Version
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DOOR ACCESS SYSTEM VIA FINGERPRINT WITH GSM

Faculty of Computer Systems & Software Engineering (FSKKP)

Software Design Document (SDD)

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1.0 ENTITY RELATION DATA MODEL

The figure below shows the logical representation of the data in Door Access System via Fingerprint with GSM (ReSMART).

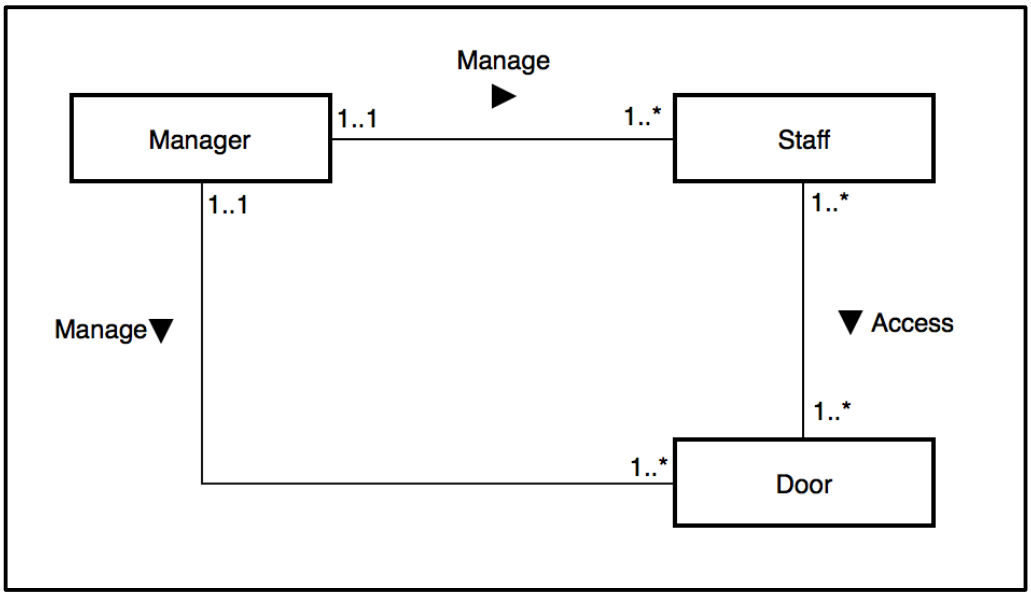

Figure 1.1 Entity Relation Data Model of ReSMART

From Figure 1.1, it shows that a manager may manage many staff and may view many access records. However, for a staff, he/she can only be managed by one manager. For one access record, it can only be viewed by one manager. Moving on, a staff may access many doors. For a door, it may also be accessed by many staff.

2.0 DATA DICTIONARY

This section will provide the information about the database. It will describe about the database's tables fields that are related in ReSMART. Each attributes in the database will be divided by the table's name. The description each attributes will also be described in the next subchapters.

2.1 Table tblManager

Table 2.1 below will describe about the data dictionary for all the attributes involved in tblManager.

Table 2.1 Data Dictionary for table tblManager

Field Name	Description	Data Type	Constraint
managerPassword	Manager password	char (30)	Primary Key
managerPhoneNo	Registered manager's phone number	int32 (11)	Foreign Key

2.2 Table tblDoor

Table 2.2 below will describe about the data dictionary for all the attributes involved in tblDoor.

Table 2.2 Data Dictionary for table tblDoor

Field Name	Description	Data Type	Constraint
doorID	Door ID	int32 (5)	Primary Key
doorAreaName	Registered door area place	char (20)	Foreign Key

2.3 Table tblStaff

Table 2.3 below will describe about the data dictionary for all the attributes involved in tblStaff.

Table 2.3 Data Dictionary for table tblStaff

Field Name	Description	Data Type	Constraint
staffID	Staff ID	int32 (5)	Primary Key
staffShortName	Staff short name	char (16)	-
staffFullName	Staff full name	char (50)	-
manager PhoneNo	Registered manager's phone number	int32 (11)	Foreign Key
doorID	Door ID	int32 (5)	Foreign Key

2.4 Table tblReport

Table 2.4 below will describe about the data dictionary for all the attributes involved in tblReport.

Table 2.4 Data Dictionary for table tblStaff

Field Name	Description	Data Type	Constraint
accessNo	Access number	Autonumber	Primary Key
accessDate	Access date	char (10)	-
accessTime	Access time	char (8)	-
staffID	staffID	char (5)	Foreign Key
doorID	Door ID	int32 (5)	Foreign Key

3.0 USER INTERFACE

This section will describe about the software design concept. The interfaces will be included. Each function that can be performed inside each interface will be describe in detail.

3.1 Manager Login Interface

Figure 3.1 below shows the Manager Login Interface in Door Access System via Fingerprint with GSM (ReSMART). At the top right corner of the interface, there is a 'Forgot Password?' link label. If the user forgot their password, they can click on this label and it will lead them to a page showing them about the steps they should do to retrieve their password. Moving on, at the bottom-center of the interface, there is a textbox for the manager to enter the password. This textbox is masked with '•' character. Next, after entering the password, the manager can click on the 'Login' button. If the entered a wrong password, an error message will pop-up. If the password entered is matching with the database, the system will lead the user to the next interface.

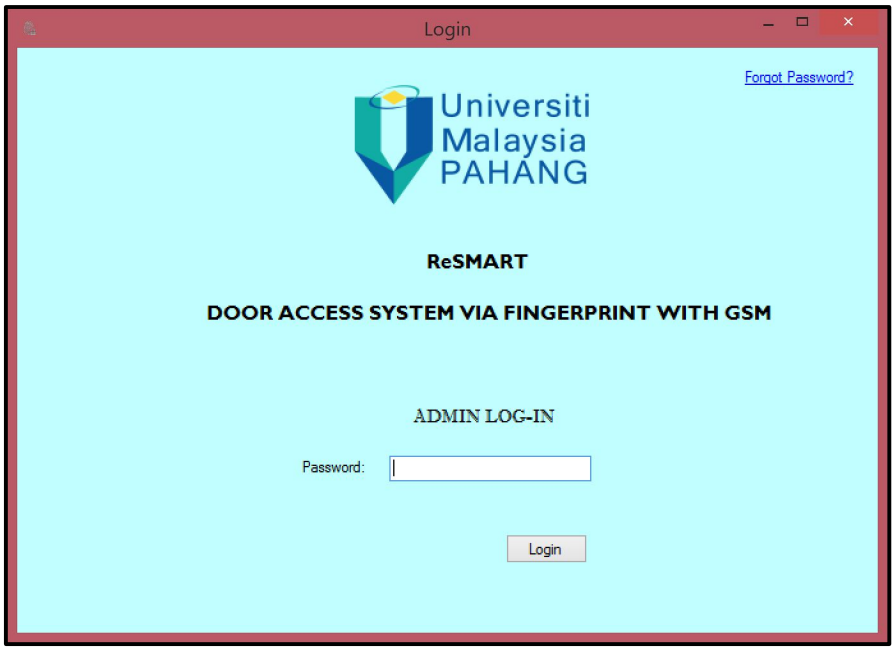

Figure 3.1 Manager Login Interface

3.2 Main Interface

Figure 3.2 below shows the Main Interface before the connection is established in Door Access System via Fingerprint with GSM (ReSMART). At the top right corner of the interface, three icons that are lock icon, door icon, and info icon. If the user clicks on the lock icon, the application will lead you to change the password. The door icon will make the user log-out from the application. The info icon will show the basic information about the application. All of these three icon have Tooltip features that will tell the user what does each icon means if the cursor is on the icon for more than three seconds. Moving on, there is two groupbox that are 'Connection' and time. The 'Connection' groupbox will allow the user to choose any available connection to the microcontroller transmitter through the COM port. The user can easily choose the available port that is listed automatically in the combobox if the microcontroller is connected. After choosing the COM Port, the user can press on the 'Connect' button to establish the connection. The next combobox will show the live time and date to the user.

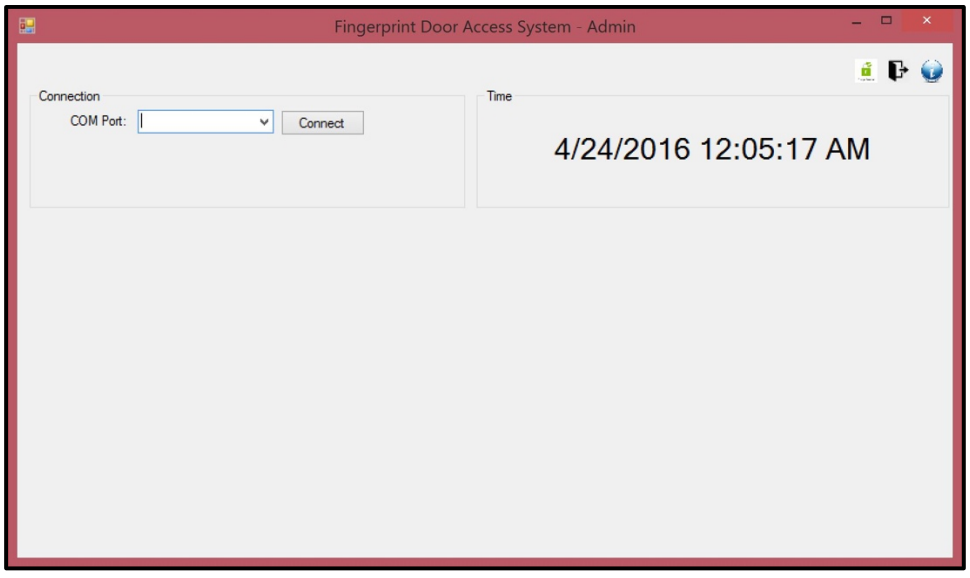

Figure 3.2 Main Interface before connection

Figure 3.3 shows the Manage User after connection interface. In this interface, manager can choose any of the main functions that he wants. This page basically provides all the main function to manage the staff such as Register User, Delete User, Delete All Users, Update Existing User Details. In the 'Register User' under the 'User' tab, the manager can add new user that is the staff.

To add the user, manager will fill up all the particulars of the staff that is authenticated to access to any area. The details needed is staff ID, taff short name, staff full name, allowed access door, and registered manager phone number. All this fields need to be filled up or else an error message will pop-up. For staff short name and full name, maximum characters of 16 and 50 are respectively applicable. However, for the phone number, only integer-type characters are allowed to be used. After that, the manager needs to click on the 'Add Fingerprint' button. The PIC will later ask the staff to scan their fingerprint. After the fingerprint is scanned and successful, the user details will be stored in the database and it will also be downloaded to the PIC.

To delete any user, the manager needs to choose the desired staff in the list on the right of the interface. The user id, short name and full name will be automatically filled in. All these fields can not be amended. the 'Update' 'Delete User' and 'Delete All User' will then be enabled. Then, the manager need to click on the 'Delete' button to delete the record from the database and also from the PIC. If the user clicks on the 'Update' button, the new data will overwrite the data before in the database and also in PIC. Moving on, if the manager click on 'Delete All Users' button, all the user data and fingerprint records will be deleted from both the database and PIC. However, to perform the delete and update functions, there will be a confirmation message from the application asking the manager that if he really want to perform those functions. This is to avoid any unintentional mistakes performed by the manager.

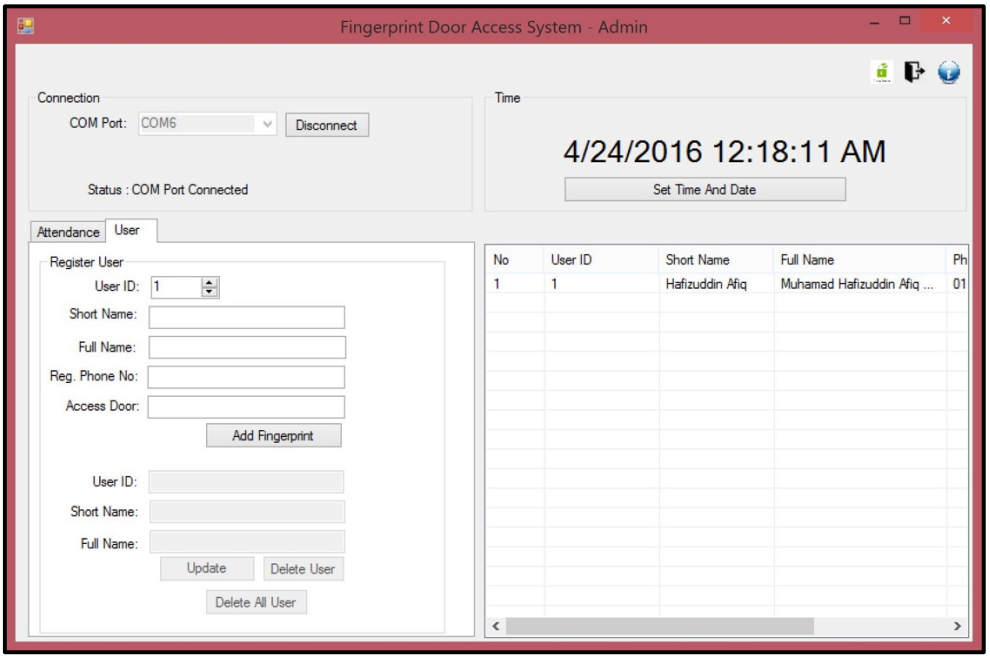

Figure 3.3 Main Interface to manage staff after connection

3.2 View Access Record Interface

Figure 3.4 shows the access record information in ReSMART. In this interface, manager can filter the record based on the date that he wants from the date picker. The access record will then be displayed in the list beside it. The manager can also export the access record list in excel format by clicking on 'Export Excel' button.

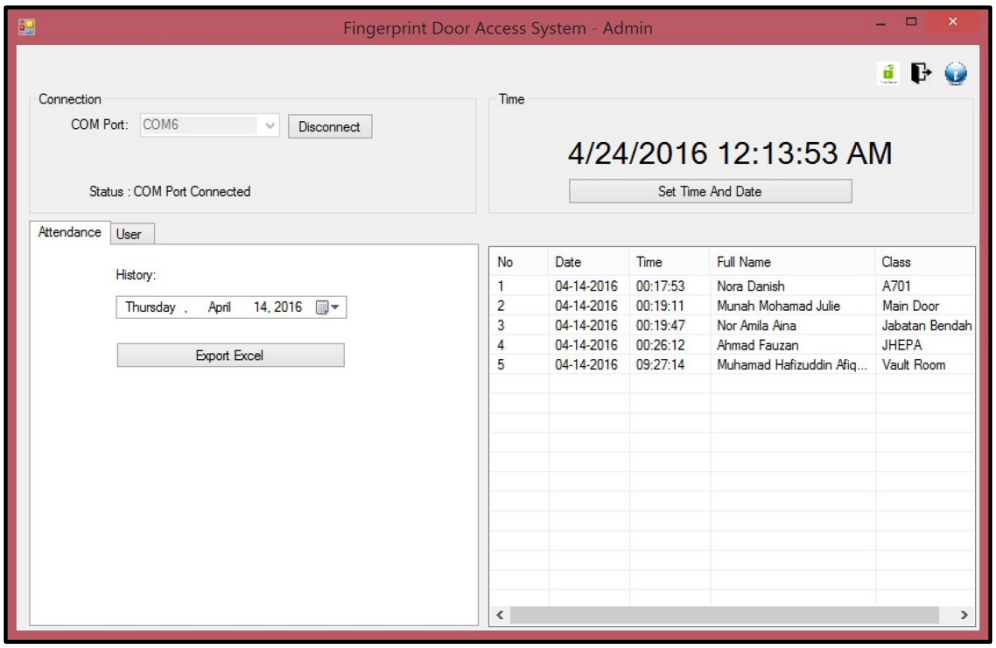

Figure 3.4 View Access Record Interface

4.0 CODING STANDARD

In this section, the coding standard that are being used in order to declare all the variables, functions and components are being explained.

Button Submit	–	btnSubmit
Combo Box Port	–	cbxPort
Date Picker Filter	–	dtpFilter
Form Main	–	frmMain
Function Login	–	fnLogin
Group Box Information	–	gbxInformation
Image Boundary Logo	–	imbLogo
Integer Number	–	intNumber
Label ID	–	lblID
List View Access	–	lstAccess
Radio Button Male	–	rdbMale
String Name	–	strName
Textbox Name	–	txtName

5.0 SYSTEM DESIGN APPROVAL

	Name	Date
Verified by: Developer	Muhamad Hafizuddin Afiq bin Anuar	10 May 2016
Approved by: Client	Mr. Muhammad Idham Hilman bin Adenam	30 May 2016