



SCHOOL INTERACTION SYSTEM (SIS)

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## ABSTRACT

The operation of school system nowadays poses difficulty to users which include teachers, parents and students. For example, the used of paper to keep student attendance can pose a difficulty to the teacher to record and retrieve student's attendance. Not only that, student may easier to forget their homework when they have tones of homeworks given by different teacher from different subjects which cause the student being record in the discipline for not doing homework. Besides that, parents are unavailable during new student registration date which poses difficulty to them too. From the problems mentioned above, I have do survey to get all this information from the parents, student and school staff. In order to solve these problems, I have proposed a new paradigm of web site leveraging on web services named School Interaction System (SIS), which overcomes all these problems. In addition, it also provides both the teacher and parents with up-to-date information about their student/children in term of attendance and homework in the school. With SIS, parents able to check their student/children daily homework and attendance in school. In relation with that, student performance is increased. SIS was implemented within a centralized server whereby schools can just subscribe to the services they want. By doing this, I am also using different testing approach to test SIS in order to achieve the goals and meet the requirements. This may reduce the high maintenance cost and development cost.

## ABSTRAK

Sistem operasi persekolahan kini menimbulkan kesukaran kepada pengguna termasuk guru, ibu bapa dan pelajar. Sebagai contoh, dengan penggunaan kertas untuk menyimpan record kehadiran pelajar boleh menimbulkan kesukaran kepada guru untuk mencatat dan mendapatkan record kehadiran pelajar. Bukan itu sahaja, pelajar kini mudah melupakan kerja rumah mereka apabila mereka mempunyai banyak kerja rumah yang diberikan oleh guru yang berlainan daripada mata subjek yang berbeza dan menyebabkan keburukan rekod pelajar direkod dalam disiplin sekolah kerana tidak melakukan kerja rumah. Selain itu, ibu bapa yang tidak mempunyai masa lapang semasa tarikh pendaftaran pelajar baru telah menimbulkan kesukaran kepada mereka untuk mendaftar anak mereka di sekolah. Dari masalah yang dinyatakan di atas, saya telah melakukan kajian untuk mendapatkan semua maklumat daripada ibu bapa, pelajar dan sekolah. Dalam usaha untuk menyelesaikan masalah-masalah ini, saya telah mencadangkan satu paradigma baru memanfaatkan laman web pada perkhidmatan web yang dinamakan Sistem Interaksi Sekolah (SIS), yang mengatasi semua masalah ini. Di samping itu, SIS juga menyediakan maklumat terkini mengenai pelajar/anak-anak mereka dari segi kehadiran dan kerja rumah di sekolah. Dengan menggunakan SIS, ibu bapa dapat menyemak kerja rumah dan kehadiran pelajar/anak-anak mereka di sekolah setiap hari. Berhubung dengan itu, prestasi pelajar juga ditingkatkan. SIS telah dilaksanakan dalam pelayan berpusat di mana sekolah-sekolah boleh melanggan kepada perkhidmatan yang mereka mahu. Dengan ini, saya juga menggunakan kaedah ujian yang berbeza untuk menguji SIS bagi mencapai matlamat dan memenuhi keperluan. SIS dapat mengurangkan kos penyelenggaraan yang tinggi dan kos pembangunan.

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 INTRODUCTION**

Nowadays, the majority of the school system is still using the manual system. The main problem with manual system is that it is difficult for parents to keep track of their children's attendance in school. With the manual system, parents are only able to know their children's overall performance during the school open day or parent-teacher day, which is rather impractical.

Apart from that, the use of papers during admission which causes problem occurs when handling and keeping the files. The cost to handle these papers and records not only involved storage, but also the risk of missing files.

As such, in this final year project, the School Interaction System (SIS) based on a web service approach, has been proposed to overcome the problem mentioned above.

## **1.2 PROBLEM STATEMENT**

### **1.2.1 Difficulty in Retrieving Student's Attendance**

The use of paper form of recording attendance in file may not be safe as the records can be destroyed by natural or unnatural reason such as missing files. For the existing system, parents need to call the school or teacher or need to attend school open day only can get to know their children's attendance record in school.

### **1.2.2 Student Always Forget to Do Their Homework**

Student nowadays is full scheduled with the extra class in school, tuition, and other extra hobbies learning such as piano class, badminton lesson and so on which makes their day so full until sometimes may forget about their school homework. For the parents, most of them are busy with their career and more focus to earn more money to get a better life for their children but omit with their children's homework. It is also timed consuming and tiring for parents to check their children's homework. Therefore, a homework checklist can ease parents from wasting time on checking their children's homework and also can prevent the forgetfulness.

### **1.2.3 Manual Registration**

Manual registration always takes a long time as parents are queuing at the counter to submit the registration form. Apart from that, some parents have no time to attend on the registration day as they have some important business of meeting have to attend for. With this, the problem arises. Therefore, the priority is to shorten the time for registration. Parents can fill the registration form via online and submit through the online system.

### 1.3 OBJECTIVE

- I. To create a system for interaction between teacher, parent, and student.
- II. To create a sub-system for parents to register for their children for new entry.
- III. To create a sub-system for teacher to record student attendance and assign homework to student.
- IV. To create a sub-system for parent to check children school homework.
- V. To create a more systematic approach in keeping track of student's attendance, daily homework and student's performance.

### 1.4 SCOPE

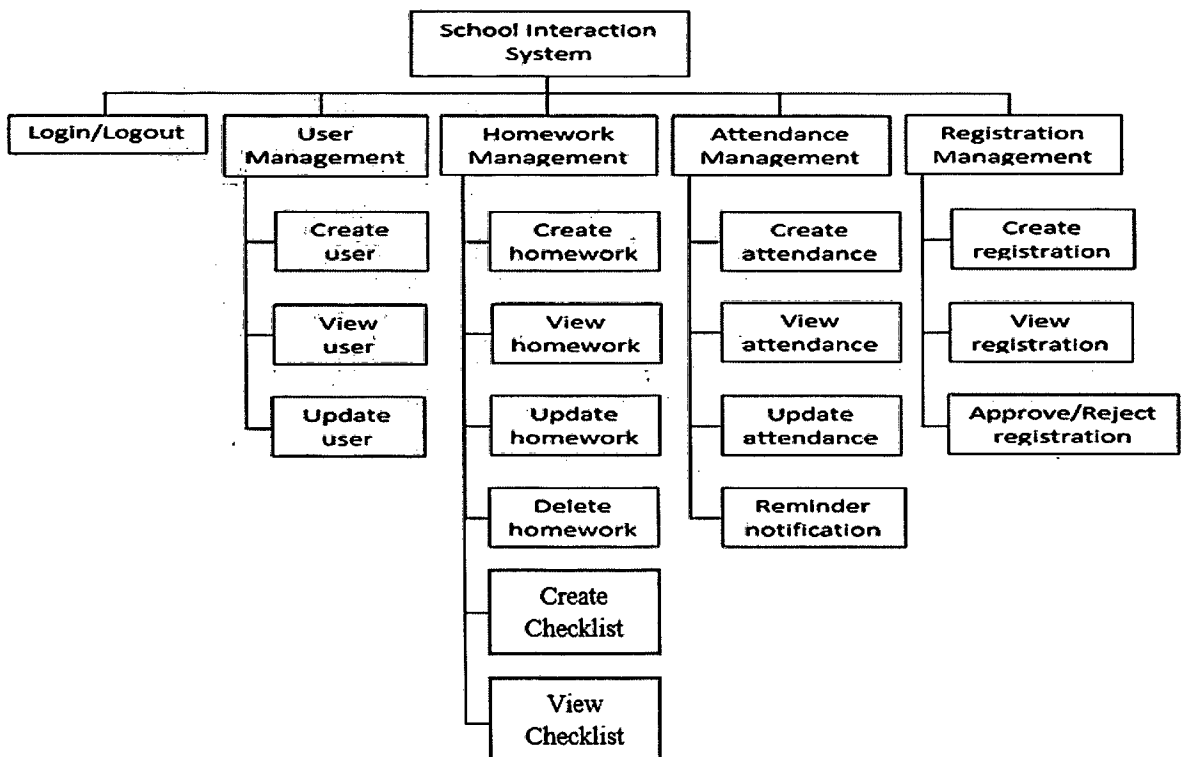


Figure 1.1 : Scope

The scopes of SIS are teacher, parents and student. Every users require to have a username and password to log into their profile. Every user can only view and edit own details.

### **I. Teacher**

SIS is to ease teacher to take student's daily attendance and update the daily homework to the system. Teacher can do both create, view update and delete functions for the homework function.

### **II. Parents**

Also, SIS scope is to allow parents to keep track of their children's attendance, homework and also able to register their child for new student registration school via online. Parent can view their own children's profile under user management.

### **III. Student**

Student can view their own attendance record and check their daily homework and able to add the homework to the check list after his/her homework is done. Student can only view and update their own profile.

## CHAPTER 2

### EXISTING SYSTEM

#### 2.1 EXISTING SYSTEM COMPARISON

	<b>SJK(C) Pei Chai Muar</b>	<b>SJK(C) Chung Hwa Presbytertan</b>	<b>SMK St. Andrew Muar</b>	<b>SIS</b>
<b>Attendance Management System</b>	✓	✓	✓	✓
<b>Homework Management System</b>				✓
<b>Backup files and data</b>		✓	✓	✓
<b>Prevent from being harmed by natural or unnatural disaster</b>		✓		✓
<b>User Authentication</b>		✓		✓
<b>Easiness in finding data</b>				✓

**Table 2.1 : Comparison with Existing System**



## **2.2 EXISTING SYSTEM ANALYSIS**

**SJK(C) Pei Chai, Muar**

### **Manual method**

#### **About**

Manual way is a very common method which most of the schools or even university are using nowadays. All the data, records, information of the schools are stored in a file and on a paper form. For example, teacher takes student's attendance by using a piece of paper every day and keeps it in a file for further review.

Apart from that, school will need to arrange a space and maintain the space to keep for new data. With this, some of the old data will be dumped due to the limitation of the space to keep those files and also in order to prevent overflow of the store.

#### **Problems**

Since the files are all stored in a store room or cabinet, school will face the problems as below:

1. The loss of files.
2. Overflow of the space of the store or cabinet.
3. Difficult in finding the record if the files are not arrange properly.
4. Difficult in finding the record due to too many files.
5. Takes time to find a record from the store.
6. Natural and unnatural disaster. (e.g. flood and fire)
7. There is no backup or second copy of the files.

**SJK(C) Chung Hwa Presbyterian, Muar**

## **Both computerised and manual method**

### **About**

SJK(C) Chung Hwa Presbyterian uses computerised method to record students' and staff's daily attendance. Every student having their own matric card and their personal details storing inside the card, meanwhile student is asked to swipe their card to a hardware which connecting to a computer when they reach school in order to take their attendance. The system will then show the student name on the monitor and the record is saved in the database. The administrator will then backup the attendance file to a specific used of purpose school computer. For this system, only system administrator can check the database and configure the system.

This school is also applied manual method. Every form teacher is given a record book to record student's daily attendance and student's examination mark. Students that teach by the particular teacher will be recorded in the same record book according to the class.

### **Problems**

Since the records are all stored in both computer and record book, school will face the problems as below:

1. Student may forget to bring their matric card to school causes no attendance will be recorded by the system.
2. Student may lose their matric card causes no attendance will be recorded by the system.
3. Hardware not function causes no attendance is not recorded especially staff.
4. Attendance is not match between system and the record book.
5. Teacher has to ask the administrator for help only can check for the student's attendance.
6. Difficult in finding the record if the manual records are not arrange properly.

7. Difficult in finding the record due to so many classes and students' records is record in a same record book.
8. Takes time to find a student's record.
9. Natural and unnatural disaster. (e.g. flood and fire)

### **SMK St. Andrew, Muar**

#### **Computerised method**

##### **About**

Computerised method that the school used is to store all the data in the Excel file, and save it in a computer hard disk as a storage in the school for review. Each teacher is given a laptop to record student's daily attendance and then will pass the Excel file to the school staff to gather the attendance files and save it in a school computer.

##### **Problems**

Since the files are all stored in a disk or computer, school will face problems as below:

1. Failure or malfunction of the computer.
2. No user authentication.
3. Natural and unnatural disaster (e.g. flood and fire).
4. The disk lost easily.
5. Difficulty to interpret data to statistical information.

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 USER REQUIREMENT**

School Interaction System is a system that developed to have a closer interaction between teacher and parent, parent and student, and also teacher and student. In order to achieve the interaction and the main goal which is to keep track of student's daily attendance in school, there are few requirement functions that are scope to develop in this system.

The first requirement function that must be had in the system is security which allow user to login to the system before start using the system. User is requires to key in the username and their own create password to get into the system main page. Every user is given an specific identification (ID) number including parent while the staff and student in the school will using their own matric ID as a username. All the ID and password will be saved in the database of the system.

The next requirement function is to allow the Staff which includes teacher and system administrative to record and manipulate student's daily attendance and store in the database. This function is only can be done by staff ID account while student and parent do not have the authorize access to manipulate the attendance management function. Parents can only view the attendance of their own children's daily attendance. Not only that, another requirement function is to notify parent via email if the student is absence more

than three days.

Besides that, there is also a require function which is to allow teacher to record down the daily homework given to the student for each class into the homework management function. Teacher requires to choose the class name, homework, and due date of the particular homework into dis function in order to allow parent and student to check their daily homework. By using this function, only teacher and the system administrator can manipulate the function such as creating the homework details, delete homework and editing the homework details while parent and student only can view for the homework details in this function.

In addition, the next requirement function is to allow the parent to register their child using the registration function. The new create registration record will then save in the database and wait for the approval by the system administrative. System administrative has the right to manipulate this function by approving or rejecting the new creates registration by changing the status of the particular registration.

Apart from that, one of the requirement functions is to allow every user such as student, parent, teacher and system administrative to manipulate their own profile details in the SIS. In this function, every user is requires to insert the basic personal information such as full name, phone number, email address and address. Every user record will store in the database.

### **3.1.1 Software Requirement**

School Interaction System (SIS) is a system that requires a personal computer or laptop with internet access to use with. With this, there are involves of some software tools and also hardware to develop SIS. Software requirement that will be used to develop SIS are :

1. Window 7.
2. Google Chrome, Mozilla Firefox, Internet Explorer, Safari and etc.
3. PHPMyAdmin(MySQL).
4. Web application.
5. Java Script.
6. PHP.
7. HTML5.

### **3.1.2 Hardware Requirement**

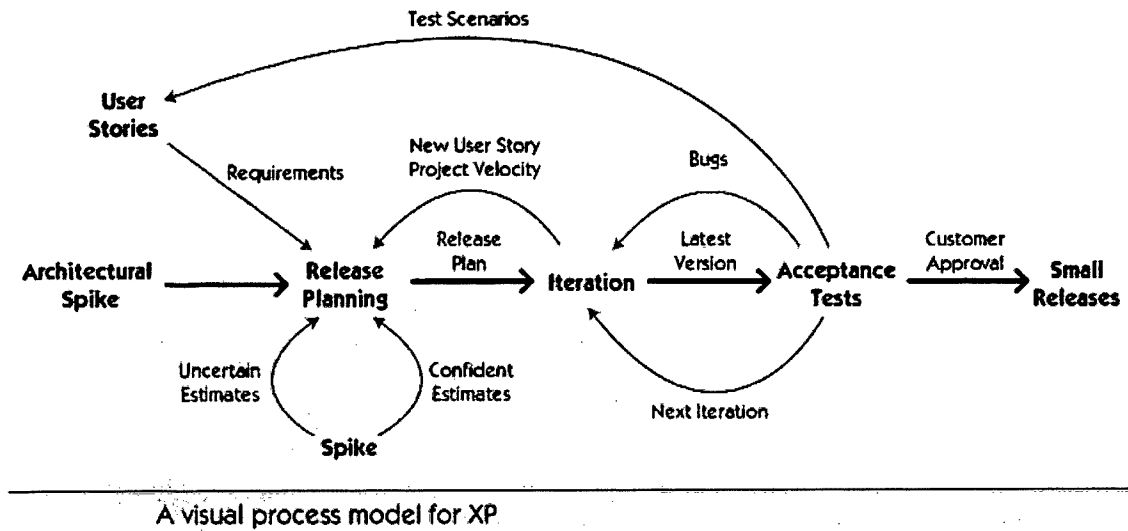
These software tools are the basic requirement that should be used to develop SIS. Besides that, hardware is also requires to work together with the software tools to produce a better performance during the development stage of SIS. Hardware requirement will be used in doing this such as :

1. Pentium III processor 600 MHz or above.
2. 512 hard disk capacity or above.
3. Minimum 2GB of RAM or above.

### 3.2 METHODOLOGY

System development methodology is a framework process flow followed in an organization or project to conduct all the stages such as planning, analysis, implementation, and maintenance during software development process. Software development process is a structure imposed on the development of a software product. Basically there are many types of methodologies to be chosen by an organization for the software development process. Software methodology such as Agile, Rational Unified Process (RUP), Rapid Application Development (RAD), Spiral, Waterfall and so on are being used very common nowadays.

For the School Interaction System (SIS), I am using the Agile methodology which is Extreme Programming (XP) model. XP is more concentrate on the development unlike Waterfall methodology is more concentrate at the front phase such as planning, analysis and design. The main reason that I choose this methodology to develop SIS is because this methodology has an iteration phase that allow user to change requirement even in the late phase but there is only cannot change in certain domain. XP consist of few values such as simplicity, communication, feedback, respect and coverage to apply during development process in order to perform better by corporate to these values. One of the values of XP is communication, which apply during the development process. Communication between user and developer is always take place in all phases in order to ensure the expected software is correctly built. Figure 3.1 show the phases of XP methodology during the software development process.



**Figure 3.1 : Extreme Programming Process Model**

Based on the figure 3.1, theoretically, the user stories are written by the user that the requirement of the system shall have such as functionality and the period of time to implement. User will also decide the priority and important story to be completed.

Release planning is to plan every single iteration plan in iteration phase that drives the development for the iteration. When there are an uncertain estimates or confident estimates, the phase that will do this is spike phase. Spike phase is use to find out the solution for a technical problem or design problem which aim is to reducing these risk at the same time increase reliability. In order to create release plan, development task is combine in iteration phase. The development phase will then being done in iteration phase. The development phase in iteration phase is as Figure 3.2.