

PERPUSTAKAAN UMP



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ATTEND

RESEARCH SUMMARY REPORT

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ABSTRACT

An Attendance Monitoring Summary Report (AMSR) is proposed. The risk of losing the attendance data is very high and top management difficult to know staff attendance performance. An unethical problem also may be occurring such as cheating in signature. For the stated reason, an efficient and flexible system using fingerprint device and developed by Microsoft Visual Studio 2010 is designed. AMSR will upgrade a manual attendance system from manual to computerized system and generate report that summarizes staff attendance. The system will takes attendance electronically with the help of a fingerprint device and the records of the attendance are stored in a database. Attendance is marked after staff identification. Top management get to know staff attendance performance based on summary report. AMSR is designed for staff at SAM Bandar BaruSalakTinggi for the staff attendance that will be used every day.

ABSTRAK

Satu Ringkasan Laporan Pemantauan Kehadiran (AMSR) telah dicadangkan. Risiko untuk kehilangan data kehadiran adalah sangat tinggi dan menyukarkan pihak atasan untuk mengetahui prestasi kehadiran pekerja. Satu masalah yang tidak beretika juga mungkin akan berlaku seperti menipu dalam tandatangan. Untuk sebab-sebab yang dinyatakan, satu system yang cekap dan fleksibel yang menggunakan peranti cap jari dan dibangunkan menggunakan Microsoft Visual Studio 2010 adalah direka. Sistem AMSR akan menaiktaraf sistem manual untuk kehadiran daripada manual kepada system berkomputer dan akan menjana laporan yang meringkaskan kehadiran pekerja. Sistem ini akan mengambil kehadiran secara elektronik dengan bantuan peranti cap jari dan rekod kehadiran akan disimpan di dalam pangakalan data. Kehadiran akan ditandakan selepas mendapat pengenalan pekerja. Pihak atasan boleh mengetahui prestasi kehadiran pekerja berdasarkan laporan ringkasan. Sistem AMSR direka untuk pekerja di SAM Bandar Baru Salak Tinggi untuk mengambil kehadiran pekerja yang akan digunakan setiap hari.

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LIST OF ABBREVIATIONS

ABBREVIATION	TITLE
AMSR	Attendance Monitoring Summary Report
SAMBBST	Sekolah Agama Menengah Bandar BaruSalakTinggi
KPM	KementerianPelajaran Malaysia
SRS	Software Requirements Specifications
SDD	Software Design Description
URD	User Requirement Document

PART I

INTRODUCTION

1.0 Research Background

Sekolah Agama Bandar Baru Salak Tinggi (SAMBBST) is a secondary school based on the integration of the mainstream curriculum (MOE) and Al-Azhari (JAIS). The school was initiated by the Selangor Islamic Religious Department (JAIS) under the auspices of the SUK.

In employee organizations such as SAMBBST, attendance is a very important criterion which is used for various purposes. These purposes include record keeping, assessment of staff, and promotion of optimal and consistent attendance at work. Method for the current attendance system involves the use books in taking staff attendance. By using the current attendance system could easily allow for impersonation and the attendance sheet could be stolen or lost. Thus, there is a need for a system that would eliminate all of these trouble spots.

An attendance monitoring summary report (AMSR) is about to develop an attendance monitoring summary system based on fingerprint identification that can used to monitor attendance of staffs. AMSR will utilize a fingerprint scanner as the input to acquire fingerprint images and a personal computer to process the images and record the attendance.

AMSR will also help in generating reports and evaluating the attendance eligibility of a staff and will provides a summary of each scheduled staff's attendance performance that showing the number of times each staff was late, early, absent or working when not

scheduled. AMSR is also need develop a program that has fingerprint recognition and identification function as well as database to store staff's information and attendance records.

The advantage of fingerprint identification is that it is very well accepted in the legal community, among law enforcement, and the general public. Other than that, fingerprint identification is widely perceived as highly accurate and very reliable, since the statistical chance of two people on earth having identical fingerprints is very low. AMSR will use Visual Studio to develop software.

1.1 Statement of the problem(s) and objective(s)

1.1.1 Problem statement

At the moment, most of the attendance systems that are being used for staff in school still are written in a book. Since SAMBBST does not have any computerize system to manage the attendance for staff, thus staffs have to sign the signature on the attendance book. The current attendance system is not flexible because the risk of losing the attendance data is very high. If the attendance book is missing, the attendance data will be lost.

Besides that, by using the current attendance system will make top management in SAMBBST difficult to know staff attendance performance because the current system only record in book that cannot be process to produce the summary of staff attendance.

Other than that, unethical problem may be occurring such as cheating in signature. For example, a staff does not attend work, but their attendance form has been signed by other staff. By using AMSR will avoid staff from cheat on their attendance because everyone has their own unique fingerprint that will not same with others. AMSR is proposed to overcome these problems.

1.1.2 Objectives

In order to develop an AMSR System, the overall objectives of this system are:

- i. To upgrade a manual attendance system that used in SAMBBST from manual to computerized system.
- ii. To develop an attendance monitoring system based on fingerprint identification.
- iii. To generate report that summarizes teacher attendance in SAMBBST.

1.2 Review of previous work/research and relationship to current project

There are some existing systems of attendance system that develop using different technique:

1. Fingerprint for Attendance Systems at Kementerian Pelajaran Malaysia
2. Punch Card Systems at Kementerian Pelajaran Malaysia
3. Staff Attendance System at Universiti Malaysia Pahang

1.2.1 Comment on existing system

All of the attendance systems develop using different technique in order to be used by everyone on different places and all techniques give many advantages to all users. These four systems use different techniques which are based on fingerprint, iris recognition, punch card and web based. By using fingerprints is the better technique because fingerprint is the fast time attendance speed. Furthermore, by using fingerprint technique will saving employee's time because employees just need to press the finger on the device and everything will sort. Other than that, the attendance system will become more secure and also have a greater storage facility because by using fingerprint technique can store a large number of data.

1. Fingerprint

At Kementerian Pelajaran Malaysia (KPM), they use fingerprint technique for staff attendance [12]. Fingerprint as shown in Figure 1.2-1 have been use for staff for their attendance. Every staffs that come to office will put their finger on the fingerprint device to take the attendance. After that, when the information of the staff is recognize, the screen at computer will display the staff detail as shown in Figure 1.2-2. The screen will show what time that staff sign in and if the staff come late, the screen will require the staff to the form which the staff need to fill to give reason for being late.

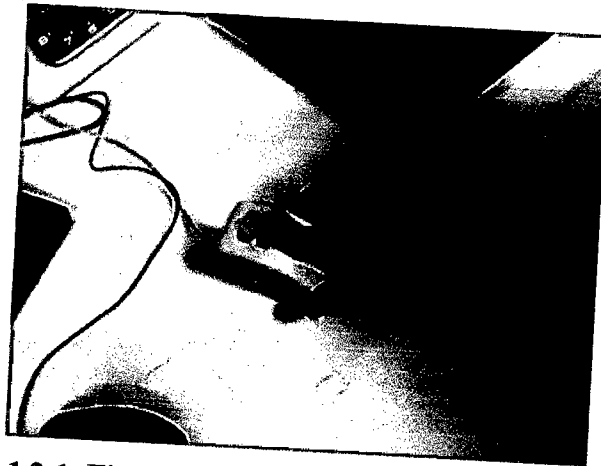


Figure 1.2-1: Fingerprint for Attendance systems at KPM



Figure 1.2-2: Web based for Attendance systems at KPM

2. Punch Card System

Punch Card for attendance system as shown in Figure 1.2-3 is been use by staff at KPM. A part of staff at KPM will use punch card system for staff attendance [13]. Figure 1.2-4 shows the card that every staff has for staff attendance. Every staff that comes to office will take their own card and will clock in and clock out for staff check in and check out. On the card will appear the time that staff clock in and the time that staff has clock out. When the staff comes late to the office, time on the card will be marked red on that day.

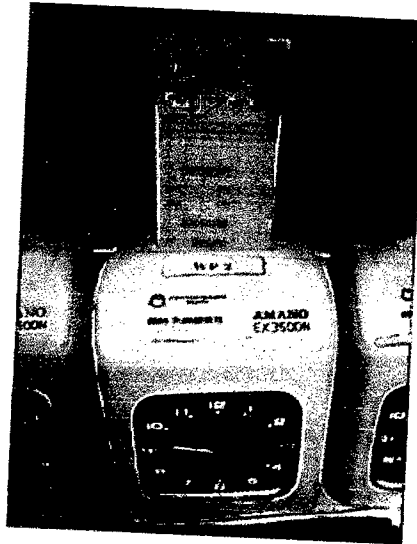


Figure 1.2-3: Punch Card for Attendance systems at KPM

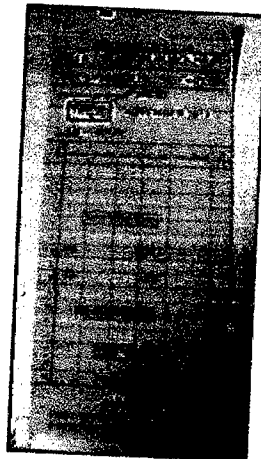


Figure 1.2-4: Employee Card for Attendance systems at KPM

3. UMP Staff Attendance

UMP Staff Attendance is based on web based system [14]. Figure 1.2-5 shows the screen for staff attendance at UMP. The staff required to fill in username and password for check-in and check-out for staff attendance. In staff attendance management, staff can view the staffs that attend on that day as shown in Figure 1.2-6.

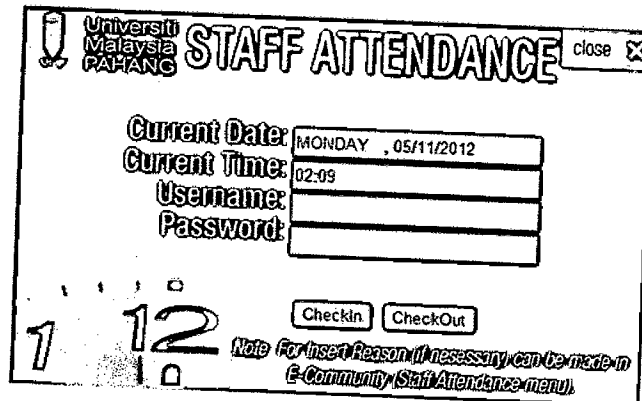


Figure 1.2-5: UMP Staff Attendance

Staff Attended For 05/11/2012 (F SK1000)

Staff ID	Name	Type	Time	Check In	Location	Time	Check Out	Location
01444	ANAS SALWAN BIN LOPMAN	ATTENDANCE	05:07					
1577	ABDUL TAHUAN BIN ABDULLAHAR	ATTENDANCE	07:04					
1872	ABDULLAH BIN ENBING	ATTENDANCE	08:00					
0781	ABDULLA FORUAT SAFRI	ATTENDANCE	08:04					
0016	ADZHA BIN MAMALLOH	ATTENDANCE	07:22					
1616	AMAD DAJIB BIN SHARIF USRI	ATTENDANCE	07:48					
0202	AMRUL HUSN BIN ABU SHARAF	ATTENDANCE	08:43					
0742	ASFINA BIN SALLEH	ATTENDANCE	08:41					
01455	AZLIHA BINTI ZAFUDIN	ATTENDANCE	08:03					
1103	BALAZI BIN LUBAS MUSTAPA	ATTENDANCE	08:23					
0018	CHE MADAYA BIN YAPAR	ATTENDANCE	08:02					
8807	DURWAN BINTI FAETAN TAN	ATTENDANCE	07:53					
0405	RALIZAH BINTI SALLEH	ATTENDANCE	07:42					
0958	HANIKHA BINTI HADICHAH	ATTENDANCE	08:09					
01067	FAHRIEN ENAB BAZAR	ATTENDANCE	07:46					
0087	F. SARAF BINTI HEPARMI	ATTENDANCE	08:38					
1004	LEE HO CHEONG	ATTENDANCE	07:04					

Figure 1.2-6 Staff Attended in UMP Staff Attendance

Other than that, staff also can view staff that on leave and absent as shown in Figure 1.2-7. Figure 1.2-7 shows list of staff that on leave and absent. In the interface of staff on leave, will display list of staff who on leave and will show date of staff leave from start until finish the leave. Other than that, will show the status of staff applied the leave, either approve or not. In the interface of staff absent, will display the list of staff that absent on that day.

Staff On Leave (for 01/10/2012 to 31/10/2012)			
Staff ID	Name	From	To
0195	MOHD HAFIZ BERNAMA	10/10/2012	16/10/2012
0196	RAMAN BINTI ROSLI	14/09/2011	20/10/2012
0201	BAHARU BINTI MOHAMMAD	17/10/2011	27/10/2012
0202	CHAI YAN LING	17/09/2011	01/09/2012
0203	MOHAMMAD BINTI MOHAMMAD	08/09/2011	18/09/2012
0204	MOHAMMAD BINTI MOHAMMAD	12/09/2011	22/09/2012
0205	MOHAMMAD BINTI MOHAMMAD	03/11/2011	13/11/2012
0206	MOHAMMAD BINTI MOHAMMAD	18/09/2011	28/09/2012
0207	MOHAMMAD BINTI MOHAMMAD	14/10/2011	24/10/2012
0208	MOHAMMAD BINTI MOHAMMAD	09/10/2011	19/10/2012
0209	MOHAMMAD BINTI MOHAMMAD	04/10/2011	14/10/2012
0210	MOHAMMAD BINTI MOHAMMAD	01/10/2011	11/10/2012
0211	MOHAMMAD BINTI MOHAMMAD	27/09/2011	07/10/2012
0212	MOHAMMAD BINTI MOHAMMAD	22/09/2011	02/10/2012
0213	MOHAMMAD BINTI MOHAMMAD	17/09/2011	27/09/2012
0214	MOHAMMAD BINTI MOHAMMAD	12/09/2011	22/09/2012
0215	MOHAMMAD BINTI MOHAMMAD	07/09/2011	17/09/2012
0216	MOHAMMAD BINTI MOHAMMAD	02/09/2011	12/09/2012
0217	MOHAMMAD BINTI MOHAMMAD	28/08/2011	08/09/2012
0218	MOHAMMAD BINTI MOHAMMAD	23/08/2011	03/09/2012
0219	MOHAMMAD BINTI MOHAMMAD	18/08/2011	28/08/2012
0220	MOHAMMAD BINTI MOHAMMAD	13/08/2011	23/08/2012
0221	MOHAMMAD BINTI MOHAMMAD	08/08/2011	18/08/2012
0222	MOHAMMAD BINTI MOHAMMAD	03/08/2011	13/08/2012
0223	MOHAMMAD BINTI MOHAMMAD	29/07/2011	09/08/2012
0224	MOHAMMAD BINTI MOHAMMAD	24/07/2011	04/08/2012
0225	MOHAMMAD BINTI MOHAMMAD	19/07/2011	29/07/2012
0226	MOHAMMAD BINTI MOHAMMAD	14/07/2011	24/07/2012
0227	MOHAMMAD BINTI MOHAMMAD	09/07/2011	19/07/2012
0228	MOHAMMAD BINTI MOHAMMAD	04/07/2011	14/07/2012
0229	MOHAMMAD BINTI MOHAMMAD	29/06/2011	09/07/2012
0230	MOHAMMAD BINTI MOHAMMAD	24/06/2011	04/07/2012

Staff Absent (for 01/10/2012 to 31/10/2012)			
Staff ID	Name	From	To
0231	MOHAMMAD BINTI MOHAMMAD	10/10/2012	16/10/2012
0232	MOHAMMAD BINTI MOHAMMAD	14/09/2011	20/10/2012
0233	MOHAMMAD BINTI MOHAMMAD	17/10/2011	27/10/2012
0234	MOHAMMAD BINTI MOHAMMAD	17/09/2011	01/09/2012
0235	MOHAMMAD BINTI MOHAMMAD	08/09/2011	18/09/2012
0236	MOHAMMAD BINTI MOHAMMAD	12/09/2011	22/09/2012
0237	MOHAMMAD BINTI MOHAMMAD	03/11/2011	13/11/2012
0238	MOHAMMAD BINTI MOHAMMAD	18/09/2011	28/09/2012
0239	MOHAMMAD BINTI MOHAMMAD	14/10/2011	24/10/2012
0240	MOHAMMAD BINTI MOHAMMAD	09/10/2011	19/10/2012
0241	MOHAMMAD BINTI MOHAMMAD	04/10/2011	14/10/2012
0242	MOHAMMAD BINTI MOHAMMAD	01/10/2011	11/10/2012
0243	MOHAMMAD BINTI MOHAMMAD	27/09/2011	07/10/2012
0244	MOHAMMAD BINTI MOHAMMAD	22/09/2011	02/10/2012
0245	MOHAMMAD BINTI MOHAMMAD	17/09/2011	27/09/2012
0246	MOHAMMAD BINTI MOHAMMAD	12/09/2011	22/09/2012
0247	MOHAMMAD BINTI MOHAMMAD	07/09/2011	17/09/2012
0248	MOHAMMAD BINTI MOHAMMAD	02/09/2011	12/09/2012
0249	MOHAMMAD BINTI MOHAMMAD	28/08/2011	08/09/2012
0250	MOHAMMAD BINTI MOHAMMAD	23/08/2011	03/09/2012

Figure 1.2-7: Staff on Leave and Absent in UMP Staff Attendance

1.2.2 Explain the comparison on existing system

Table 1.2-1: Comparison on existing system

Existing System	Respondent	Software/Technique/Platform	Result
Fingerprint for Attendance Systems at Kementerian Pelajaran Malaysia	System administrator and staffs	Web development ASP.NET, SQL Server, Fingerprint device	Using fingerprint that can avoid cheating and easy for staff to monitoring attendance
Punch Card Systems at Kementerian Pelajaran Malaysia	Staffs	Punch Card device	Every staff that comes to office will take their own card and will clock in and clock out for staff check in and check out
Staff Attendance System at Universiti Malaysia Pahang	System administrator and staffs	Web development	The staff required to fill in username and password for check-in and check-out for staff attendance

1.3 Current System and its Limitation

From the problem statement highlighted in Part 1 Introduction, shows that SAMBBST is in need of a system that can monitor teacher attendance and summary report of the attendance. From the beginning, this chapter has discussed the technique, equipment and technology that are used on the existing system. After that, a comparison between existing systems is made. This discussion will be taken as a reference for the development of the proposed system. As well as to help us to choose the tools that will be used during the development process based on their benefits and disadvantages.

From the features, overall flowchart for the propose system is design as shown in Figure 1.3-1. Firstly, when teacher at SAMBBST come to the school, the teacher will use fingerprint for mark their attendance. The fingerprint will capture teacher information. After that, the fingerprint will verify teacher information. If the verification is success, will proceed to update the teacher attendance, but if the verification is fail, the process will back to capture the teacher fingerprint. For staff session, the staffs need to login and after that the system will appear main menu. Staff can select to manage teacher or manage report.

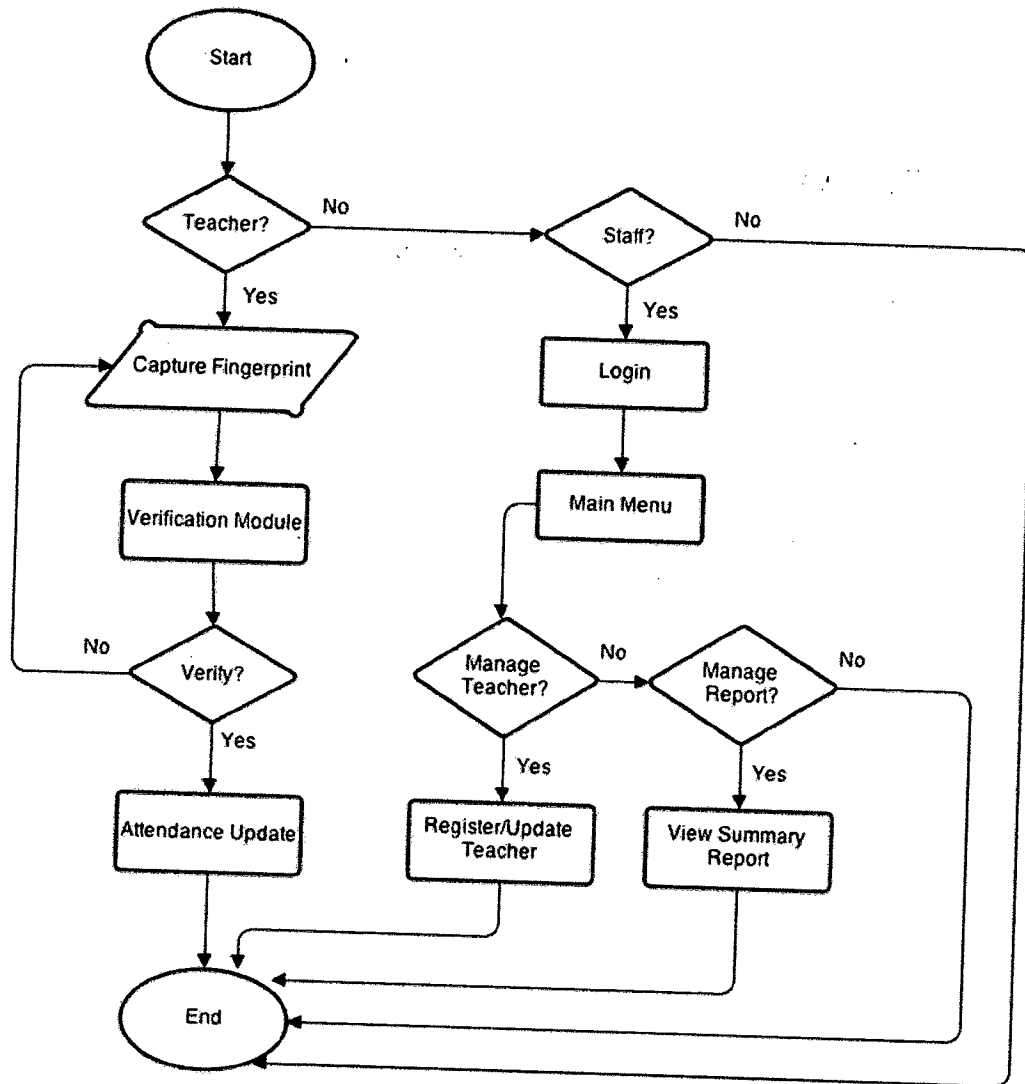


Figure 1.3-1: Flowchart for the propose system

1.4 System Terminology

AMSR – Attendance Monitoring Summary Report

SAMBBST – ‘SAM Bandar Baru Salak Tinggi’

UML – Unified Modelling Language

SRS – Software Requirement Specification

SDD – Software Design Description

1.5 Method(s) of approach

The methodology will discuss about the software process and methodology that will be implement in this proposed system. A process model is an abstraction that depicts the process of translation from system concepts to requirement specification, to a design, to code and compilation and testing the system either it achieve the main objective or not. On the other hand, methodology identifies how to perform activities for each period, how to represent the activities and products, artifacts and how to generate product. ASMR System will be use the Iterative Development Model as the process model. The Iterative Development Model is the heart of a cyclic software development process developed in response to the weaknesses of the waterfall model. Start with an initial planning and end with deployment with the cyclic interactions in between.

1.5.1 Iterative Development Model

An iterative development has five phase as well as use in this development process.

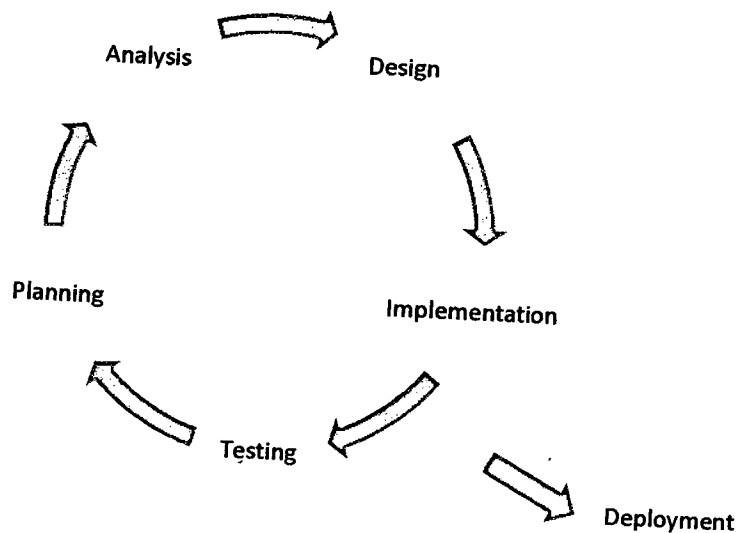


Figure 1.5-1: An Iterative Development Model

Figure 1.5-1 show that the Iterative Development Model that begin with the initial planning the objective and target, collect user requirement, analysis and design the data, implement the data, testing the system and deployment. Iterative Development Model's process will be in cyclic as confirm the achievement of objective and maintenance.

The advantages of using an Iterative Development Model are involving of sequence of incremental steps. Each iteration includes some or most of the development disciplines such as requirement, analysis, design, implementation and so on. Each iteration also has a well-defined set of objectives and produces a partial working implementation of the final system. Last but not least, each successive iteration builds on the previous iterations to evolve and refine the system until the final product is complete.

i) First Phase: Planning

The first important phase in the development process is planning phase. Planning phase is identifies the system and chooses the title for the system. The title for the system is Attendance Monitoring Summary Report. To produce the perfect system as the user requirement, planning should be carried out regularly and thoroughly.

In planning phase also to identified the objective of the system, the goal and also the scope. To get the goal and problem background, the investigation about the problem and weaknesses of the existing system been made to ensure the goal, objective and scope are follow the case study. Existing system is not flexible because the risk of losing the attendance data is very high because if the attendance book is missing, the attendance data will be lost.

Other than that, by using the current attendance system will make top management in SAMBBST difficult to know staff attendance performance because the current system only record in book that cannot be process to produce the summary of staff attendance.

Based on the problems that have been identified, make the objective of developing AMSR are to upgrade a manual attendance system that used in SAMBBST from manual to computerized system and to generate report that summarizes staff attendance in SAMBBST.

Next, in planning phase also identified the scopes of developing system where it needs to identify the user and application on system will be used in develop the system. Beside, make a discussion about the idea and getting advice from other in developing the system. Other than that, the references through past year thesis also give the ideas. The research about the technology has been made in the planning phase by referred to the past thesis and through Internet. Almost of the information are from Internet.

Lastly, in planning phase also to determine the schedule. Refer to Appendix A to view the project planning. Schedule is important in order to make sure the project's requirement is met and can be delivered on time.

ii) Second Phase: Identified the Requirement

Identifying the requirement can help to develop ASMR that have three parts, which are user requirement, hardware items and software items. The user requirement is identified through the website and interview with the user. The process of identifying user requirement is important to ensure AMSR can fulfill the user requirement.

The hardware items have been identifying to help the process developments which are the fingerprint device, personal computer that has specification and other hardware items to support the computer operation.

The language also has been identifying to choose the available software. To develop ASMR, Visual Studio 2010 will be use. So, those some software has chosen to support this language. Other than that, MySQL also will be used for the database in storing the data of AMSR.

iii) Third Phase: Analysis

In analysis phase, the existing system will be studied by collecting factual information from the system users concerning the perceived problems, causes and effects. From all the information, better understanding of the existing system's problems will be gained.

Beside, in analysis phase, some research has been made in order to fulfill the system needs by analyzing existing system and determining requirement for AMSR and the user of the system. The interview session with user have been made which is with staff from SAMBBST to get user requirement.

iv) Fourth Phase: Design

The design phase is purposely to produce the interface of the system. The design phase is important as the guideline to developer while the next phase is development. The design interface is really needed to the process development.

In the design phase also, the requirements statement will be transformed from the requirements analysis phase into design specifications for construction, means the design phase addresses how technology will be used in the system. Design requires ideas and opinions from user and also requires loyalty to internal technical design standards that ensure completeness, usability, reliability, performance and quality.

iv) Fourth Phase: Design Interface

The first step is designing interface. Visual Studio 2010 is used to design the interface. Below are some of the interfaces of the AMSR system.

i. Design for Home Page of AMSR

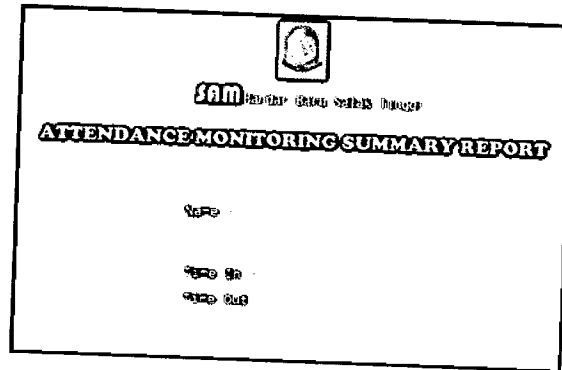


Figure 1.5-2: Interface of Home Page AMSR system

ii. Design for Staff View After Sign In

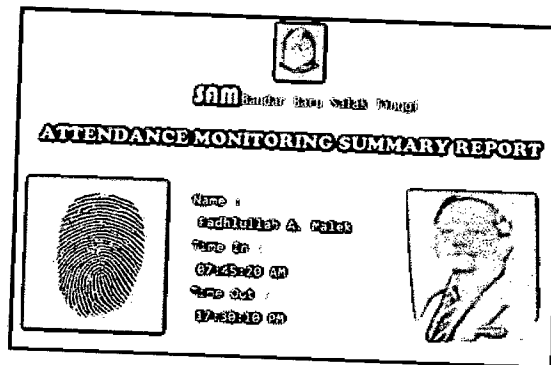


Figure 1.5-3: Interface of Teacher View after Sign In

iii. Design for Menu Page for Top Management View Summary Report

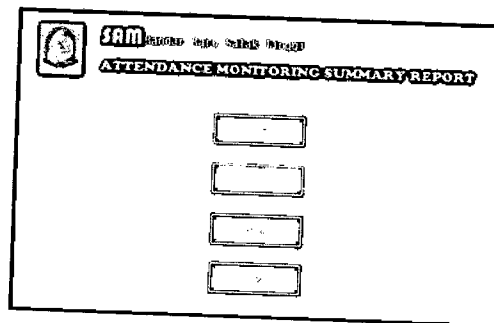


Figure 1.5-4: Interface of Staff's View

v) ***Fifth Phase: Implementation***

After through the fourth phase, design and analysis phase, the next phase is implementation phase. The purpose of implementation phase is developing the program. The entire interfaces that have been designing will translate into the program language. Implementation phase is depends on the designing phase because the system development is follow each of the interface that been produce.

To develop the system, reference through thesis, internet, book, lecturer, supervisor and also the members are made to make sure no error while the implementation and run the system perfectly. The entire development such as programming, designing interface and designing database has been implement in the previous phase and apply to the real environment.

vi) ***Sixth Phase: Testing***

Testing is the last phase for Waterfall Mode, but in a Iterative Model Development, testing phase can be the final phase or not. Testing phase is very important to ensure the system that has been developed is fulfilling the user requirement or not. The system that already complete will be test by the tester and the developer.

Besides, testing phase also to ensure the failure while using the system can be block and to avoid any loss of development and guarantee the system quality to be send to the user. In testing phase, the objective, goal and scope can be seen which are in the first phase, which is planning phase. The feedback from the user also considered as to know the weakness of the system so that can be overcome.

1.6 Scopes and Limitations of the Study

The project scopes that have been identified are divided into few types. There are:

- i. The user of AMSR system is staffs in SAMBBST.
- ii. Fingerprint device to track staff attendance.
- iii. System environment is developed using Visual Studio.
- iv. Using personal computer to view summary report.

The limitations of the study are:

- i. To get the confirmation from SAMBBST's staff to make an Attendance Monitoring Summary Report.
- ii. Internet slows to search the example of system, proposal and flowchart.
- iii. Time constraint.

1.7 Outline of material presented in rest of report

Table 1.7-1: Hardware Requirement

Hardware	Specification	Unit	Description
Laptop	Inspiron 1420 1.2 GHz Hard Disk 250 GB RAM 1 GB	1	Used for documentation, design the GUI, develop the system and for the testing
Thumb Drive	Data traveler 4GB	2	Store data as temporary as the backup file for the system
Suprema Biomini USB Fingerprint Scanner	Size: 66X9058 mm Temperature's range: -10 – 50 degree Image resolution: 288X288 pixels.	1	Capture the fingertips image for the database.