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1 INTRODUCTION

1.1 PURPOSE

The purpose of this document is to provide the detailed design of “Time and Attendance” (hereafter referred to as T&A) software. The purpose of the software is to retrieve attendance information from the biometric enabled hardware device and provide useful information for the organization.

1.2 SCOPE

The proposed software to be designed will be a web based software and will be capable of running under Microsoft IIS environment. The scope of the software is currently limited only to the attendance management.

1.3 INSTALLATION REQUIREMENTS

OPERATING SYSTEM	WINDOWS SERVER 2008
COMPUTER	QUAD OR SIX CORE BASED SYSTEM
RAM	2 GB OF RAM
HARD DISK	500 GB
SCREEN RESOLUTION	1024x768 OR HIGHER
DATABASE	SQL SERVER 2008

2 DATA ACCESS

2.1 BUSINESS_ENTITY_TYPES

BUSINESS_ENTITY_TYPE_ID [PK] [TINYINT] [IDENTITY]

BUSINESS_ENTITY_TYPE_NAME [VARCHAR(20)]

EXAMPLES: HEADQUATER, BRANCH

2.2 BUSINESS_ENTITIES

BUSINESS_ENTITY_ID [PK] [INT] [IDENTITY]

BUSINESS_ENTITY_NAME [VARCHAR(20)]

BUSINESS_ENTITY_PARENT_ID [FK_BUSINESS_ENTITY_ID]

BUSINESS_ENTITY_TYPE_ID [FK_BUSINESS_ENTITY_TYPE_ID]

2.3 BUSINESS_ENTITY_DEPARTMENTS

BUSINESS_ENTITY_DEPARTMENT_ID [PK] [INT] [IDENTITY]

BUSINESS_ENTITY_DEPARTMENT_NAME [VARCHAR(20)]

BUSINESS_ENTITY_ID [FK_BUSINESS_ENTITY_ID]

2.4 EMPLOYEE_TYPES

EMPLOYEE_TYPE_ID [PK] [TINYINT] [IDENTITY]

EMPLOYEE_TYPE_NAME [VARCHAR(20)]

EMPLOYEE_TYPE_DESCRIPTION [VARCHAR(20)]

EXAMPLES: FT (FULL TIME), CT (CONTRACT), PT (PART TIME)

2.5 EMPLOYEE_DESIGNATIONS_TYPES

EMPLOYEE_DESIGNATION_TYPE_ID [PK] [INT] [IDENTITY]

EMPLOYEE_DESIGNATION_TYPE_NAME [VARCHAR(20)]

2.6 EMPLOYEE_DESIGNATION_GRADE_TYPES

EMPLOYEE_DESIGNATION_GRADE_TYPE_ID [PK] [INT] [IDENTITY]

EMPLOYEE_DESIGNATION_GRADE_TYPE_NAME

EMPLOYEE_DESIGNATION_TYPE_ID [FK_EMPLOYEE_DESIGNATION_TYPE_ID]

2.7 EMPLOYEES

EMPLOYEE_ID [PK] [BIGINT]

EMPLOYEE_GENDER_TYPE [BIT]

EMPLOYEE_LAST_NAME [VARCHAR(20)]

EMPLOYEE_MIDDLE_NAME [VARCHAR(20)]

EMPLOYEE_FIRST_NAME [VARCHAR(20)]

EMPLOYEE_JOINING_DATE [DATE]

EMPLOYEE_LEAVING_DATE [DATE]

EMPLOYEE_PREV_ID [FK_EMPLOYEE_ID]

EMPLOYEE_DESIGNATION_GRADE_TYPE_ID
[FK_EMPLOYEE_DESIGNATION_GRADE_TYPE_ID]

EMPLOYEE_TYPE_ID [FK_EMPLOYEE_TYPE_ID]

EMPLOYEE_MANAGER_ID [FK_EMPLOYEE_ID]

BUSINESS_ENTITY_DEPARTMENT_ID
[FK_BUSINESS_ENTITY_DEPARTMENT_ID]

2.8 PROFILE_TYPES

PROFILE_TYPE_ID [PK] [INT] [IDENTITY]

PROFILE_TYPE_NAME [VARCHAR(20)]

EXAMPLES: CONTACTS.

2.9 PROFILE_FIELDS

PROFILE_FIELD_ID [PK] [BIGINT] [IDENTITY]

PROFILE_FIELD_LABEL [VARCHAR(20)]

PROFILE_TYPE_ID [FK_PROFILE_TYPE_ID]

EXAMPLES: EMAIL(WORK), PHONE(MOBILE), COUNTRY, CITY.

2.10 PROFILE_FIELD_DEFAULT_VALUES

PROFILE_FIELD_DEFAULT_VALUE_ID [PK] [BIGINT] [IDENTITY]

PROFILE_FIELD_ID [FK_PROFILE_FIELD_ID]

PROFILE_FIELD_DEFAULT_VALUE [VARCHAR(20)]

2.11 BUSINESS_ENTITY_CONTACT_DETAILS

BUSINESS_ENTITY_ID [FK_BUSINESS_ENTITY_ID]

BUSINESS_ENTITY_PROFILE_FIELD_ID [FK_PROFILE_FIELD_ID]

BUSINESS_ENTITY_PROFILE_FIELD_VALUE [VARCHAR(50)]

2.12 EMPLOYEE_CONTACT_DETAILS

EMPLOYEE_ID [FK_EMPLOYEE_ID]

EMPLOYEE_PROFILE_FIELD_ID [FK_PROFILE_FIELD_ID]

EMPLOYEE_PROFILE_FIELD_VALUE [VARCHAR(50)]

2.13 EMPLOYEE_ROLE_TYPES

EMPLOYEE_ROLE_TYPE_ID [PK] [INT] [IDENTITY]

EMPLOYEE_ROLE_TYPE_NAME [VARCHAR(20)]

EXAMPLES: ADMINISTRATOR, MANAGER, ENGINEER

2.14 EMPLOYEE_TASK_TYPES

EMPLOYEE_TASK_TYPE_ID [PK] [TINYINT] [IDENTITY]

EMPLOYEE_TASK_TYPE_NAME [VARCHAR(20)]

EMPLOYEE_TASK_TYPE_DESCRIPTION [VARCHAR(50)]

2.15 EMPLOYEE_TASKS

EMPLOYEE_TASK_ID [PK] [INT] [IDENTITY]

EMPLOYEE_TASK_NAME [VARCHAR(50)]

EMPLOYEE_TASK_DESCRIPTION [VARCHAR(50)]

EMPLOYEE_TASK_TYPE_ID [FK_EMPLOYEE_TASK_TYPE_ID]

EXAMPLES: ASSIGN SHIFT, IMPORT, ADD EMPLOYEE, MODIFY USER.

2.16 EMPLOYEE_TASK_PERMISSION_TYPES

EMPLOYEE_TASK_PERMISSION_TYPE_ID [PK] [TINYINT] [IDENTITY]

EMPLOYEE_TASK_PERMISSION_TYPE_VALUE [TINYINT]

EXAMPLES: R(1) = READ, W(2) = WRITE, X(4) = EXECUTE

2.17 EMPLOYEE_ROLE_TASK_PERMISSIONS

EMPLOYEE_TASK_ID [FK_EMPLOYEE_TASK_ID]
EMPLOYEE_ROLE_TYPE_ID [FK_EMPLOYEE_ROLE_TYPE_ID]
EMPLOYEE_TASK_PERMISSION_TYPE_ID
[FK_EMPLOYEE_TASK_PERMISSION_TYPE_ID]

2.18 EMPLOYEE_LOGINS

EMPLOYEE_LOGIN_ID [PK] [INT] [IDENTITY]
EMPLOYEE_LOGIN_NAME [VARCHAR(20)]
EMPLOYEE_LOGIN_PASSWORD [VARCHAR(20)]
EMPLOYEE_ID [FK_EMPLOYEE_ID]
EMPLOYEE_LOGIN_ROLE_TYPE_ID [FK_EMPLOYEE_ROLE_TYPE_ID]

2.19 BUSINESS_ENTITY_HOLIDAY_TYPES

BUSINESS_ENTITY_HOLIDAY_TYPE_ID [PK] [TINYINT] [IDENTITY]
BUSINESS_ENTITY_HOLIDAY_TYPE_NAME [VARCHAR(20)]

2.20 BUSINESS_ENTITY_HOLIDAYS

BUSINESS_ENTITY_HOLIDAY_ID [PK][INT] [IDENTITY]
BUSINESS_ENTITY_HOLIDAY_FROM [DATETIME]
BUSINESS_ENTITY_HOLIDAY_TO [DATETIME]
BUSINESS_ENTITY_ID [FK_BUSINESS_ENTITY_ID]
BUSINESS_ENTITY_HOLIDAY_TYPE_ID [FK_BUSINESS_ENTITY_HOLIDAY_TYPE_ID]

2.21 EMPLOYEE_LEAVE_TYPES

EMPLOYEE_LEAVE_TYPE_ID [PK] [TINYINT] [IDENTITY]
EMPLOYEE_LEAVE_TYPE_NAME [VARCHAR(20)]
EMPLOYEE_LEAVE_TYPE_SHORT_NAME [VARCHAR(20)]

2.22 EMPLOYEE_LEAVES

EMPLOYEE_LEAVE_ID [PK] [BIGINT] [IDENTITY]
EMPLOYEE_LEAVE_FROM [DATETIME]
EMPLOYEE_LEAVE_TO [DATETIME]
EMPLOYEE_LEAVE_APPROVED [BIT]
EMPLOYEE_ID [FK_EMPLOYEE_ID]
EMPLOYEE_LEAVE_TYPE_ID [FK_EMPLOYEE_LEAVE_TYPE_ID]

2.23 BUSINESS_ENTITY_SHIFTS

BUSINESS_ENTITY_SHIFT_ID [PK] [INT] [IDENTITY]
BUSINESS_ENTITY_SHIFT_NAME [VARCHAR(20)]
BUSINESS_ENTITY_SHIFT_START_TIME [TIME]
BUSINESS_ENTITY_SHIFT_END_TIME [TIME]
BUSINESS_ENTITY_SHIFT_PUNCH_IN_START_TIME [TIME]
BUSINESS_ENTITY_SHIFT_PUNCH_IN_END_TIME [TIME]
BUSINESS_ENTITY_SHIFT_PUNCH_OUT_START_TIME [TIME]
BUSINESS_ENTITY_SHIFT_PUNCH_OUT_END_TIME [TIME]

2.24 BUSINESS_ENTITY_SHIFT_EXCEPTION_TYPES

BUSINESS_ENTITY_SHIFT_EXCEPTION_TYPE_ID [PK] [TINYINT] [IDENTITY]
BUSINESS_ENTITY_SHIFT_EXCEPTION_TYPE_NAME [VARCHAR(20)]
EXAMPLES: PRAYERS, BREAK, WEEKLY OFF, WEEKLY PARTIAL

2.25 BUSINESS_ENTITY_SHIFT_EXCEPTIONS

BUSINESS_ENTITY_SHIFT_EXCEPTION_ID [PK] [INT] [IDENTITY]
BUSINESS_ENTITY_SHIFT_EXCEPTION_START_TIME [TIME]
BUSINESS_ENTITY_SHIFT_EXCEPTION_END_TIME [TIME]
BUSINESS_ENTITY_SHIFT_EXCEPTION_WEEK_DAY [TINYINT]
BUSINESS_ENTITY_SHIFT_ID [FK_BUSINESS_ENTITY_SHIFT_ID]
BUSINESS_ENTITY_SHIFT_EXCEPTION_TYPE_ID [FK_BUSINESS_ENTITY_SHIFT_EXCEPTION_TYPE_ID]

2.26 EMPLOYEE_SHIFT_ASSIGNMENTS

EMPLOYEE_SHIFT_ASSIGNMENT_ID [PK] [INT] [IDENTITY]
EMPLOYEE_SHIFT_ASSIGNMENT_START_DATE [DATE]
EMPLOYEE_SHIFT_ASSIGNMENT_END_DATE [DATE]
EMPLOYEE_ID [FK_EMPLOYEE_ID]
BUSINESS_ENTITY_SHIFT_ID [FK_BUSINESS_ENTITY_SHIFT_ID]

2.27 EMPLOYEE_ATTENDANCE

EMPLOYEE_ATTENDANCE_ID [PK] [INT] [IDENTITY]
EMPLOYEE_PUNCH_IN [DATETIME]
EMPLOYEE_PUNCH_OUT [DATETIME]
EMPLOYEE_ID [FK_EMPLOYEE_ID]

2.28 EMPLOYEE_ATTENDANCE_EXCEPTION_TYPES

EMPLOYEE_ATTENDANCE_EXCEPTION_TYPE_ID [PK] [TINYINT] [IDENTITY]
EMPLOYEE_ATTENDANCE_EXCEPTION_TYPE_NAME [VARCHAR(20)]
EXAMPLES: JUSTIFY, OUTDOOR ENTRY, MANUAL ENTRY

2.29 EMPLOYEE_ATTENDANCE_EXCEPTIONS

EMPLOYEE_ATTENDANCE_EXCEPTION_ID [PK] [INT] [IDENTITY]
EMPLOYEE_ATTENDANCE_EXCEPTION_START [DATETIME]
EMPLOYEE_ATTENDANCE_EXCEPTION_END [DATETIME]
EMPLOYEE_ATTENDANCE_EXCEPTION_REMARKS [VARCHAR(20)]
EMPLOYEE_ID [FK_EMPLOYEE_ID]
EMPLOYEE_ATTENDANCE_EXCEPTION_TYPE_ID [FK_EMPLOYEE_ATTENDANCE_EXCEPTION_TYPE_ID]

2.30 BUSINESS_ENTITY_DEVICES

BUSINESS_ENTITY_DEVICE_ID [PK] [INT] [IDENTITY]
BUSINESS_ENTITY_DEVICE_NAME [VARCHAR(20)]
BUSINESS_ENTITY_DEVICE_IP_ADDRESS [VARCHAR(20)]

BUSINESS_ENTITY_ID [FK_BUSINESS_ENTITY_ID]
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3 BUSINESS

4 PRESENTATION

5 PACKAGING AND DEPLOYMENT