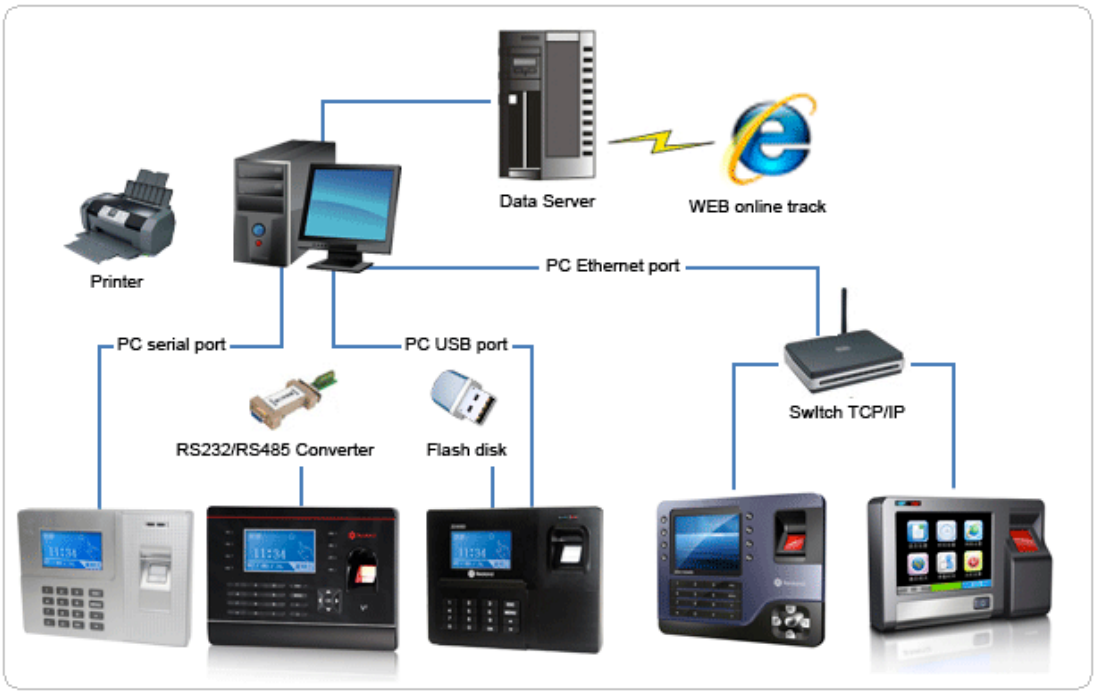
EDAWAM SYSTEM

VERSION 2.0

Contents

Introduction

eDawam is an attendance system which will help the organization to automate the time attendance for their employees buy using biometrical face and figure print devices.



The system consists of into two Parts:

1- Back End
2- Font End

The back end will work as process to communicate with biometrical devices and store the historical data of the employee attendance , also calculate the overtime and other required calculated fields also it will interact with HR to take vacations and other information's related to attendance.

The Front End will be responsible for all GUI so the user can use the browser or mobile or iPad to access the information. It will be based on OODO open source ERP system.

Back End

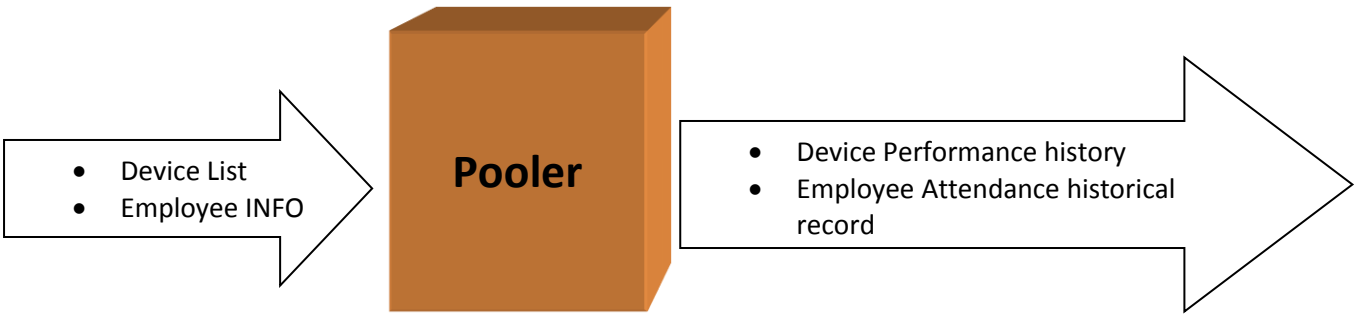
The Back End is the Engine of the system and it will be work independent from the front End, so it can be run on one or more than one server, because there are lots of devices. The back End will consist of two main components:

1. Pooler
2. Rule calculator

In the following sections we will explain more about the system parts in details

Pooler

It's a script that fetches information from the devices (figure print machines) connected on the network and then store the historical data about attendance and some information's about the devices performances.



The pooler should be a corn service so it's running on the back ground every X time. And we can specify pooler for each building or more than one building to one pooler.

Devices list

The first table called "**Devices**" will include information about all the figure print machines:

Devices
1. Device ID:
2. Building ID: Building which Device located in
3. Floor: in the current building
4. Host IP: of the current device
5. Host Name
6. Notes
7. Last Reading Start Time
8. Reading now or not
9. Last Reading End time.
10. May be other info related to current/Last reading such as number of employee , number of record…etc.

Devices performance

The second table is the historical devices status data **device History** which will store all information's about the devices performance like NMS (Network management system) to allowed user to know the devices and system performance.

Device_History
1. Device ID: from previous table
2. Start Reading time
3. End Reading time
4. Reading duration: time between Start and End reading
5. Number of records: in this device
6. Number of employees: working on this Device

Employee attendance history records

The third table is the **Employee attendance history records** which will include the important data retrieved form the devices

Emp_history
Employee ID
Date/time
Status
Device ID
Maybe Shift ID, vacation or not, Over time or not…etc.
Source //0 device, 1 employee mobile, offline upload, manager update…

Building

The forth table is the **Building** which will include information about where is the finger print machines is located

Building
Building ID
Location
Geo Zone coordinate
Admin ID
Note

Functional requirements

1. Retrieve all the devices (finger print data).
2. Store all the retrieved information's
3. Delete the history from the device after retrieve the data to insure that the device memory is not full and to optimize the networks bandwidth.
4. Store the historical performance data
5. Update the active devices information.
6. They should be a mechanism of retrieving data from offline devices such as
    a. Receiving from email
    b. Uploading from the website through the Front end or others.
7. The unreachable devices must be noted on the alert log or others so the user can see what the problem is.
8. There should be a guaranty that more than one process can work without problems.
9. The installation should be easy.
10. We should have a solution if the data is not available may be noted and on the month closing add the data so no update required

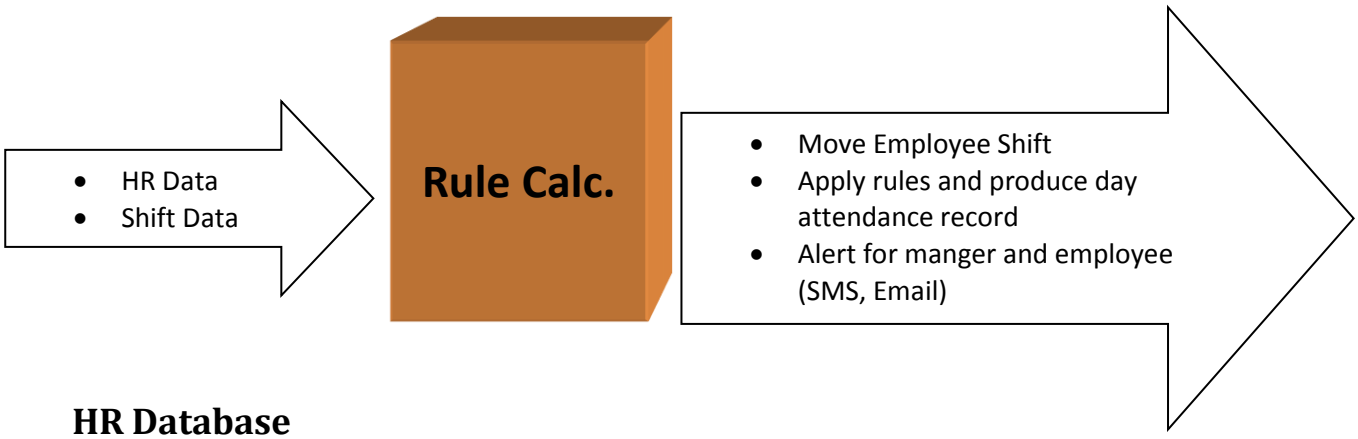
Nonfunctional requirements

1. The code should be well commented.
2. For all we required a professional documentation for end user and developer the user related doc should be in Arabic and English
    a. Use cases
    b. algorithms Flow charts
    c. ER-Diagram
    d. FDH
    e. User manual

Rule Calculator

Rule calculator to calculate each employee attendance and to write

- Attendance duration
- Early coming
- Late coming
- Over time hours
- Leaves Type
- And other info related to extracted attendance



HR Database

The component should take employee information for the HR Database system which will include the following information:

HR Employee data
Employee ID
Vacation (Yes/No)?
Vacation Type ○ Normal vacation ○ Sick Leaf / General vacations ○ Annual vacation
Over Time (Yes/No)?
Over Time Hours for each week Day or for all
Excluded From fingerprint always (Yes/No)? this may be form the system data base
Excluded from fingerprint when they out (Yes/No)? this may be form the system data base
Shift ID This from the system database

Shift information

Shift table
Shift id
Shift Start
Shift end
Day Name

Department's shifts

We need a table for department's shifts

Department Shift
Shift id
Dep id

Employees shifts

We need a table for Employees shifts

Department Shift
Shift id
Emp. id

Functional requirements

1. Shift System Transforming There are three shift times in the workplace, each department in the workplace has its own shift system, and some other departments have a fixed shift time. The system in each specific day should move employee for one shift to another and some employee have some flags to fix them not to give them another shift.
2. There should be a global rules such as
    a. If employee absent for 3 days or more the system should not allowed him form do signing in unless he back to HR or his manager (the one with privilege)

3. They device have 6 status codes start from 0 each of them have meaning: check in, check out, out for task, in from task, excuse out, excuse in

Nonfunctional requirements

1. Before start need Developer documentations ER-Diagram and other.
2. Before start need the use cases or other methodology that shows the designee
3. Before start all algorithms should have the flow charts

Important Case

1. The Employee may do check out instead of check In. // May be consider the first record on the day is check in regardless of less of the type.
2. The employee forgets to do check in.
3. The employee excuse out without excuse in also the same in task do task out without task in.
4. The employee instead of task in or out, he pressed sign out or sign in.
5. After the month closing, the devices send old data

Front End

Introduction

The front end should be easy to use with responsive design also it should be based on OODO or other open source.

Functional requirements

1. Language should be Arabic/English
2. The system should have a nice dashboard and it can work alone for example HTML5 client or other for :
    a. Administrator user.
    b. HR manager
    c. Department manager
    d. Employee
3. The front end should have report generator.
4. User access control should be advanced that allows to gives privileges also allowed the manager to manipulate his employee attendance.
5. The ability to manipulate Attendance policies and shifts.
6. It should support Hijri Calendar as well as Gregorian calendar.
7. There should be interface for employee to see his attendance history:
    a. From the responsive website.
    b. From mobile app.
8. Also allow employee to do task out from the mobile.
9. Reports:
    a. Check in / check out
    b. Early attendance or late attendance.
    c. Employee vacations
    d. Attendance Details record.
    e. Employee Shifts.
    f. Over time reports.
    g. Check in reports
    h. Tracing employee.
10. All the reports should have export options
    a. CSV
    b. Excel

c. PDF
d. RTF
e. And other types

11. There should be RESS interface to share some important information such as dashboards.
12. The system should allowed the department manager to change the history log for his employees for example the system shows absent where he request vacation but the manager delay it for any reasons and the changes should be documented on the record how do it and when and the reason.
13. There should be delegation on the system and this information should be stored in a well-known table so the rule calculator can read it and send alert according to that information for example the acting manager email or the acting manager mobile SMS.
14. All the system configuration required by rule calculator and pooler should have a nice interface to allowed the administrator to edit and modify.
15. The employee data will be in HR Database so the system should have a way of adding new employee after they adding on the HR Data.
16. Also there should be a way of importing the employee data from the HR Data when startup only the static one the name and the departments ,the ID and other
17. There should be a way on the system to allowed the manager to change the employee department.
18. There should be a way to change the employee shift
19. The system should show and present the status of the machines in nice way.
20. The system should provide high security and the password should be encrypted on the database.

Nonfunctional requirements

4. Before start we need to see all the screens details
5. Before start we need to see all the reports columns
6. User manual: it should be well written in Arabic and English.
7. Developer documentations ER-Diagram and other