# EVENT STUDENT ATTENDANCE SYSTEM VIA FINGERPRINT

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A thesis submitted in fulfilment of the

Requirements for the award of the degree of

Bachelor of Computer Science (Software Engineering)

FACULTY OF COMPUTER SYSTEM & SOFTWARE ENGINEERING

**UNIVERSITY MALAYSIA PAHANG** 

103256

DECEMBER 2014



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#### ACKNOWLEDGEMENT

Firstly, I would like to thank my supervisor, Prof. Dr. Abdullah Bin Embong for his invaluable advice and contributions to this project. His knowledge and high standards have definitely helped me to shape this work perfectly. It is my pleasure to have an advisor to being responsibility and caring to guide me in this PSM.

My thank goes to Mr Hanizam Abdul Kassim, executive of PTMK to become my PSM client and provide guidance and advise in completing this system. Special thank goes to the FSKKP lecturer for their effort for sharing their knowledge in class for the past 3 years so that I can understand and apply into this work.

Last but not least, I am grateful to all my family members that sacrificed their time for me to make my work successfully developed. All my fellow friend and colleague should have my sincere appreciation for their support. Their tips and views are indeed very useful.

#### ABSTRACT

Biometric based security system is one of the today advance security issue. The security based software computer applies combination between the human biometric and computer technology to produce high advance security technology. Attendance system via fingerprint is one of the biometric based systems to record attendance. The key to this technology advancement is due to every human have his/her unique biometric such as fingerprint. That why I have develop the Event Student Attendance System, a system that have a potential to become a very effective event attendance system in this project. This student attendance system is using a fingerprint verification method to verify whether the fingerprint is belong to the student or not before the attendance is recorded in the database. As the result, merit mark will be given to the student that already check-in and check-out the attendance in the event that held in the university.

#### ABSTRAK

Sistem keselamatan berasaskan biometrik merupakan salah satu isu-isu teknologi canggih dalam bidang keselamatan. Perisian komputer berasaskan keselamatan menggunakan kombinasi antara biometrik manusia dengan teknologi komputer telah menghasilkan tahap keselamatan teknologi yang lebih canggih. Sistem kehadiran yang menggunakan cap jari adalah merupakan salah satu system berasaskan biometrik bagi tujuan untuk mencatat kehadiran. Kunci kepada kecanggihan teknologi ini adalah disebabkan semua manusia ada biometrik unik sendiri seperti cap jari. Ini telah menyebabkan saya mengambil keputusan untuk membina satu sistem yang mempunyai potensi untuk menjadi salah satu sistem kehadiran dengan efektifnya dalam mencatat kehadiran pelajar untuk acara-acara dalam universiti, iaitu Event Student Attendance System. Sistem kehadiran ini adalah menggunakan kaedah cap jari pengesahan untuk mengeash adakah cap jari ini adalah milik kepada pelajar atau tidak sebelum kehadirannya akan disimpan dalam pangkalan data. Keputusannya, markah merit akan diberikan kepada pelajar yang sudah daftar masuk dan daftar keluar dalam acara-acara yang dianjurkan oleh univeriti.

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# List of Acronyms / Abbreviation / Glossary

ESAS = Event Student Attendance System

RFID = Radio Frequency Identification

ER Diagram = Entity Relationship Diagram

## **CHAPTER 1**

#### **INTRODUCTION**

### **1.1 Introduction**

In the year 2013, Apple introduce its new Apple product, the iPhone 5S. This iPhone 5S boosts fourth quarter sales in China. What is so special about this Apple iPhone 5s that achieve these high sales in China? Apple iPhone 5S have introduce a new security protection function that is fingerprint recognition protection method. This fingerprint recognition protection has replace the old tradition phone security method that is enter 4 digit number as password.

Fingerprint is one of the examples for the biometric. In computer science, biometric is refers to authenticate technique that rely on measurable physical characteristic that can be automatically checked. Every human in the earth have his/her unique biometric.

Fingerprint recognition is the oldest method which has been successfully used in many applications. This is because human fingerprint is unique and it will never be change for an individual life. In this era of technology, fingerprint technology plays an important role in identification and forensic investigation for a long time. For example in America drama crime series: The mentalist, Crime Scene, FBI, N.C.I.S and others. The forensic will use the fingerprint left in the crime scene to trace out who is the criminal.

This technical report includes: -

- 1. Chapter 1: Introduction
  - In this chapter, we will discuss the which are the introduction, problem statement, objective, and scope of the project
- 2. Chapter 2: Existing System
  - In this chapter, we will discuss the existing attendance system in the Malaysia that is each system description and problem exist in each system include advantage and disadvantage.
- 3. Chapter 3: Report Body
  - In this chapter, we will discuss the technique and overall work to develop this system. This includes user requirement, and design description.
- 4. Chapter 4: Development Plan
  - In this chapter, we will discuss how the system is developed
- 5. Chapter 5: Testing Plan
  - In this chapter, we will discuss how the system is tested. In this report, we will provide the test case for each module and user acceptance testing form.
- 6. Chapter 6: Conclusion
  - In this chapter, we will discuss and conclude on the result that has been recorded and all data analysis.

Project that is being proposed is "Event Student Attendance System (ESAS)" using fingerprint recognition. The function of the system is to detect and match the fingerprint on the database. The system will automatically record the matrix number of the students who attend the event.

### **1.2 Problem statement**

Merit marks play an important part in University Malaysia Pahang (UMP). UMP student need the merit mark to qualify to stay in university hostel. How the students get the merit marks? Student can get the merit marks by attending the event which held by university. For example club event, international event, university competition and etc. Due to lack of hostel's room in university, therefore only limitation number of student can apply the hostel. The higher the merit marks, the bigger chance student can apply hostel. In UMP, there a 3 methods for a merit marks is recorded for student. The helper or the runner of the event will ask the student to provide some information that only knows by the students to help the system to record the information and gain the merit marks for themselves. The 3 methods are: -

- 1. Write the information in a piece paper
  - The helper will ask the students to write down name, matric number and signature in a piece of paper provide. The problem will occur when this paper lost or get dirty. All the information will gone and no merit marks is given ti the student who attend the event.
- 2. Key-in matric number
  - Each student has his/her own matric card. Each card has unique matric number. The helper will prepare computer to let the student to key in the matric number. The computer will based on the matric number that student key-in and record it in the computer database and merit marks is given to them. The issue arise when student will remember his/her friend matric number. They will help friend to key-in the matric number so their friend can get the "free" merit marks. This is unfair to other students who attend the event.

- 3. Smart card
  - Each student has his/her own matric card. Each matric card has its own identity verification method. The student just need to put the card near the machine and the machine will automatically verified the card and save the record in database for the event. This method is very convenience fir the student and university but there is a disadvantage. Sometimes, students may forget or not remember to bring their own card. So they have to rush back to their room and come back with the card to "ti" again. This is a waste of time and energy for student.

To overcome this problem, I decide to develop an "Event Student Attendance System" using fingerprint recognition. This system is required student's thumbprint for the fingerprint recognition process. Then the system will automatically record the attendance of the student for the event.

#### 1.3 Objective

The objectives to develop this system are: -

- 1. To develop a system for fingerprint recognition using minutiae method
  - Minutiae refer to specific point in a fingerprint
  - 3 major type of minutiae feature :
    - i. Ridge ending
      - $\succ$  The spot when a ridge ends
    - ii. Bifurcation
      - > Spot where a ridge splits into two ridge
    - iii. Spot
      - Fingerprint ridge that are significantly shorter than other ridges
- 2. To ensure that merit marks is given to the student who attend event
  - Using unique fingerprint recognition to ensure that student who attend the event will get the merit mark
  - Each student have his/her own unique fingerprint that is unchangeable
  - The system will scan and match the fingerprint and save the matric number of the student in the database
  - The system will come out a paper of record to show the matric who attend the event
  - The merit marks will give to the student base on the record

### 1.4 Scope

The scopes of the project consist of: -

- 1. The system applying fingerprint verification method to read student fingerprint and save his/her student matric into database in the university event.
- 2. Generation of attendance sheet by admin allow they to know student who had attended the event.

## **CHAPTER 2**

#### **EXISTING SYSTEMS**

#### **2.1 Introduction**

Do you all realise that wherever we go, there will be an attendance sheet or system for us to sign or check in? Let start with our primary school, I still remember that my teacher will call out every student name and record the attendance if the person is called present. Then in university life, a lecturer will pass the attendance sheet to student to sign when we attend a class. After graduate from university, there is also an attendance sheet for us in our working company waiting to be sign in. Yes, attendance sheet can be exist in any place and event.

Attendance plays an importance role in our life. Attendance is an action of going or being present in a place or event. Attendance sheet or system is a paper work or software that used to record our attendance. For example, a student attends the school and the teacher records his/her attendance in an attendance book.

Human's brain cannot remember many things after certain time. They need a thing such as computer, paper, notice board and etc.to help them to record what they need to remember it. For example in school, a teacher is hardly to remember which student is absent 1 week ago. So, teacher needs to record the student's attendance in a student attendance book. This is easy the teacher jobs to check the attendance of student to school.

In this chapter, we are going to discuss several of existing attendance system in Malaysia. We will also compare its advantage and disadvantage of each system.

#### 2.2 Student Attendance Log Book

When we in primary school, our teacher record our attendance by calling out our name and tick the attendance on our name column if we attend or absent school that day. This is the tradition method of record the student attendance in year 1990's. A teacher will prepare an attendance log book and write down all students' name inside it. When a class monitor report the student attendance, the teacher will put absent or "0" for the student who absent and attend or "1" for the student who attend the school in an attendance log book. Every end of the month, the teacher has to count the day for the student who absents the class this is because a warning letter needs to send to student if the student absents the school for more than 3 days without a valid reason. Imagine that a class has about 40-50 student, teacher is impossible to remember the number of day for each student that absent to school without a help from record it in an attendance book. This Student Attendance Log Book System is a waste of time and energy because teacher needs to count the total absent day for each student at the end of every month.

Weakness of this system:

- 1. Teacher need to write down the students' name for every page in the student attendance log book manually.
- 2. Teacher need to record the attendance of student manually by write "0" or "1".
- 3. Teacher need to count the number of day of absent school for each student
- 4. Teacher need to keep the log book in a safe place.
- 5. Waste time and energy.



Figure 2-1 Student Attendance Log Book



**Figure 2-2 Student Attendance Sheet** 

#### 2.3 Staff Attendance Log Book

A supervisor in a company will prepare he attendance log book for the staff under his/her supervise to sign up the daily attendance. The log books consist of 3 categories that are time sign in, time sign out and time for overtime work. The staff will have to write down the time they arrive at the company as a sign in process. The supervisor wills supervise the staff when they sign in. when sign out, same process occurs that is the staff write the time when he/she left the company. For the work overtime part, the staffs need to write down the time they start working overtime and the end of working hour. This attendance log book is very important for the staff payroll. The company will pay the staff's salary based on the working hours in the attendance log book. In the staff attendance log book, it clearly state the working hours for each staff. For example signin is the start working hour time as 9:00am in the morning and sign out time is 6:00pm in the evening. They will count the hours between the sign in and sign out time and minus 1 hour for the lunch breaks and the result is 8 hours. So the company will pay the staff 8 hours working's salary. In conclude, staff attendance log book not just play a important role in record the staff's attendance but also the salary payroll.

#### Advantage:

• Clearly state working hours for each staff

#### Weakness

- "Buddy Sign in"
- Fake time for sign in and sign out
- Manually count the working hour for the salary payroll
- Log book may get lost
- Space consuming for keep the all the log book record
- Environment unfriendly

# General Blue

Company	[Your Com	pany Name										
Start Date	12/22/2008								]			
	12/22/2008 Monday						12/23/2008 Tuesday					
Employee	In	Out	In	Out	Hrs	In	Out	In	Out	Hrs	In	
John Doe	8:00 AM	11:00 AM	1:00 PM	5:30 PM	7.50	8:00 AM	11:00 AM	1:00 PM	5:30 PM	7.50	8:00 AM	1
Jane Doe	8:00 AM	11:00 AM	1:00 PM	6:30 PM	8.50	8:00 AM	11:00 AM	1:00 PM	6:30 PM	8.50	8:00 AM	1
Steve Doe	8:00 AM	5:00 PM			9.00					3131 3010	9:00 AM	5
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#### 2.4 Time Attendance Punch Card System

A company need to provide a Time Punch card machine and an attendance board to put staffs' attendance cards. Staff needs to punch the card when they arrive company because this represent their attendance and the time that punch onto the card is according to the clock in the attendance machine. This is to prevent the staff to go to company late. Basically the attendance card is divides into 3 categories that is morning, afternoon and overwork. Each category has 2 columns that are check in and check out. Check in section is the start working time and check out section is for end of working time. For the morning section is for the time start working until lunch time. Afternoon section is after lunch time until end of working time. Lastly, overtime is for the start overtime times until end of the overtime. For example, in the morning, staffs need to check in before the company start working hours and check out during lunch time. After lunch time they need to recheck in again and work until end of working hours to check out. When a card is punch into the attendance machine, the machine will "paste" the time and date according to which button is press. The supervisor will check the attendance based on these attendance cards. If a date is not punch, that mean the staff is absent that day.

#### Advantage:

- Can quickly check in attendance process
- Prevent staff arrive company late

#### Disadvantage:

- "Buddy Punch"
- Cost expensive due to but dozens of attendance card
- Need to rekey the attendance into the company computer attendance record
- Environment unfriendly
- Need a lot of space to keep the attendance cards



Figure 2-4 Time Attendance Punch Card Machine



Figure 2-5 Time Attendance Punch Card Machine (Top View)





#### 2.5 Excel Attendance System

Teacher creates the attendance sheet using computer with the help of software called Microsoft Excel. In Microsoft Excel, it provides us with a lot of columns and rows that ease the jobs. Teacher need to key in the student name into the student name column and state the date in a month for other column. This process only needs to be done once. This is because teacher can use the copy and paste function to copy and paste the whole attendance sheet to another sheet as a new month attendance sheet. The Excel attendance sheet system is similar with the traditional student attendance log book that is open the student attendance file and input the "1" for the student who attends the school and "0" for the absent student. Teacher not needs to find the student name 1 by 1 but can activate the search function that provide by the Microsoft Excel. By press CTRL+F, teacher input the student name and the computer automatically search the name and provide the information where the name is located. This function is very convenience for teacher because it saves a lot of time to search student name. Other from that, this system also helps teachers to count the total number of day for each student who attend the school for a month and year. This system also can apply in work place. For example, the account records staff attendance and the working hours for each staff in the company. At the end of the month, this system will calculate the total working hours and calculate the salary for staff.

Advantage:

- The attendance sheet only need to prepare once
- Easy to search data
- Auto calculate data
- Save in computer (Environmental friendly)



**Figure 2-7 Excel Attendance Sheet** 

#### 2.6 RFID Attendance System

RFID or we call it Radio Frequency Identification is a wireless usage of radio frequency electromagnetic field in transferring data. The purpose of this RFID is for automatically identifying and tracking tag to objects. This technology is widely used in the world. For example, it used in prevent unauthorized entry to office. Staffs need to have an id card and put it near to the RFID scanner for the office entry. The RFID scanner wills verify the ID card and record the data inside it. If the card is valid, the door will open but it will not open if the card is invalid. RFID student attendance system is using RFID technology to record the student attendance who attends class. Each student is given an own ID card that has a chip inside of it that contain personal information. Before the student entry class, a student needs to scan the ID card near the RFID machine. The RFID attendance system will record the scan time and name of the student who attend the card as a check in attendance into database. Student will have to check out with the same process as check in when the class end. The system will generate a report of list of student who attends the class that day. With the help of RFID attendance system, the attendance management will be more convenience, easier, and efficient for teacher when duelling with the student attendance. This RFID also apply in other place such as big company, office, tuitions centre and university to manage the attendance.

#### Advantage

- Easy to manage the attendance record
- Convenience for student because a card scan replace signature sign in

#### Weakness

- "Buddy Scan"
- Loss of card
- Forget to bring ID card



Figure 2-8 RFID Machine



Figure 2-9 RFID Card



Figure 2-10 How the RFID System is use?

# **CHAPTER 3**

# SYSTEM DESIGN

### 3.1 Description of User Requirements

This section shall describe the all user requirement for the Event Student Attendance System (ESAS).

## 3.1.1 General technical requirements

- a) ESAS shall record the student info and fingerprint into the ESAS DBMS
- b) ESAS shall record the student attendance for those who attend the University event
- c) ESAS will save the fingerprint picture in JPEG format

- Student shall register their information and fingerprint into the ESAS DBMS
- Student shall require to input the following info:
  - i. Student Name
  - ii. Student Matric No.
  - iii. Student Faculty
  - iv. Student Course
  - v. Student Hand phone No.
  - vi. Student Fingerprint
  - vii. Student Picture

## 3.1.1.2 Event Management

- The administrator shall set the name of the University Event in the ESAS
- Each student shall check in his/her attendance into the system
- ESAS will record the student name, matrix number and timestamp into the system database
- ESAS will display the student's name, matrix number and picture on the screen once the student have check in or check out.
- Student can only check-in and check-out once

## 3.1.1.3 Fingerprint Recognition

• Student shall check in the University event attendance via fingerprint recognition method
### 3.1.2 Administrator

This section shall describe the function of the administrator in the ESAS.

### 3.1.2.1 View Student Attendance

- For ESAS, the admin shall have access to following information:
  - a) The name of the University Event
  - b) The student name and matric number who attendance the University event

### 3.1.2.2 View Student Info

- The admin shall able to browse student information record. For each student, the admin shall able to see:
  - a) Student Name
  - b) Student Matric No.
  - c) Student Faculty
  - d) Student Course
  - e) Student Hand phone No.
  - f) Student Fingerprint
  - g) Student Picture

### 3.1.2.3 Modify Student

• The admin shall be able to modify the student information if request by student

• The admin shall be able to delete the student information record if the student is graduated from the University

### 3.1.2.5 Print Attendance List

• The admin shall able to print out the name list of student who attends the University event.

### 3.1.2.6 Manual Input Attendance

- The admin shall able to manually input student matric number for the student attendance into the attendance record
- If the admin accidently key-in wrong student matric number for the student attendance, the system shall allow the admin to delete the wrong attendance record and input the correct student matric number for student attendance.

#### 3.2 Methodology

Methodology refers to a body of methods, rules or procedure that use in the software development process. In this project, I decide to choose Rapid Application development methodology for my methodology.

#### What is Rapid Application Development (RAD) Methodology?

Rapid Application Development is a type of incremental model in SDLC model. RAD uses the predefined prototyping technique and tools to produce software application. The development is time-boxed, delivered and then assembled into a working prototype. This can quickly give the customer something to see, use and to provide feedback regarding the delivery and their requirements.

Advantage of RAD:-

- 1. Increase the reusability of the component
- 2. Encourage the customer feedback
- 3. Integration from very beginning solves a lot of the integration issues.



Figure 3-1 Rapid Application Development Methodology Model

#### **Project Methodology Flow**

In this project, Rapid Application Development is select as this project methodology. The process of the methodology is as below

Requirement Planning Phase - > User Design Phase - > Construction Phase - > Cutover Phase

#### Phase 1 Requirement Planning Phase

In this phase, the requirement for implementations for the Event Student Attendance System (ESAS) via fingerprint recognition will be identified.

#### Phase 2 User Design Phase

Based on the decision in phase 1, the design of the ESAS will be considered utility the VB.net and MYSQL. Hence, the user diagram, sequence diagram and activity diagram will be developing for each module. VB.net is a programming language for the development the project. MYSQL is a database site for store the database for the ESAS project.

#### Phase 3 Construction Phase

Event Student Attendance System consists of 4 modules. Module 1 is Student Registration that is for student to register their personal info in the database. Module 2 Student Attendance Check-in is for the student to check in and check out their attendance for attending an event. Module 3 Manage Student is for admin to view, edit and delete the student info. Module 4 Manage Attendance is for admin to manage to student attendance. Admin can view the student records who attend the event.

# Phase 4 Cutover Phase

Unit testing, Integration testing, System testing and User acceptance testing. Lastly, Event Student Attendance is being built and delivered.

### **3.3 Overall Description**

This section will give overview of the whole system. The system will be introducing the basic functionality of it. It will also describe what type of end user that will use the system and what functionality is available for each type.

### **3.3.1 Product Perspective**

The Event Student Attendance System is an attendance system via fingerprint that introduces for record the student attendance in an event. The functionalities of the system are covered in detail within this document.

### 3.3.1.1 System Interface



**Figure 3-2 System Overview** 

The Event Student Attendance System has 2 active actors. Student will register student info and check-in the attendance via fingerprint. The System Administrator will have the accesses to the entire system directly. Admin can manage the student info such as view, update and delete the student info and manage student attendance that is view the student attendance in an event and print the attendance record if necessary.

### 3.3.1.2 Localization

This system provide following language:

• English

# 3.3.1.3 Confidentiality

To protect user confidentiality – E. g : Once a student register his/her personal info, the system will save the info into the system database. Student unable to review the info unless he/she go to the service centre to view it. Each student can only view his/her own personal information.

### 3.3.1.4 Hardware Interface

Hardware	Function	
Laptop	Develop the system and for	
	documentation purpose	
Printer	Print out the relevant documents	
Pen Drive	For Presentation Proposal	
External Hard Disk	For Backup Storage	
U are U 4500 fingerprint scanner	For scan user fingerprint for verification	
	purpose	

### Table 3-1 Hardware Interface Description

# 3.3.1.5 Software Interface

Software	Version	Function
Windows 7	Professional	Operating System for the
		system
Microsoft Visual Studio	2010	VB programming
Microsoft office	2010	Documentation, Gantt chart,
		Use case design
XAMPP	3.0.12	Database (MySql)

 Table 3-2 Software Interface Description

# 3.4 System Overview



Figure 3-3 Use Case for ESAS

Use case	Function		
Register Student	Student will register his/her info into the		
	system		
Check-In Attendance	Student will check- in his/her attendance		
	via fingerprint in University event.		
Manage Student Info	Admin will manage the student info such		
	as view, update and delete info.		
Manage Student Attendance	Admin will check the student's		
	attendance for every University event.		

Table 3-3 Use Case	Description	for ESAS
--------------------	-------------	----------

### **3.5 User Characteristics**

This section will describe the functionality for each user and what he/she can do.

### 3.5.1 Student

These individual are responsible for Student Registration and Student Attendance Check-In for ESAS.

- 1. In student Registration, the student will require to register his/her info into the ESAS database. The required info are:-
  - Student Name
  - Student Matric No.
  - Student Faculty
  - Student Course
  - Student Hand phone No.
  - Student Fingerprint
  - Student Picture
- 2. In Student Attendance Check-In, the student will have to check-in the event attendance via fingerprint method.

### 3.5.2 System Administrator

These individual are responsible for viewing, modifying and managing the student info and attendance.

- 1. In viewing Student Attendance, the admin will be able to browse a list of University event and in each event list the admin able to see:-
  - Student Name
  - Student Matric Number
  - Time Check-in

The admin shall able to print the student attendance list for every University event attendances.

- 2. In viewing Student Info, the admin will be able to browse a list of student record and in each student info record admin able to see:-
  - Student Name
  - Student Matric No.
  - Student Faculty
  - Student Course
  - Student Hand phone No.
  - Student Fingerprint
  - Student Picture





#### **3.6.1 Storyboard Description**

This section is briefly explain each storyboard page is about.

#### 3.6.1.1 ESAS Main Menu

tudentRegistration	Event Check-In	ViewStudentInfo	View Attendance
ViewStude	ntFinger		

Figure 3-4 ESAS Main Menu

This is the ESAS Main Menu Page. In this page, admin can select function that they want to process. The Student Registration button is for admin to register the student info. Event Check In is for the student to check-in event attendance for record in the student attendance database. The View Student Info button is for admin to manage the student info such as view, update and delete student info. The View Attendance is for admin to view student attendance in each event that held in University Malaysia Pahang. View Student Fingerprint is for the admin to view and delete student fingerprint.

# **3.6.1.2 Student Registration Page**

a orderen registre der rege	
Student Registration Page	
Name:	
Matric No.:	
Faculty:	
Handphone No.:	
Fingerprint:	Scan
	Save

# **Figure 3-5 Student Registration Page**

This is Student Registration Page. Student will register his/her info here. In this page, students are required to scan his/her fingerprint. This fingerprint will be used as a method to record the attendance when the student attends an event.

1	Admin Login Page 📃 🔲 🗾	3
	Admin Login	
	Usemame :	
	Password :	
	Button 1	A CONTRACT OF

Figure 3-6 Admin Login Page

This is the Admin Login Page. Admin needs to login before he/she can enter the admin function page. This is to prevent unauthorized login because this system consist of sensitive information such as student name, Telephone number and matric number.

### 3.6.1.4 Admin Manual Input Attendance Page

📲 StudentAttendance 🗖 🗖 🔀
Student Event Attendance
Please key-in matric Number
Check-in Check-out
Cancel
26-11-2014 01:20:57

Figure 3-7 Admin Manual Input Attendance Page

This page is for the admin to manually input student attendance into the system database. This occurs because if there are too many people want to check-in or check-out the system and it will take long time to finish record all student attendances. Hence the event runner may ask student to write their name and matric number in a piece of paper and then admin will input their attendance into the database. As the result, it will save a lot of times.

# 3.6.1.5 View Student Fingerprint Page

Please key-in matric Number	
View	

Figure 3-8 Admin Input Student Matric Page

🖳 StudentFingerprintForm	- • ×
Label 1	
Close	

Figure 3-9 Display Student Fingerprint page

This is the Student fingerprint page. This page is for the admin to view or delete the student fingerprint.

### 3.6.1.6 Event Student Check-In Page



Figure 3-10 View Student Info Page

This is the Event Student Attendance Page. This page is for the student to check-in for record attendance purposes. In this page, student required to scan his/her fingerprint to check-in the attendance.

#### 3.6.1.7 View Student Record Page

🖳 Student Re	cord Page	- • ×
		Button 1
	Search:	
	Student List	
No.	Name:	Action
1	Ng Ching Hong	ñew Delete
	地方以前科学校	

Figure 3-11 View Student Info Page

This is the Student Record Page. This page is for the admin to manage student record. In this page, there is a full list of student record that allows the admin to choose. Admin also can search the student info base on the student matric number. There are some actions for the admin to select. The view action is for the action to view the student record that has been selected. The updated action is for admin to edit the student info. Delete action is for admin to delete if the student is graduate from the University Malaysia Pahang.

🖷 Student Info Page		- • •
	Student Info	Logout
Name:	Ng Ching Hong	
Matric No.:	CB11043	
Faculty:	FSKKP	
Handphone:	10112345678	
Fingerprint:		
		Update
		Back

Figure 3-12 Edit Student Info Page

This is Student Info Page. This page is for the admin to view the student info. In this page, admin can view the full student information such as name, matric number, faculty, handphone number and fingerprint.

Figure 3-13 Event List Page

This is the Event List Page. This page is for the admin to manage attendance record. In this page, there is a full list of event list that allows the admin to choose. Admin will select 1 of the event to view the student attendance.

#### **3.6.1.10 Attendance List Page**



**Figure 3-14 Attendance List Page** 

This is the Event Attendance Sheet Page. This page is for admin to view the student attendance in an event. In this page, there is a full list of student name and matric number that allow the admin to view and verify the student attendance in an event. If the admin want to print the attendance sheet, admin can do so by click the print button.

### 3.7 Specific Requirements

### 3.7.1 System Feature

This section will brief describe how the each system feature is function.

### 3.7.1.1 System Feature 1- Student Registration



# Figure 3-15 System Feature 1 Student Registration

#### **Brief Description**

This use case is initiated by student to register the student information such as student name, student matric number, student faculty, student telephone and student fingerprint. User Case Description:

,

Use Case	Student Registration
ID	SRS_001
Scope	Register Student Info
Summary	Students are required to register his/her info into the system
	database. The system also requires scanning the students'
	fingerprint as a verification purpose for the student attendance
	University event.
Primary Actor	System
Supporting Actor	Admin, Student
Pre-condition	After admin click Student Registration button
Trigger	Student want to register his/her personal info
Normal Flow	1. Enter ESAS main page
	2. Admin click Student Registration Button
	3. Student scan his/her fingerprint into system
	4. Admin fill-in the student information required
	5. Admin upload student profile
	6. System save the student info
Post condition	System saves the student info into the system database.

 Table 3-4 Use Case Description for System Feature 1



Figure 3-16 Activity Diagram for Student Registration



**Figure 3-17 Sequence Diagram for Student Registration** 

# 3.7.1.2 System Feature 2- Student Attendance Check-In



Figure 3-18 System Feature 2 Student Attendance Check In

# **Brief Description**

This use case is initiated by student to check-in and check-out for an University event.

User Case Description:

Use Case	Student Attendance Check-in
ID	SRS_002
Scope	Check-In and Check-Out attendance
Summary	Student check-in or check-out the attendance by scan his/her
	fingerprint in computer device provided.
Primary Actor	Student
Supporting Actor	System
Pre-condition	Student attend an University event
Trigger	Student want to check-in or check-out his/her attendance
Normal Flow	1. Admin input the name and merit for the university event
	2. Admin select the check-in or check-out function for the
	University event in the system
	3. Student input student matric
	4. Student scans his/her fingerprint
	5. System verifies the fingerprint
	6. System record the student attendance
	7. Merit is given if the student already check-in and check-
	out the event
Alternate	3a. System unable to verify the fingerprint
Flow/Exceptions	3b. Student rescan fingerprint
Post condition	System saves the student attendance into the system database.

 Table 3-5 Use Case Description System Feature 2



Figure 3-19 Activity Diagram for Student Attendance Check In



Figure 3-20 Sequence Diagram for Student Attendance Check In (Successful verify)



Figure 3-21 Sequence Diagram for Student Attendance Check In (Unsuccessful

verify)

### 3.7.2 Admin Feature

This section will brief describe how the each admin feature is function.

### 3.7.2.1 Admin Feature 1- Manage Student



Figure 3-22 System Feature 3 Manage Student

**Brief Description** 

This use case is initiated by an admin to view and check the student information such as student name, student matric number, student faculty, student telephone and student fingerprint. Admin may also update and delete the student info.

User Case Description:

	· · · · · · · · · · · · · · · · · · ·
Use Case	Manage Student
ID	SRS_003
Scope	View and Manage the student info
Summary	Admin access to view and manage the student info
Primary Actor	Admin
Supporting Actor	System
Pre-condition	Admin already login
Trigger	Admin enter the student record list page to view student info
Normal Flow	1. Admin enter ViewStudentInfo page
	2. Admin select action for each student record selected:-
	I. View
	II. Update
	III. Delete
Post condition	The student information has been viewed, updated, deleted by
	admin.

 Table 3-6 Use Case Description System Feature 3



Figure 3-23 Activity Diagram for Manage Student



Figure 3-24 Sequence Diagram for Manage Student

# 3.7.2.2 Admin Feature 2- Manage Attendance



Figure 3-25 System Feature for Manage Attendance

Brief Description

This use case is initiated by an admin to manage the student attendance whom come to the University event.

User Case Description:

Use Case	Manage Attendance
ID	SRS_004
Scope	Insert, View, Delete, and Print the student attendances
Summary	Admin shall allow insert, view, delete, and print the student
	attendances if necessary.
Primary Actor	Admin
Supporting Actor	System
Pre-condition	Admin already login
Trigger	Admin enter the ViewAttendance page to manage student
	attendance
Normal Flow	1. Admin enter Student Attendance Page
	2. Admin Select Attendance list
	3. Admin view student attendance record
	4. Admin delete student attendance record
	5. Admin insert student attendance record
	6. Admin print student attendance if necessary
Post condition	The student attendance has been managed by the admin and
	print attendance list if necessary

 Table 3-7 Use Case Description System Feature 4



Figure 3-26 Activity Diagram for Manage Attendance



Figure 3-27 Sequence Diagram for Manage Attendance
#### 3.8 ER Diagram

Database for ESAS

- a) StudentInfo, with attributes StdID, Student\_Name, Student\_Matric, Student\_Faculty, Student\_Course, Student\_Hamdphone
- b) Admin, with attributes AdminID, AdminName, AdminPassword
- c) Attendance, with attributes, AttendanceID, StudentMatric, EventName, TimeCheckIn
- d) AttendanceOut, with attributes AttendanceOutID, StudentMatric, EventName, TimeCheckOut
- e) Fingerprint, with attributes FingerprintID, StudentMatric, StudentFingerprint
- f) Merit, with attributes MeritID, StudentMatric, EventName, Merit
- g) Event, with attributes EventID, EventName, Merit



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Figure 3-28 ER Diagram for Event Student Attendance System

### 4.2 Choose Scanner

Before the admin want to use ESAS, admin need to select fingerprint scanner as their medium for fingerprint recognition process. In this form I plan to have a check list box that consists of several existing fingerprint scanner brand to allow admin to choose. This fingerprint scanner is important in enrol and verify student fingerprint. The fingerprint image will save in a dat file and the student matric will save in a XML file.

Atmel	
Authentec Biometrika	
Certis CrossMatch	E
Cyte	
DaktyFpd	
Digent Eikon	
FM200	
Fingerprint <mark>d</mark> atabase:	FingerprintDB.VBNETSample.dat

Figure 4-1 ChooseScanner Page

# 4.3 Login

After the choose scanner form, the system will bring the admin to a form called login. This login page is used to verify admin whom want to use the system. This is to prevent unauthorized admin to enter this system because the information or fingerprint image is sensitive and easily targeted for crime usage. In this login form, users are required to login using username and password. If admin input a wrong username or password, the system will pop out a message box state that this admin is an invalid admin and need to login again.

Usemame	
Password	
	Login

Figure 4-2 Login Page

Invalid User	Valid User
ОК	ОК



#### 4.4 Menu bar

Menu bar is a list of system functions that allow admin to go to the function page they want. In this menu bar, I plan to have StudentRegisteration, Event Check-In, ViewStudentInfo, ViewAttendance, ViewStudentFingerprint and View Merit.

- i. StudentRegistration Button
  - This button will direct the admin to a page where admin can register student info and enrol the student fingerprint
- ii. Event Check-In Button
  - This button will direct the admin to a page where student will check-in out check-out their attendance when they attended an university event.
- iii. ViewStudentInfo Button
  - This button will direct the admin to a page where the admin can view,
     delete or update the student info
- iv. ViewAttendance Button
  - This button will direct the admin to a page where admin can view student whom had attend the university event.
- v. ViewStudentFingerprint Button
  - This button will direct the admin to a page where admin can view or delete the student fingerprint
- vi. View Merit Button
  - This button will direct the admin to a page where admin can view the student that have the merit

Student Registration	rent Check-In	ViewStudentInfo	ViewAttendance
View Student Finger	View Merit		

Figure 4-4 ESAS Main Menu

#### 4.5 Student Registration Module

This module is for the admin to register student info and enrol student fingerprint into the system database. In this module, I have divided it into 3 parts that is:-

- a) Fingerprint Enrolment
- b) Student Information Registration
- c) Image Upload

#### 4.5.1 Fingerprint Enrolment

This part is for the admin to enrol the student fingerprint. When the admin click the StudentRegistration button, a textbox will pop-up and admin will in input the student matric into it and press ok button. After that, student will scan their fingerprint. Messagebox will show up and inform that fingerprint have been successful scan and record. The scanned fingerprint image will display in a picture box.

#### 4.5.2 Student Info Registration

This part is for admin to register the student info. The admin is required to save student info such as name, matric number, faculty, course, and handphone number into the system database. A submit button will save all the student info input into the system database.

## 4.5.3 Image Upload

This page is for the admin to upload the student profile after the student info has been saved into the system database. In this form, there will be a choose file button that allow the admin to choose which profile picture to be save into the system database. A textbox will display the filename that have been selected. Upload button is for admin to upload the selected picture into the system folder. The upload picture must in jpeg format.

Enroll	
Name:	
	OK Cancel

Figure 4-5 Enrol form

Waiting for fingerprint	
	Cancel

# Figure 4-6 Waiting Fingerprint form

	StudentName	
	StudentMatric	
	StudentFaculty	
	StudentCourse	
	Student Handphone	
1 Allan.		
	Submit	

Figure 4-7 Input Student Info form

🖳 imageUpload	
	Choose File
L	Upload

Figure 4-8 Upload image

### 4.6 Student Check-In Module

This module is for the student to check-in or check-out and university event.

I have divided it into 2 parts that is:-

- a) When Check-In
- b) When Check-Out

	10.022			
lηε	hea	ck-oi	t oa	de
Stewic	en conte			R. Salar

**Figure 4-9 Event Function Selection** 

#### 4.6.1 Input Event's name and merit

Admin will input the event's name and merit in the textbox provide. After the input, admin will press the start event button to start the record student attendance function. A messagebox will pop-up to remind the admin to choose the check-in function or check-out function. Check-in function is for the student to check-in the event and check-out function is for the student to check-in the event and check-out function is a client based system, admin also can select the existing event name that created by other admin as the event name to record the student attendance.

Create Event	Select Event		
Event Name:	Event Name:	•	
Merit:	Merit:		
Start Event	Start Event		

Figure 4-10 Input Event's Name and Merit Part

# 4.6.2 When Check-In

Admin will click the check-in page button. A textbox and a check-in button will appear. Student need to input their student matric in the textbox and click the check-in button. A messagebox will pop-up and ask for fingerprint scan. If a student hasn't register in this system, a messagebox will pop-out and state that student needs to register into system first before use it. If a student already check-in their attendance, a messagebox will popout and state that this student already check-in his/her attendance. Else, the system will save the student attendance into the database.

Student Event Attendance	
Please key-in matric Number	
Check-In	
	Student Event Attendance Please key-in matric Number Check-In

Figure 4-11 Event Check-In Page

### 4.6.3 When Check-Out

Admin will click the check-in page button. A textbox and a check-out button will appear. Student need to input their student matric in the textbox and click the check- out button. A messagebox will pop-up and ask for fingerprint scan. If a student hasn't register in this system, a messagebox will pop-out and state that student needs to register into system first before use it. If a student already check-out their attendance, a messagebox will pop-out and state that this student already check-in his/her attendance. Else, the system will save the student attendance into the database.

	Student Event Attendance	
	Please key-in matric Number	
Ī		
	Check-out	

Figure 4-12 Event Check-Out Page

#### 4.7 ViewStudentInfo Module

This module is for the admin to view, delete, and update the student information.

I have divided it into 4 parts that is:-

- a) View Student Info
- b) Delete Student Info
- c) Update Student Info
- d) Search Student Info

### 4.7.1 View Student Info

The system will display all the student info from database in a data grid view. Admin can view StudentName, StudentMatric, StudentFaculty, StudentCourse, StudentHandphone and student profile picture. When admin click the StudentName from a row in data grid view, the textbox will display selected row student information and student profile will also display in a picture box. This student profile is for the admin to know how the selected student looks like is.

# 4.7.2 Delete Student Info

Admin can delete the student info by pressing the delete button. The delete button is a function to delete the selected student info in database. After the admin press the delete button, a messagebox will pop-out to ask admin whether want to delete this student info yes or no. When student info record is deleted, it shall no display in the data grid view.

### 4.7.3 Edit Student Info

Admin can edit the student info by pressing the edit button. First admin select the student info that wish to edit. After that, the selected student info will display in the textboxes provided and admin press the edit button. The textboxes will change from non-editable to editable textboxes for admin to change the student info. Then, admin press the update button to update the student info into the database.

# 4.7.4 Search Student Info

Admin can search the student info by input the student matric in the textbox provide. After that, admin press the search matric button to search the student info. The search result will display in data grid view for admin to view.

			Sea	rch Matric	Home
			StudentName	StudentMatric	StudentFac
		•	Adrian Yong We	Сь11064	FSKKP
			Chong Jian DOng	Ca11001	FSKKP
			Foong Wei Pin	cb11101	FSKKP
StudentName			Liang Kai Jun	AA11200	FKKSA
			Lim Seng Kee	cb11049	FSKKP
udentMatric			NG CHING HONG	CB11043	FSKKP
	·····································		YEOH BOON TI	CB11030	FSKKP
Course		*			
Delete	Edit		II		

Figure 4-13 View Student Info Page

### 4.8 ViewAttendance Module

This module is for the admin to view and delete the student attendance whom attend the event that held in the university.

I have divided it into 5 parts that is:-

- a) View Student Attendance
- b) Manual Input Attendance
- c) Delete Student Attendance
- d) Search Student Attendance
- e) Print Attendance

#### 4.8.1 Select Event Name

Admin shall able to browse and select the event attendance sheet to view the student attendance record. Admin will select the event attendance sheets that want to view from a combobox and press the go button.

#### 4.8.2 View Student Attendance

The system will display all the student info from database in a data grid view. Admin can view StudentName, StudentMatric, timestamp, and student profile picture.

## 4.8.2.1 Check-In List

Admin will press the check-in list button to view the student that had been check-in in the event. The data grid view will display student name, student matric and time checkin. A picture box will show the student profile when a student attendance record is selected from the data grid view. There are also some textboxes for display the info of the selected student attendance record. Admin will press the check-out list button to view the student that had been check-out in the event. The data grid view will display student name, student matric and time check-out. A picture box will show the student profile when a student attendance record is selected from the data grid view. There are also some textboxes for display the info of the selected student attendance record.

### 4.8.2.3 Overall List

Admin will press the overall list button to view the student that had been check-in and check-out in the event. The data grid view will display student name, student matric time check-out, and time check-out. A picture box will show the student profile when a student attendance record is selected from the data grid view.

#### 4.8.3 Manual Input Attendance

This page is for the admin to manually input student attendance into the system database. This occurs because if there are too many people want to check-in or check-out the system and it will take long time to finish record all student attendances. Hence the event runner may ask student to write their name and matric number in a piece of paper and then admin will input their attendance into the database. As the result, it will save a lot of times.

#### 4.8.3.1 Check-In

Admin will input the student matric in a textbox provide and press the check-in button. The system will record the student attendance into the system database. Admin will input the student matric in a textbox provide and press the check-in button. The system will record the student attendance into the system database.

## 4.8.4 Delete Student Attendance

If admin accidently input the wrong student matric for the student attendance, the system shall able allow the admin to delete the wrong student attendance record and input the correct student matric into the student attendance database. If admin input the wrong student matric, admin search the wrong student attendance record in the data grid view and press delete button to delete the record so that admin can input the correct student attendance record.

#### 4.8.5 Search Student Attendance

Admin can search the student attendance record via student matric. Admin shall input student matric in a textbox provided. By pressing the search matric button, the search record will display in the data grid view for admin to view and delete.

## 4.8.6 Print Attendance

Admin shall able to print the student attendance. Admin can select which attendance list that they want to print. Admin press preview attendance to preview the attendance sheet before print. Admin press the print attendance to print the attendance sheet.

ViewAttendance						- 0 X
Home	Select Attendance Sho	eet:	KK2 FESTIVAL	-	Go	
			Check_In List	Check_Out Lis	t Overall I Search Matric	List
				Overall Lis	st	
			StudentName	StudentMatric	TimeCheckIn	TimeCheck
		•	NG CHING HONG	CB11043	10-12-2014 01:4	10-12-2014
		1.14	YEOH BOON TI	CB11030	10-12-2014 01:4	10-12-2014
			LIM SENG KEE	CB11049	10-12-2014 01:4	10-12-2014
		4		11		
Manu	ual Input Attendance			Preview	Attendance	

Figure 4-14 View Attendance Page

Attendance
tric Number
Check-out
a
-2014 09:23:44

Figure 4-15 Admin Manual Input Attendance Page

PreviewPrintSheet		
	анан ( анан ( ан)нан ( анан ( анан ( ан)н ( ан)н ( ан)н ( ан)н ( ан)н ( ан)н ( ан)н ( ан)н (	
Print Attendance	Ca	ancel

Figure 4-16 Attendance Sheet Print Page

## **4.9 Refresh Button**

Admin can refresh the data grid view to display the latest attendance sheet after the admin manually input student matric for the student attendance.

Refresh
1 Martine and

**Figure 4-17 Refresh Button** 

#### 4.10 Home Button

Admin can back to the main menu page by pressing the home button

Home

**Figure 4-18 Home Button** 

4.11 Log out Button

Admin can log out the system by pressing the log out button

LOG OUT

Figure 4-19 Logout Button

# 4.12 View Student Fingerprint

Admin can view and delete the student fingerprint. Admin will input the student matric in the textbox provide. Admin press view button to view student fingerprint or press delete button to delete the student fingerprint.

View Student Fingerprint						
	Plei	ase key-i	n matric I	Number		
				<u></u>		
		<u> </u>	liew	]		
		D	elete	u)		

Figure 4-20 View Student Fingerprint Page

#### 4.13 View Merit Page

This page is for the admin to view student that already given the merit mark.

# 4.13.1 Select Event Name

Admin shall able to browse and select the event attendance sheet to view the student attendance record. Admin will select the event attendance sheets that want to view from a combobox and press the go button.

p.

# 4.13.2 View Student Merit

The system will display all the student info from database in a data grid view. Admin can view StudentName, StudentMatric, Merit, and student profile picture.

# 4.13.3 Search Student Merit

Admin can search the student merit record via student matric. Admin shall input student matric in a textbox provided. By pressing the search matric button, the search record will display in the data grid view for admin to view.

🖳 ViewMerit				
View	StudentMerit			
Select Attendance Sheet:	KK2 FESTIVAL		Go	
			Refresh	
	StudentName	StudentMatric	Search Matric	
	NG CHING HONG	CB11043	100	
	YEOH BOON TI	CB11030	100	
	LIM SENG KEE	CB11049	100	
Home				

Figure 4-21 View Merit Page

# 4.14 Database Description

This section will briefly describe about the system database. In this system, we have a database called esas. In esas database, we have 6 table that is:-

- 1. Admin
- 2. Attendance
- 3. AttendanceOut
- 4. Event
- 5. Merit
- 6. Student

# 4.14.1 Admin

For the admin table, it is used to store the username and password for the admin to login into the ESAS.

#	Name	Туре	Collation	Attributes	Null	Default	Extra
1	id	int(11)			No	None	AUTO_INCREMENT
2	username	varchar(30)	latin1_swedish_ci		No	None	
3	password	varchar(30)	latin1_swedish_ci		No	None	

# Figure 4-22 Admin Table

## 4.14.2 Attendance

For the attendance table, it is used to store the attribute such as StudentMatric, EventName and TimeCheckIn into the database when the students check-in at the university event.

#	Name	Туре	Collation	Attributes
1	id	int(11)		
2	<b>StudentMatric</b>	varchar(10)	latin1_swedish_ci	
3	EventName	varchar(400)	latin1_swedish_ci	
4	TimeCheckIn	varchar(30)	latin1_swedish_ci	

Figure 4-23 Attendance Table

### 4.14.3 AttendanceOut

For the attendanceOut table, it is used to store the attribute such as StudentMatric, EventName and TimeCheckOut into the database when the students check-out at the university event.

#	Name	Туре	Collation	Attributes
1	ID	int(11)		
2	StudentMatric	varchar(11)	latin1_swedish_ci	
3	EventName	varchar(400)	latin1_swedish_ci	
4	TimeCheckOut	varchar(30)	latin1_swedish_ci	

Figure 4-24 AttendanceOut Table

### 4.14.4 Event

For the event table, it is used to store the event name and merit that create by the admin.

] E	Browse	И	Structure	SQL	Se Se	earch	3
#	Name		Туре	Collation		Attribu	utes
1	id		int(11)				
2	EventNa	ame	varchar(400	) latin1_swe	edish_ci		
3	Merit		int(11)				

Figure 4-25 Event Table

# 4.14.5 Merit

For the Merit table, it is used to store student matric, event name and the merit marks when student already check-in and check-out the event

#	Name	Туре	Collation	Attributes
1	id	int(100)		
2	StudentMatric	varchar(10)	latin1_swedish_ci	
3	EventName	varchar(400)	latin1_swedish_ci	
4	Merit	varchar(10)	latin1_swedish_ci	

Figure 4-26 Merit Table

## 4.14.6 Student

For the Student table, it is used to store student name, matric, faculty, course, and handphone number into database after the admin finish the register the student info.

Name	Туре	Collation	Attributes
id	int(11)		
StudentName	varchar(100)	latin1_swedish_ci	
StudentMatric	varchar(10)	latin1_swedish_ci	
StudentFaculty	text	latin1_swedish_ci	
StudentCourse	varchar(100)	latin1_swedish_ci	
StudentHandphone	int(20)		

# Figure 4-27 Student Table

# **CHAPTER 5**

## **TESTING PLAN**

In this chapter, we will discuss how the system is tested. In this report, we will provide the test case for each module and user acceptance testing form. Each module is tested to prevent any error that will cause failure of the system. The user acceptance testing is for the client to testing whether the system is developed based on the system requirement.

# 5.1 Test plan for Login Page

Use Case	Test Case	Test Data	Expected	Actual Result
			Result	
Login	No input	username="" &	error message	error message
		password = ""	please input	"please input
			username and	username and
			password"	password"
	username	username=hu	invalid user	invalid user
	wrong	& password =		
		123		
	password	username=ng	invalid user	invalid user
	wrong	& password = 456		
	correct	username =ng	message box	message box
	username and	& password =	state valid user	state valid user
	password	123	go to main	go to main
			menu page	menu page

 Table 5-1 Test Case for Login Page

# 5.2 Test Plan for Main Menu Page

Use	Test Case	Test Data	Expected Result	Actual Result
Case				
main	StudentRegistra	Press Student	Pop out enroll	Pop out enroll
menu	tion button	Registration	form	form
page		button		
	Event Check-In	Press Event	Student	Student
	Button	Check-In Button	Attendance Page	Attendance Page
			Show	Show
	ViewStudentInf	Press	ViewStudentInfo	ViewStudentInfo
	o Button	ViewStudentInfo	Page Show	Page Show
		Button		
	ViewAttendanc	Press	ViewAttendacne	ViewAttendacne
	e Button	ViewAttendance	Page Show	Page Show
		Button		
	ViewStudentFi	Press	ViewStudentFing	ViewStudentFing
	nger Button	ViewStudentFing	er Page Show	er Page Show
		er Button		
	ViewMerit	Press View Merit	View Merit Page	View Merit Page
	Button	Button	Show	Show

Table 5-2 Test Case for Main Menu Page

Use Case	Test Case	Test Data	Expected	Actual
			Result	Result
StudentRegistration	Student's	Enter student	waiting for	waiting for
	Fingerprint	matric	fingerint scan	fingerint scan
	identity			
	Scan	Student scan	Fingerprint	Fingerprint
	Fingerprint	fingerprint	image display	image display
	Insert student	Input all the	save student	save student
	info	student info	info into	info into
			database	database
	Insert student	Some of the	error message	error message
	info	info was not	"Please input	"Please input
		input	necessary	necessary
			info"	info"
	Image upload	Select jpeg	Image	Image
		format image	uploaded	uploaded

# 5.3 Test Plan for Main Menu Page

Table 5-3 Test Case for Student Registration Page

# 5.4 Test Plan for Event Check-In Page

Use Case	Test Case	Test Data	Expected	Actual Result
			Result	
Event Check-In	Check In Part			
	Input invalid student matric	student matric = hjusa123	error message "Please Contact with admin to register before you check in."	error message "Please Contact with admin to register before you check in."
	Input valid student matric	student matric = cb11043	save attendance into database	save attendance into database
	Check-in one time only	student matric = cb11043	error message "You already check-in"	error message "You already check-in"

# Table 5-4 Test Case for Event Check-In Page (Check-in)

Use Case	Test Case	Test Data	Expected	Actual Result
Event Cheels	Chaols Out Dort		Result	L
Event Check-	Check Out Part			
Out				
	Input invalid	student matric	error message	error message
	student matric	= hjusa123	"Please Contact	"Please Contact
			with admin to	with admin to
			register before	register before
			you check out."	you check out."
	Input valid	student matric	save attendance	save attendance
	student matric	= cb11043	into database	into database
	Check-out one	student matric	error message	error message
	time only	= cb11043	"You already	"You already
			check-out"	check-out"
	Merit marks	Student already	Merit marks is	Merit marks is
		check-in and	given	given
		check-out		

Table 5-5 Test Case for Event Check-In Page (Check-out)

# 5.5 Test Plan for View Student Info Page

Use Case	Test Case	Test Data	Expected	Actual Result
			Result	
View Student	View Student	select Ng	display Ng	display Ng
Info	Info	Ching Hong	Ching Hong's	Ching Hong's
		from	info in	info in
		datagridview	textboxes	textboxes
			provided	provided
	Delete Student	Press delete	delete Ng	delete Ng
	Info	button to delete	Ching Hong	Ching Hong
		Ng Ching	student info	student info
		Hong	from database	from database
· · · ·	Update Student	Press edit	update Yeoh	update Yeoh
	Info	button to	Boon Tiam	Boon Tiam
		update Yeoh	student info in	student info in
		Boon Tiam	database	database
		info		
	Search Student	student matric	display Yeoh	display Yeoh
	Info	= CB11030	Boon Tiam	Boon Tiam
			Student Info in	Student Info in
			Datagridview	Datagridview

Table 5-6 Test Case for View Student Info Page

# 5.6 Test Plan for View Attendance Page

Use Case	Test Case	Test Data	Expected	Actual Result
			Result	
View	Check_In List	Press Check_In	Display student	Display student
Attendance		List Button	attendance	attendance
			whom check-in	whom check-in
			in datagridview	in datagridview
	Check_Out List	Press	Display student	Display student
		Check_Out List	attendance	attendance
		Button	whom check-	whom check-
			out in	out in
			datagridview	datagridview
	Overall List	Press Overall	Display student	Display student
		List Button	attendance	attendance
			whom already	whom already
			check_in and	check_in and
			check-out in	check-out in
			datagridview	datagridview
	Search Student	student matric	Display Yeoh	Display Yeoh
	Attendance	= CB11030	Boon Tiam	Boon Tiam
			Student	Student
			attendance	attendance
			record in	record in
			Datagridview	Datagridview
	Delete Student	Press delete	Delete Ng	Delete Ng
	Attendance	button to delete	Ching Hong	Ching Hong
		Ng Ching	student	student
		Hong	attendance	attendance
		attendance	record from	record from
		record	database	database
	Manual Input	Press Manual	Manual Input	Manual Input
	attendance	Input	attendance	attendance
	button	attendance	Page Show	Page Show
		button		
	Preview	Press Preview	Preview	Preview
	Student	Student	Student	Student
	Attendance	Attendance	Attendance	Attendance
		button	Page Show	Page Show

 Table 5-7 Test Case for View Attendance Page

# 5.7 Test Plan for Manual Input Attendance Page

Use Case	Test Case	Test Data	Expected	Actual Result
			Result	
Manual Input Attendance	Check In Part			
	Input invalid student matric	student matric = hjusa123	error message "Please Contact with admin to register before you check in."	error message "Please Contact with admin to register before you check in."
	Input valid student matric	student matric = cb11043	save attendance into database	save attendance into database
	Check-in one time only	student matric = cb11043	error message "You already check-in"	error message "You already check-in"

 Table 5-8 Test Case for Manual Input Attendance Page (Check In)
Use Case	Test Case	Test Data	Expected	Actual Result
Event Check-	Check Out Part	L	Kesun	
Out				
	Input invalid student matric	student matric = hjusa123	error message "Please Contact with admin to register before you check out."	error message "Please Contact with admin to register before you check out."
	Input valid student matric	student matric = cb11043	save attendance into database	save attendance into database
	Check-out one time only	student matric = cb11043	error message "You already check-out"	error message "You already check-out"
	Merit marks	Student already check-in and check-out	Merit marks is given	Merit marks is given

Table 5-9 Test Case for Manual Input Attendance Page (Check Out)

### 5.8 Test Plan for Print Preview Page

Use Case	Test Case	Test Data	Expected Result	Actual Result
Print Preview	Print	Press Print	Print	Print
	Attendance List	Attendance	Attendance List	Attendance List
		Button		

## Table 5-10 Test Case for Print Preview Page

### 5.9 Test Plan for View Student Fingerprint Page

Use Case	Test Case	Test Data	Expected Result	Actual Result
View Student	View	Input CB11043	CB11043	CB11043
Fingerprint	Fingerprint		fingerprint	fingerprint
			show	show
	Delete	Input CB11043	CB11043	CB11043
	Fingerprint		fingerprint	fingerprint
			deleted	deleted

## Table 5-11 Test Case for View Student Fingerprint Page

#### **CHAPTER 6**

#### CONCLUSION

Event Student Attendance System (ESAS) via fingerprint recognition is suitable use as an attendance system in every event. This prototype is accurate, efficient and wellperforming in verify student fingerprint and record their attendance into database. As a result, it can prevent "Buddy Sign" to occur. With this computerize system, it will help the admin to monitor the student attendance and ensure that the merit is given to student whom had attended the event.

For this system, it is using fingerprint verification method in fingerprint recognition process. The fingerprint verification is a process where validate a person fingerprint by comparing with his/her fingerprint template that store in ESAS database. This method of recognition is called 1 to 1 comparison method. In the event check-in process, students are require to input student matric before they scan their fingerprint. The system will verify the student fingerprint with the database template based on the student matric provided.

For the future works, the Event Student Attendance System can be upgrade to latest and more efficient fingerprint recognition technology to get a better fingerprint image or fingerprint verification.

#### REFERENCES

- FREE TIME-IN/TIME-OUT TIME-SHEET FOR TRACKING MULTIPLE EMPLYEES (EXCEL/SPREADSHEET TEMPLATE). Retrieve 3<sup>rd</sup> December 2014, from General Blue web site: <u>http://www.generalblue.com/Services/FreeTools/MultipleEmployeeTimeIn</u> <u>TimeOutTimesheet.aspx</u>
- Alibaba.com S-960 punch card machine. Retrieve 5<sup>th</sup> March 2014, from Alibaba web site: <u>http://www.alibaba.com/product-detail/S-960-punch-card-</u> machine 338982990.html
- 3. Free Attendance Tracking Forms. Retrieve 5<sup>th</sup> March 2014, from VERTEX42 web site: <u>http://www.vertex42.com/ExcelTemplates/attendance-tracking.html</u>
- IStationeries WEMAX punchcard/ time recorder machine. Retrieve 5<sup>th</sup> March 2014, from IStationeries web site: <u>http://istationeries.com/goods.php?id=1597</u>
- ClockCards-2-Go Weekly Clock Cards. Retrieve 5<sup>th</sup> March 2014, from ClockCards-2-Go web site: <u>http://www.clockcards2go.co.uk/clock-cards.htm</u>
- DP ENTERPRISES RFID Cards. Retrieve 5<sup>th</sup> March 2014, from DP ENTERPRISES web site: <u>http://www.indiamart.com/dpenterprisesmumbai/pvc-plastic-card.html</u>
- Ebay school class attendance register book red cover E100. Retrieve 3<sup>rd</sup> December 2014, from ebay web site: <u>http://www.ebay.co.uk/itm/school-class-attendance-register-book-red-cover-E100-/160877752551</u>
- SOFTPEDIA Class Monthly Attendance Report. Retrieve 5<sup>th</sup> March 2014, from SOFTPEDIA web site: <u>http://www.softpedia.com/get/Office-tools/Other-Office-Tools/Class-Monthly-Attendance-Report.shtml</u>
- BISO Developments RFID Card Based Punching Machine For Attendance Recording (S 200). Retrieve 5<sup>th</sup> March 2014, from BISO Developments web site: <u>http://www.bisoattendance.com/RFID\_Card\_Based\_Punching\_Machine\_Fo</u> r\_Attendance\_Recording\_S200.html
- 10. DAKOTA Security ACCESS CONTROL. Retrieve 5<sup>th</sup> March 2014, from DAKOTA Security web site: <u>http://dakotasecurity.com/products/access-control/</u>

- 11. RAMSOFT CONSULTING Methodology. Retrieve 9<sup>th</sup> September 2014, from

   RAMSOFT
   CONSULTING

   web

   site: <a href="http://www.ramsoft.com.au/methodology.php">http://www.ramsoft.com.au/methodology.php</a>
- 12. ISTQB EXAM CERTIFICATION. What is RAD model advantages, disadvantages and when to use it? Retrieve 9<sup>th</sup> September 2014, from ISTQB EXAM CERTIFICATION web site: <u>http://istqbexamcertification.com/what-is-rad-model-advantages-disadvantages-and-when-to-use-it/</u>
- 13. Cory Janssen. Rapid Application Development (RAD). Retrieve 9<sup>th</sup> September
   2014, from TECHOPEDIA web
   site: <u>http://www.techopedia.com/definition/3982/rapid-application-development-rad</u>
- 14. Wikipedia, the free encyclopedia (4 December 2014). Rapid Application Development.. Retrieve 6<sup>th</sup> December 2014, from Wikipedia web site: <u>http://en.wikipedia.org/wiki/Rapid\_application\_development</u>
- 15. NeuroTechnology. Free Fingerprint Verification SDK : Developer Guide

## Appendix A

#### **Gantt Charts for PSM**

ID	0	Task Mode	Task Name	Duration	Start	Finish	Predecessors	1
1		3	Planning	10 days	Mon 17/2/14	Fri 28/2/14		
2	IHI	-	Resource Use	3 days	Mon 17/2/14	Wed 19/2/14		
3		-	Technology Use	3 days	Thu 20/2/14	Mon 24/2/14	2	_
4		3	Time Schedule	3 days	Tue 25/2/14	Thu 27/2/14	3	
5		3	Propose Function	1 day	Fri 28/2/14	Fri 28/2/14	4	
6		3	Planning Completed	0 days	Fri 28/2/14	Fri 28/2/14	5	
7		3	Analysis	25 days	Mon 3/3/14	Fri 4/4/14	1	
8		3	User Requirement	5 days	Mon 3/3/14	Fri 7/3/14		
9		-	Hardware Required	2 days	Mon 10/3/14	Tue 11/3/14	8	
10		3	Software Required	2 days	Wed 12/3/14	Thu 13/3/14	9	
11		3	SRS Preparation	15 days	Fri 14/3/14	Thu 3/4/14	10	
12		3	SRS submission	1 day	Fri 4/4/14	Fri 4/4/14	11	
13		-	Analysis Complete	0 days	Fri 4/4/14	Fri 4/4/14	12	-
14		-	Design	22 days	Mon 7/4/14	Tue 6/5/14	7	
15		*	Mid Term Break	5 days	Mon 7/4/14	Fri 11/4/14	1	-
16	-	-	Design Storyhoard	4 days	Mon $14/4/14$	Thu $17/4/14$	15	-
17	-	2	Design Database	3 days	Eri 18/4/14	Tue 22/4/14	16	-
18	-	-	Building a	10 days	Wed 22/4/14	Tue 6/5/1/	17	
10		\$	prototype	10 days	med 23/4/14	Tue 0/ 5/ 14	11	
19		3	Design Complete	0 days	Tue 6/5/14	Tue 6/5/14	18	
20		-	Implementation	69 days	Wed 7/5/14	Mon 11/8/14	14	
21		•	Module 1 Student Registration	13 days	Wed 7/5/14	Fri 23/5/14		
22		9	Coding	8 dave	Wed 7/5/14	Fri 16/5/14		-
23		-	Testing	4 days	Mon 19/5/14	Thu $\frac{22}{5}/14$	22	-
24		-	Suctom Module 1	1 days	Emi 23/5/14	Emi 23/5/14	22	-
24		¢	report Submission	I day	111 23/3/14	111 25/5/14	25	
25		3	Module 1 Complete	0 days	Fri 23/5/14	Fri 23/5/14	24	
ID	0	Task Mode	Task Name	Duration	Start	Finish	Predecesso	ors 1
26		0¢	Module 2 Student Attendance Check ]	24 days In	Mon 26/5/	14 Thu 26/6/	/14 21	
31	_	3	Module 3 Manage Student	16 days	Fri 27/6/	14 Fri 18/7/	/14 26	
36		<b>B</b>	Module 4 Manage Attendance	16 days	Mon 21/7/	14 Mon 11/8,	/14 31	
37		3	Coding	10 days	Mon 21/7/	14 Fri 1/8/1	4	
38		-	Testing	5 days	Mon 4/8/1	1 Fri 8/8/1	4 37	
39		<b>B</b> D	System Module 4 report Submission	1 day	Mon 11/8/	14 Mon 11/8/	14 38	
40		3	Module 4 Complete	e O days	Mon 11/8/	14 Mon 11/8/	14 39	
41		B	User Acceptance Test	9 days	Tue 12/8/	14 Fri 22/8/	/14 20	
42		<b>1</b> 0	User Acceptance Test	9 days	Tue 12/8/	14 Fri 22/8/	14	
43		D.	User Acceptance Test Complete	0 days	Fri 22/8/	14 Fri 22/8/	14 42	
44		3	Maintanance	10 days	Mon 25/8/	14 Fri 5/9/1	4 41	
45		-	Checking Error	5 days	Mon 25/8/	14 Fri 29/8/	14	
46		-	Recover Error	5 days	Mon 1/9/14	Fri 5/9/1	4 45	
47		-	Maintanance	0 days	Fri 5/9/14	1 Fri 5/9/1	4 46	



#### **Appendix B**

#### **User Requirement Sign-Off Form**

USER REQUIREMENT ACCEPTANCE AND SIGN-OFF FORM EVENT STUDENT ATTENDANCE SYSTEM Created by This document is to get the client's sign-off once the User Requirement is accepted Project Name **Event Student Attendance System** Ng Ching Hong Issued by Date 20/06/0014 The User Requirement has been reviewed against his/her acceptance criteria and has been formally accepted on the behalf of the client. SIGN-OFF FORM I have reviewed and approved the Event Student Attendance System's User Requirement for the project named above, with changes, additions, deletions, corrections and comments as annotated in the User Requirement master copy. 56/06/2014 I hereby give you approval to start your project from ...... .. onwards. I understand that further changes to the structure, objectives, or content of the course (aside from those specified in the User Requirement's master copy) will likely result in a delay in the final delivery date and could result in additional costs. Additional Comments related to the Client's Acceptance: 25 7410 2014 Date: TELEVISION CONTRACTOR DATE: CONVETTENCE OF INACLINAT DATE: DUSAT TEXNEL OF INACLINAT & KOMUNIKASI INAVERSITI MALAYSIA PAHANG LEBUHRAH ODIPAZK ZISOG GAMEANG, KUANTAM PAHANG DARUL MAANUR PAHANG DARUL MAANUR PAHANG DARUL MAANUR PAHANG DARUL MAANUR ARUL MAXMUR 9 2190 FAK3: 09-540 2199 Date: \_\_\_\_\_\_ simuatua

(NG CHING HONG)

### Appendix C

### **User Acceptance Testing Sign-Off Form**

#### USER ACCEPTANCE TESTING AND SIGN-OFF FORM

EVENT STUDENT ATTENDANCE SYSTEM Created by NG CHING HONG This document is to get the client's sign-off once the User Acceptance Testing is accepted

Project Name	Event Student Attendance System
Issued by	Ng Ching Hong (CB11043)
Date	a/12/2014,

The User Acceptance Testing has been reviewed against his/her acceptance criteria and has been formally accepted on the behalf of the client.

I have reviewed and approved the User Acceptance Testing for the project named above, with changes, additions, deletions, corrections and comments as annotated in the User Acceptance Testing master copy.

Additional Comments related to the Client's Acceptance:

9/12/2014 Date: Client) Ft 9/12/2014 Date: C

(NG CHING HONG)

SIGN-OFF FORM

# User Acceptance Testing 1

## **User Acceptance Test Checklist**

Test case name: Student Po	eBierration	Reference; 01A001	
Test case 1 version:	Sheet: 1	Date 08/12/2014 created:	
Task or requirement		Fail Query	Pass
Student shall register their info	o and fingerprint into l	ESAS DBMS	
Student Name	- o House by by	capited letter-	
Student Matric	-o Howe to	he appled letter	
Student Faculty			
Student Course			
Student Handphone number	-D Validate	only musica can be	insurfed
Student Fingerprint	14.4.44.400	- 11 · ·	
UAT completed by:		Date completed:	
Test case	Satisfactory / Pan	ding clarification / Return to devel	opers

# User Acceptance Testing 2

Test case name: Event	Management	Reference: UTA002	
Test case 1 version:	Sheet: 2	Date 08/12/2014 created:	
Task or requirement		Fail Q	Jery Pass
Admin shall set the name	for the University Even	r v	
Student shall check in atte	ndance via fingerprint i	recognition	
Student shall check-out at	tendance via fingerprin	tracognition	New second
Student only can check-in	and check-out once		~
ESAS will save student ma	atric and timestamp inte	a databasa	<b>L</b>
Manufi munda antifi fan adaman a	where studient alreader el	wek-in and	
check-out the even check-out the even ESAS will display the ima student check-in a	il ge and student matric w nd check-our	then the - retire the - Dirploy "Ptu	Awart picture and norms
check-out the even check-out the even ESAS will display the ima student check-in a	il ge and student matric w nd check-out	then the - Victoria flaa - Dirplog Totu	Alulant picture day include
check-out the even check-out the even ESAS will display the ma student check-in a	it ge and student matric w and check-our	then the - retire the - Dirplay option	student prefuse
check-out the even check-out the even ESAS will display the ma student check-in a	it ge and student instric w and check-out	ohen the _ retire the - thiplay "ptu	Awlent puchane day many
check-out the even check-out the even ESAS with display the ima student check-in a	it ge and student matric w	chen the - Vietina flia - Dirplog "pto	Awart picture and norms
check-out bai ever check-out bai ever ESAS will display the ma student check-in a	ti ge and student मध्वमंद भ कवे cheek-our	chen the _ rectine the - thirplay inpla	student produce day many
check-out bai ever check-out bai ever ESAS will display the ma student check-in a	it ge and student matric w	chen the _ retire the - Wrplay "pto	otwhent produce day many
Check-out the even check-out the even ESAS will display the ima student check-in a	it ge and student instric w and check-out	then the - retire the - hiplas pho Date completed:	Awlent picture duit incluse

# User Acceptance Test Checklist

Test case hame: View Studer	nt Atlendance	Reference; UTAO	Xa
Test case 1 version:	Sheet 3	Date 06/12/ created:	2014
Task or requirement		Fall	Query Pass
Check-In			$\sim$
Admin has the access to vive-			lavert
Student Name			Sure
Student Matric			1.1
Student Image			S
-DowSamp			V
Check-out			
Admin has the access to view-			
Student Nome			<i>ب</i> ل <sup>سرو</sup>
Stuchent Matric			اليون
Student Image			V
Trackomp			
Admin can print the attendance	hat	- conflikon leys	pr proven
Admin can manual input stude	at stlendarce	- the just repeated s	here he have been been been been been been been be
Admin can dølete student atten	dance record		
UAT completed by:		Date complet	ed:
Test case outcome: cate appropriate outcome	Satisfactory / Pr	ending clarification / Ro	turn to developera

# User Acceptance Testing 4

Test case name: View Stud Test case 1 version:	ent Info Sheet: 4	Reference: UTA004 Date 08/12/2014 created:	
Task or requirement		Fail (	)uery Pa
Admin chall able to viaw stud	ant info.		•
-Stadent Namo	eranga databatir" 		
Student Matric			
-Student Faculty			
-Student Course			
-Student Handplause number	e***	veridade Soft-	
-Student Fingerprint			
Student Picture			
Admin can modify the studen	s indo		
PAGEMENT CARD STREETS THE REQUEST	110413		
UAT completed by:		Date completed:	
Test case Outcome: circle sporpriste culcome	Satisfactory / I	Pending clarification / Return	to develops