# iSercan: A Web - Based Student Information System

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**Abstract.** Due to the persistent increase in the number of students of STI College Laoag, the work of school management, specifically the registrar, became tedious in issuing grades and other student data, and a problem of discrepancy occurs between the report of the students and parents/guardians particularly on tuition fees and grades. The purpose of this study was to provide a tool to overcome the problems encountered by the school management and the students and their parents/guardians. This study aimed to develop iSercan, an online system that would serve as a portal for students and their parents/guardians where they can access student's data with ease and accuracy.

#### 1. Introduction

The ever-evolving technological paradigm is creating tremendous changes in all segments of the academic community including the stakeholders. Information Technology (IT) is creating modifications which allow the development of additional functionality or customized student services to achieve efficiency, effectiveness, flexibility, and agility.

The students are valued customers in a higher education institution. The realization that students are the true customer is a paradigm shift that is occurring in colleges and universities today [1]. This reason along with an increasing emphasis on the value of education coupled with competitiveness and survival is driving the application of IT. For student information system to support this, students, as well as their parents and guardians should be informed 24/7 of their achievements as well as responsibilities and requirements. Likewise, it can be used in updating, retrieving and generating student data.

Today, technological advancement has rendered a big fillip to day-to-day school activities. Advanced tools, such as Student Information System (SIS), can ease the daunting tasks of monitoring and updating students' data – comprising their grades, payments, etc. [2].

This study is designed to develop iSercan, an online system that would serve as a portal for students and their parents/guardians where they can access student's data with ease and accuracy.

### 2. Objectives of the Study

This study aims to achieve the following:

- a. To develop a module that will generate the latest grades of the students.
- b. To develop a module that will provide an updated student checklist, accounts, and other pertinent student records.
- c. To develop a module that will provide announcements and student-related updates.
- d. To develop a module that will provide tuition fee advising assistance.

#### 3. Literature Review

#### 3.1 Web-based application benefits

Web-based applications have four core benefits. These are the following: 1) Compatibility. Web-based applications are far more compatible across platforms than traditional installed software like web browsers. 2) Efficiency. Everyone hates to deal with piles of paper unless they do not have any other alternatives. The benefit of web-based solution makes services and information available from any web-facilitated Personal Computer (PC). 3) Security of live data. Normally in more complex systems data is moved about separate systems and data sources. In web-based systems, these systems and processes can often be merged by reducing the need to move the data around. Web-based applications also provide additional security by removing the need for the user to have access to the data and back end servers. 4) Cost Effective. Web-based applications can considerably lower the costs because of reduced support and maintenance, lower requirements on the end user system and simplified plans [3].

#### 3.2 Online Advising Assistance

Meeting the needs of students is important to the overall health of any university. The most important online student services sought by students are related to online, real-time academic advising. With many colleges facing budget constraints and other resource limitations, a quality online advising program can provide low-cost and user-friendly services for all constituents [4].

#### 3.3 Online - based Information System

Changes in Information Technology (IT) allow schools to utilize databases and applications such as Online Student Information System (OSIS) thus, making the accessing of records centralized. One of the changes that came about is online-based applications. These applications improved traditional-transaction processing systems. Thus, most universities switch to the online-based system because of its effectivity to acquire process, store and retrieve information from the Internet [3].

The creation and management of accurate, up-to-date information regarding a students' academic career are critically important in the university as well as colleges. Student information system deals with all kind of student details, academic-related reports, college details, course details, curriculum, batch details, placement details, and other resource-related details too. It tracks all the details of a student from day one to the end of the course which can be used for all reporting purpose [5].

#### 4. Methodology

Interviews, surveys, observations, and gathering of printed sample forms, documents, reports, and files were important sources of facts and were major instruments in gathering the needed data. The interviews were conducted to obtain information about the different processes involved in managing the records of students. Processes involved in pre-enrollment and admission of students were also captured during the interview. The questionnaire that was used in this study was designed to obtain information on the different perceptions of the academic and administrative personnel, parents, and students on the issues of the current system used and benefits that an online information system has to offer.

Data were gathered from the Administration office particularly in the offices of the registrar, accounting, and admission.

Rapid Application Development (RAD) methodology was used in developing the system. In RAD methodology, the emphasis is mostly on end-user involvement during the development process. This

is done by creating rapid prototypes to share with the end-user and getting approval to speed up the development process [6].

There are only three phases in Rapid Application Development: Planning of Requirements, Design Workshop, and Implementation.

1. Planning of Requirements - The developer conducted different data gathering procedures in order to identify the problems and create specific objectives in the development of iSercan. Interviews are conducted at the Administration office particularly in the offices of the registrar, accounting, and admission. Surveys were also conducted to students and parents to get their feedback.

2. RAD Design Workshop - In this phase, the developer created the system through the use of different development tools. On the front-end, HTML, CSS, Bootstrap, and JavaScript were used. MySQL and PHP were used on the back-end. A user acceptance test was also conducted to gather feedback as the development of the system progresses.

3. Implementation Phase - The intended users are the following: STI College Laoag's school management, students and their parents/guardians, alumni and non-STI students.

Tests and evaluations with the system will be conducted with a time interval to get further feedback from the end users.

### 5. Findings

A five-point Likert scale starting from excellent, very good, good, fair, and poor was used. This was used because previous research has found that a five-point scale is readily comprehensible to respondents and enables them to express their views and increase response rates and response quality in addition to being less confusing and reducing respondents' frustration level [8,9]. A Likert Scale is a type of rating scale used to measure attitudes or opinions. With this scale, respondents are asked to rate items on a level of agreement [7].

The iSercan includes eight (8) main modules: grades viewing, class schedule viewing, curriculum checklist, payment monitoring, student record requesting, announcement, pre-registration, and tuition fee advising. These modules were tested and evaluated by one hundred seventy-one (171) student respondents of STI College Laoag.

Evaluation Critoria	Evaluation Level						
Evaluation Criteria	5	4	3	2	1	Weighted Mean	Interpretation
Consistency of design, color scheme appropriateness and visual appeal	94	59	16	2	0	4.43	Excellent
Ease of use	108	48	14	1	0	4.54	Excellent
Font appropriateness and content readability	95	59	15	2	0	4.44	Excellent
Show the latest and previous grades of each term	117	34	18	2	0	4.56	Excellent
Average						4.50	Excellent

Table 1. Qualitative Result for Grades Viewing Module

Table 1 shows the results after testing grades viewing module. Design consistency, color scheme appropriateness, and visual appeal got 4.43 weighted mean, which is equivalent to Excellent Level, Ease of use got 4.54 weighted mean which is equivalent to Excellent Level, Font appropriateness and content readability got 4.44 weighted mean which is equivalent to Excellent Level, and show the

latest and previous grades of each term got 4.56 weighted mean which is equivalent to Excellent Level. The Average Level of this module is 4.50 weighted mean which is equivalent to Excellent Level. This result proves that the respondents are satisfied with the grades viewing module.

Evoluction Critoria	Evaluation Level									
Evaluation Criteria	5	4	3	2	1	Weighted Mean	Interpretation			
Consistency of design, color scheme appropriateness and visual appeal	112	46	13	0	0	4.58	Excellent			
Ease of use	114	47	9	1	0	4.60	Excellent			
Font appropriateness and content readability	114	43	14	0	0	4.58	Excellent			
Show complete class schedule	119	39	13	0	0	4.62	Excellent			
Average						4.60	Excellent			

Table 2. Qualitative Result for Class Schedule Viewing Module

Table 3. Qualitative Result for Curriculum Checklist Module

Evaluation Critoria	<b>Evaluation Level</b>						
Evaluation Criteria	5	4	3	2	1	Weighted Mean	Interpretation
Consistency of design, color scheme appropriateness and visual appeal	106	43	20	2	0	4.48	Excellent
Ease of use	108	47	14	2	0	4.53	Excellent
Font appropriateness and content readability	104	53	13	1	0	4.52	Excellent
Show the updated student curriculum checklist	116	39	14	2	0	4.57	Excellent
Average						4.52	Excellent

Table 4.	Qualitative	Result for	Payment	Monitorina	Module
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Evaluation Critoria	<b>Evaluation Level</b>						
	5	4	3	2	1	Weighted Mean	Interpretation
Consistency of design, color scheme appropriateness and visual appeal	117	40	11	3	0	4.58	Excellent
Ease of use	108	53	9	1	0	4.57	Excellent
Font appropriateness and content readability	95	57	18	1	0	4.44	Excellent
Show the updated statement of account including the dates of payment for the current term	108	52	9	2	0	4.56	Excellent
Average						4.54	Excellent

Evolution Critoria	Evaluation Level										
Evaluation Criteria	5	4	3	2	1	Weighted Mean	Interpretation				
Consistency of design, color scheme appropriateness and visual appeal	111	43	15	2	0	4.54	Excellent				
Ease of use	109	51	8	3	0	4.56	Excellent				
Font appropriateness and content readability	108	46	17	0	0	4.53	Excellent				
Send request for student records	114	47	9	1	0	4.60	Excellent				
Average						4.56	Excellent				

Table 5. Qualitative Result for Student Record Requesting Module

Tables 2, 3, 4 and 5 show the results after testing class schedule viewing, curriculum checklist, payment monitoring and student record requesting modules. Design consistency, color scheme appropriateness, and visual appeal got 4.58 weighted mean which is Excellent, 4.48 weighted mean which is Excellent, 4.58 and 4.54 weighted mean, which is equivalent to Excellent Level for schedule viewing, curriculum checklist, payment monitoring and student record requesting modules respectively. Ease of use got 4.60, 4.53, 4.57 and 4.56 weighted mean which is equivalent to Excellent Level, Font appropriateness and content readability got 4.58, 4.52 weighted mean which is Excellent, 4.44 weighted mean which is Excellent and 4.53 weighted mean, which is equivalent to Excellent Level for schedule viewing, curriculum checklist, payment monitoring and student record requesting module respectively. And Show complete class schedule got 4.62 weighted mean, show updated curriculum checklist got 4.68 weighted mean, show the updated statement of account got 4.56 weighted mean and send student record request got 4.60 weighted mean. These weighted means are all equivalent to Excellent Level. The Average Level of these modules are 4.60, 4.52, 4.54 and 4.56 weighted mean that are equivalent to Excellent Level. These results prove that the respondents are satisfied about the class schedule viewing, curriculum checklist, payment monitoring and student record requesting module.

Evaluation Critoria		Evaluation Level										
Evaluation Criteria	5	4	3	2	1	Weighted Mean	Interpretation					
Consistency of design, color scheme appropriateness and visual appeal	101	52	17	1	0	4.48	Excellent					
Ease of use	120	40	9	2	0	4.63	Excellent					
Font appropriateness and content readability	104	44	21	2	0	4.46	Excellent					
Show the latest announcements and student updates	126	37	7	1	0	4.68	Excellent					
Average						4.56	Excellent					

Table 6. Qualitative Result for Announcement Module

After testing the announcement module, the results as shown in Table 6 are: Design consistency, color scheme appropriateness, and visual appeal got 4.48 weighted mean, which is equivalent to Excellent Level, Ease of use got 4.63 weighted mean which is equivalent to Excellent Level, Font appropriateness and content readability got 4.46 weighted mean which is equivalent to Excellent Level, and show announcements and updates got 4.68 weighted mean which is equivalent to Excellent to Excellent Level. The Average Level of this module is 4.56 weighted mean which is equivalent to Excellent to Excellent Level. This result proves that the respondents are satisfied with the announcement module.

Evaluation Critoria	<b>Evaluation Level</b>									
Evaluation Criteria	5	4	3	2	1	Weighted Mean	Interpretation			
Consistency of design, color scheme appropriateness and visual appeal	111	45	12	3	0	4.54	Excellent			
Ease of use	114	44	13	0	0	4.58	Excellent			
Font appropriateness and content readability	106	49	15	1	0	4.52	Excellent			
Allow pre-enrollment assessment	111	46	13	1	0	4.56	Excellent			
Average						4.55	Excellent			

Table 7.	Qualitative	Result for	Pre-rea	istration	Module
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Table 8. Qualitative Result for Tuition Fee Advising Module
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Evaluation Critoria	<b>Evaluation Level</b>						
Evaluation Criteria	5	4	3	2	1	Weighted Mean	Interpretation
Consistency of design, color scheme appropriateness and visual appeal	110	49	10	2	0	4.56	Excellent
Ease of use	111	44	16	0	0	4.56	Excellent
Font appropriateness and content readability	106	48	16	1	0	4.51	Excellent
Provide the breakdown of fees (tuition fees, miscellaneous, computer laboratory fee) given the selected courses and type of student (new student, old student, transferee)	126	36	9	0	0	4.68	Excellent
Average						4.58	Excellent

After testing the pre-registration and tuition fee advising module, the results as shown in Table 7 and 8 are: Design consistency, color scheme appropriateness, and visual appeal got 4.54 and 4.56 weighted mean, which is equivalent to Excellent Level for pre-registration and tuition fee advising respectively, Ease of use got 4.58 and 4.56 weighted mean which is equivalent to Excellent Level, Font appropriateness and content readability got 4.52 and 4.51 weighted mean which is equivalent to Excellent to Excellent Level, and show latest and previous grades of each term got 4.56 and provide tuition fee advising assistance got 4.68 weighted mean which is equivalent to Excellent Level. The Average Level of these modules are 4.55 and 4.58 weighted mean that are equivalent to Excellent Level.

These results prove that the respondents are satisfied with the pre-registration and tuition fee advising module.

### 6. Conclusions

Based on the evaluation results from the STI College students the system was able to:

- 1. Provide students their latest grades;
- 2. Provide students an updated student checklist, accounts, and other pertinent records;
- 3. Provide announcements and student-related updates; and
- 4. Provide tuition fee advising.

### 7. Recommendations

Based on the foregoing findings of the study, the following are recommended for further study, and recommendations for change:

1. The system should include weekly or monthly attendance of students to easily track/ monitor the student's number of absences.

2. Develop a mobile application for iSercan to improve accessibility for the users.

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