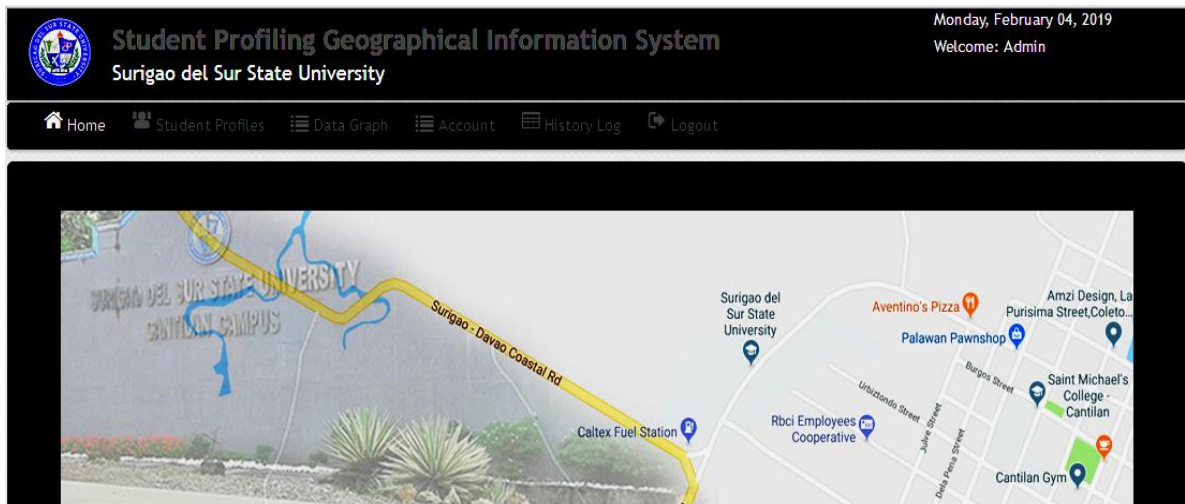


Figure 3. Home Page
Home Page shows the Menu tabs, the date and time, and the system user.

Monday, March 04, 2019
Welcome: Admin

Home Student Profiles Data Chart GIS Account History Log Logout

Add Student

Personal Info

Student IDNo:	ID No:	Blood Type:	
Surname:	surname	Age:	Age
FirstName:	firstname	Fathers Name:	father
MiddleName:	middlename	Mothers Name:	Mother
Residential Address:	Residential Address	Latitude Location:	Latitude
ZIP CODE:	ZIP CODE	Longitude Location:	Longitude
Telephone NO:	Telephone NO	School Graduated in High School:	School Graduated
Permanent Address:	Permanent Address		

Activate Windows
Go to PC settings to activate Windows.

Figure 4. Add Student

The admin can add new student information and fill up these fields.

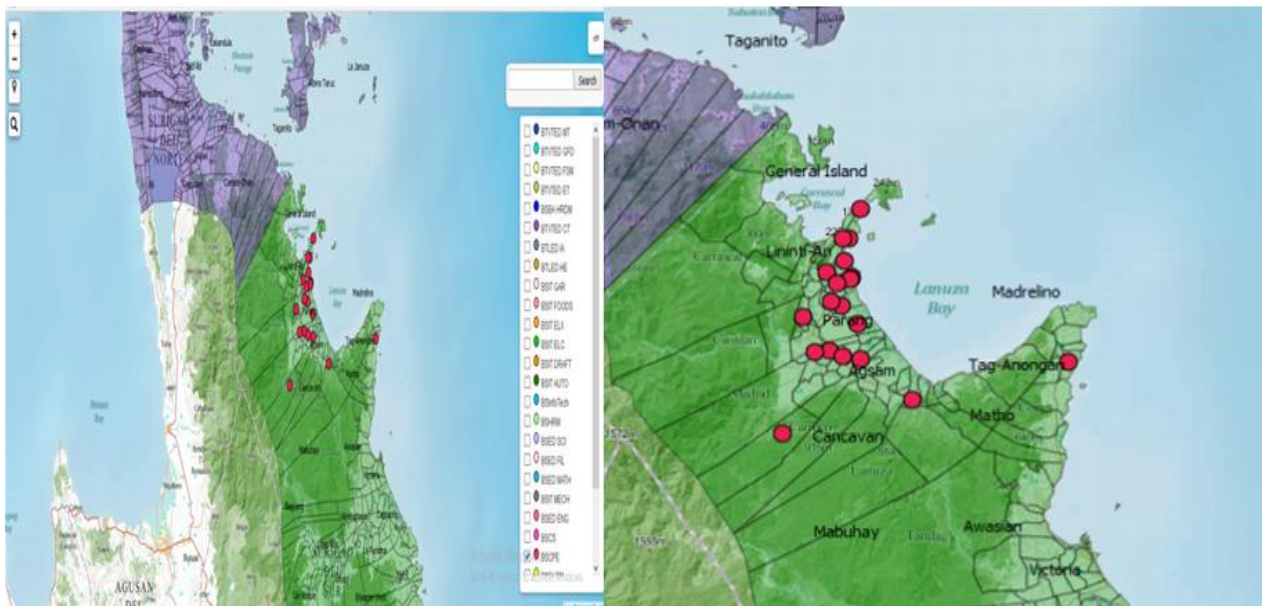


Figure 5. Mapping by Course

The system visualizes the exact location of the students by course by checking the assigned legend.

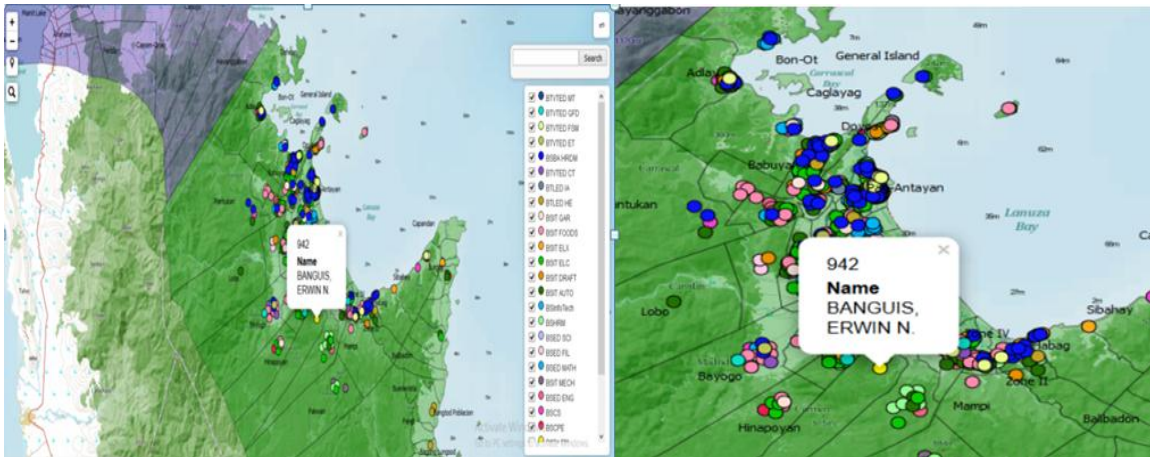


Figure 6. Graphical Visualization with GIS

The system visualizes the student's location (Barangay & Municipality) population (Program Enrolled).

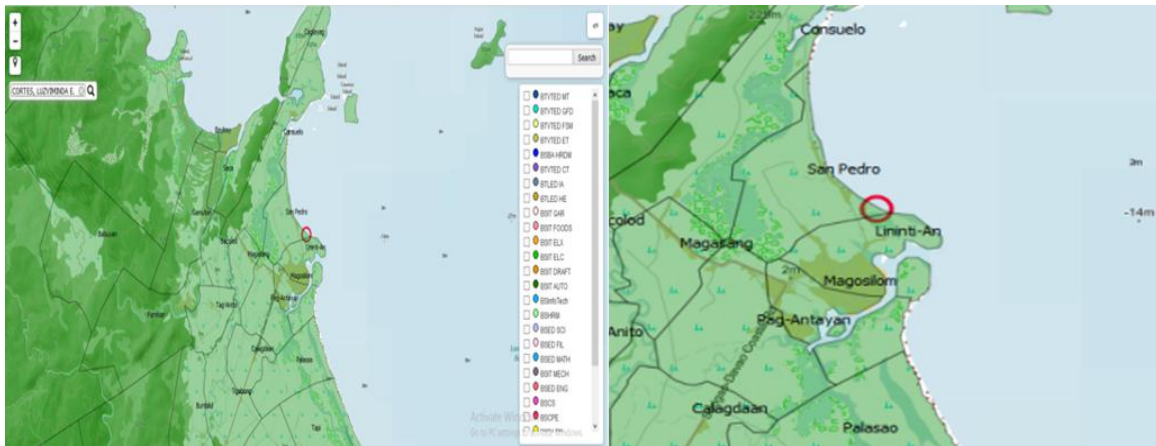


Figure 7. Search Location

The system has a SEARCH feature to individually view the student's address.

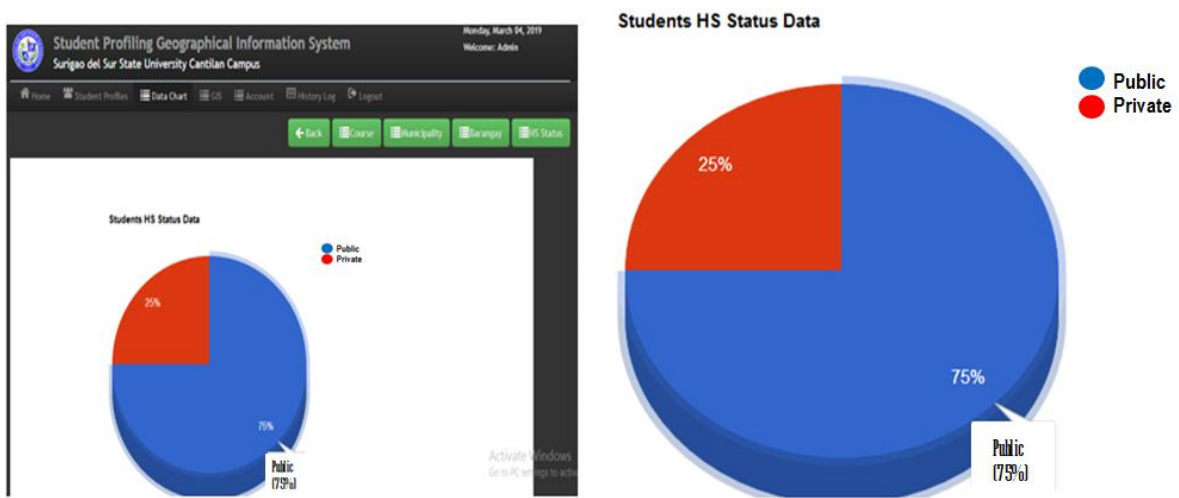


Figure 8. High School Feeders Chart

The chart shows the students population from public and private high school feeders

4. CONCLUSIONS

The researchers conclude that the developed system is a great help to the university, the implementation and utilization of the GIS-based Student Profiling system serve as a central data provider, and the basis for marketing predictive analytics. These data are used in the intelligent recruitment scheme, marketing strategies, planning, proposed development programs, and monitoring of the university.

5. REFERENCES

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