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SOFTWARE REQUIRMENT SPECIFICATION

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INTRODUCTION:

The attendance system is used to monitor the attendance and movement of employees within their working hours and to prepare materials for processing wages.

Using the attendance system will allow you to diminish the number of errors occurring when processing attendance data, better use the working hours by raising the quality of employees' personal approach to work duties (increase in work morale), and prevent overtime being claimed unjustifiably.

Access modules will help you to restrict people from entering individual company buildings, car parks or to enable the access of authorized personnel to the manufacturing unit, etc.,

1.1 Document Conventions

The Biometric Based Attendance Monitoring System (BBAMS) will be maintained by Principal.

1.2 Requirement Elicitation Technique:

The aim of this paper is to identify high level re-usable requirements or functionalities that can be implemented to address the limitations discussed above. We apply requirements elicitation techniques to identify the proposed requirements. Requirements elicitation technique includes activities, e.g., brainstorming and observation, carried to identify the requirements to be implemented in a system [22], [23]. To ensure quality, rigor and wide coverage of requirements, we combine four (4) elicitation techniques, as summarized in Fig. 1. The elicitation process started with reviewing existing attendance documents, such as attendance records, policies, syllabus, and grading policies, in the authors' institution. The aim of this review is to identify relevant information e.g., functionalities, to be included in the proposed system. Secondly, we identified and interviewed instructors from the authors' institutions. Six (6) instructors accepted to participate in the interview. Since these instructors are from our institutions, we adopt the informal and unstructured interview process, which does not include questionnaire. Instead we verbally asked questions relating to their experience in attendance monitoring and recorded their responses. Thirdly, the cumulative expert knowledge and experiences of the authors in attendance monitoring based on several years teaching at postsecondary level provided additional input to requirements elicitation. Final, the series of research project meetings offered brainstorming opportunities to collate data gathered through other methods, and harmonize perspectives and evidences that emerged from the data. The proposed.

1.3 Purpose:

The main purpose of this specification is to help people who will work on this system to maintain the objectives and get started working in this project. This specification will direct people who will work on this project step by step through the process until they finish it successfully. This statement will describe specific details into every step of this project that workers will immediately locate the needs of this system to understand

the purpose of doing any of the following steps into the system.

1.4 Project Scope:

The scope of the system is to have a high-tech environment in the Dominican university community. That means by using the automatic attendance system, the community will transfer to the technical environment that they already have the Canvas system to help them manage the courses they have in the whole semester. This system will add some features in the automatic attendance system to Canvas by using fingerprint device in every classroom at Dominican University.
That will help the community use the technology in effective ways:
1. Make the attendee process easier and effective.
2. Help faculty in the attendance process every time.
3. Mange and organize the attendance page through Canvas.

OVERALL DISCRIPTION

2.1 Product Perspective:

Dominican University, instructors m anually take attendance in every class each day. They spend time to do that during class time. The Automatic Attendance System will help them do this process in an easy way. The main scope of this project is to make attendance process more organized in every class. This project will help instructors take the attendance automatically without spending some time during the class. It will provide the instructor who is/isn't present an early-warning of high levels of non-attendance through the Canvas page. There are also many benefits for students: they can manage their attendance, absences, and late walk-ins by checking the Canvas site. They will also know the current grade in their reports. It makes it easier to have a clear picture
of every student's attendance throughout the academic year.
The system is about to modify an existing system to develop the project. This system comes from In structure. In structure is a new company that has 200 employees. This company is an educational origination that works with technology to help the education community in an effective way. This company provides Canvas. The Canvas system is about a website page, which contains classes managed by instructors. It has management tools for courses. These tools play a significant role in the educational models these days, which are to organize the educational level using technology to achieve the educational goals easily. Instructors have the control panel for every class they have. The control panels allow them to create and develop the
course's page that all students can see. They may have a Home Page, Syllabus, Discussion,
Grade, Assignments, People, Files, and more. All of these components are available and controlled by the faculty member to make any changes.

2.2 Product features:

- Clocking-in and out. A very essential feature of an attendance management system is clocking in and out. ...
- Leave Management. ...
- Payroll Integration. ...

- Automated Communication. ...
- Notifications. ...
- Employee Self-Service. ...
- Calendar Integration. ...
- Biometric Attendance.

2.3 User Classer and Characteristics (Stakeholder):

- There are three types of user classes in this community:
- Students
- Faculty
- Registration Office

2.4 Operating Environment:

This project will go through two steps:

- The first step is to have the automatic attendance device in every classroom in the school. These devices will be connected to the computer and its system. Students have to put their fingerprints on file in the registration office on their first day to save their fingerprint data in the database.
- The second step is to connect this system to the Canvas site. That is to connect the Canvas database to the system database to work as one system on the Canvas site. This step would complete the work, and the project will work in one system. That is because the attendance reports not in a separate system or database.
- This system has some requirements to be accomplished. It needs hardware and software.
- Hardware requirements:
- 1.Biometric Fingerprint Scanners
- 2.Cables for the device
- The current system work is already in existence. However, we need some system requirements:
- Create new databases and indexes for students and class list by using my sql.
- Make connation to the current database
- Design interfaces for the users
- Design an attendance page on Canvas
- Programming using JavaScript, PHP, and HTML

PROJECT REQUIREMENTS

3.1 Functional Requirements:

1. Time Management. One of the main functions of the software, time management features track employee presence. ...

One of the main functions of the software, time management features track employee presence. Time trackers monitor how much time is spent at work, working overtime and the time spent on specific projects. Time management functions as a productivity measure as well as a tool assisting in financial decisions. When a business is able to track time automatically through software, compensation can be easily calculated. One of the main functions of the software, time management features track employee presence. Time trackers monitor how much time is spent at work, working overtime and the time spent on specific projects. Time management functions as a productivity measure as well as a tool

assisting in financial decisions. When a business is able to track time automatically through software, compensation can be easily calculated.

- Time Tracker
- Project Time Tracking
- Overtime Tracking
- Rounding Rules and Exceptions
- GPS Tracking

2. Attendance Management. ..

Attendance management features handle standard tools used for attendance tracking, such as clocking in and out. This automates the process of employee time tracking. Meanwhile, attendance is automatically tracked and recorded.

- Clock In/Out
- Biometrics
- Attendance Tracking

3. Absence and Leave Management. ...

Absence and leave management features give employees the tools to manage their own time off requests, including the tracking of planned absences due to appointments, vacations and holidays. Employees can view leave information, like calendars, and request time off through the system. The software tracks leave and monitors benefits. For example, employees can apply PTO or vacation days to their time off, ensuring proper compensation and compliance with company procedures

- Time Off Requests
- PTO Requests
- Dashboard
- Leave Application
- Online Leave Management
- Vacation Tracking
- Leave Tracking
- Holidays Calendar

4. Employee Management. ...

Ease of use is facilitated through employee management features. Databases compile employee information in one place while mobile and self-service capabilities promote accessibility. The goal of these features is to make time and attendance information easily visible to all members of an organization.

- Employee Database
- Mobile Access
- Self-Service
- Employee Roster
- Notes

5. Scheduling. ...

Scheduling through time and attendance software streamlines the process of schedule creation with collaborative features. For employers, the software automates scheduling, taking shift preferences and other parameters into account. For employees, the software serves as a centralized location to view schedules, make requests and be notified of any changes.

- Schedule Creation
- Staff Schedules
- Employee Groups
- Schedule Alerts

6. Employee Communication. ...

A comprehensive time and attendance system supplies features that assist in

keeping employees informed and in contact with co-workers and management. These features may include something as simple as built-in instant messaging and alerts or more advanced communication functions.

- Instant Messaging
- Performance Management
- Alerts

7. Document Management. ...

Document management functions make it easy to share information and communicate across departments. Users can set up notifications to alert team members of any important information associated with time or attendance. This category of features also includes working with data related to time and attendance to offer insight into current practices. Managers can define employee positions within the system and the permissions that accompany those roles. Clearly defined permissions serve as a security measure for files.

- Workflow Alerts
- Roles and Rights
- Import/Export Data
- Data Sharing

8. Integrations…

Time and attendance systems can integrate with other human resource solutions such as human capital management, accounting and payroll software as well as non-HR tools like enterprise resource planning software. All HR data is available in a single system, providing a comprehensive, all-in-one place for employee management functions.

- ERP Integration
- HCM Integration
- Accounting Software Integration
- Payroll Software Integration
- Data API

3.2 Non-Functional requirements:

The Non-Functional requirements of our project are:

1.Time:

This project should be completed within the stimulated time period.

2.Cost:

The cost involved in marketing the project should be less.

3.Usability:

This requirements is present, as this system will interact with the user.

4.Reliability:

This system must be highly robust.

5.Performance:

It would be fast enough to produce output.

3.3 User Requirements:

1. Login Display:

This is the main login in the system which appears in the Biometric Fingerprints Scanners. This interface designed to be in the device view in every class. “Scan Your Thumb” is the login to the class and the system.

2. Student Report:

This page will appear in a separate page in the system. It is a web gives the students current report during the semester. It has the weekly report, the check in each class, and grade. It gives the student how many times he has been in the class and how many he missed. Also, it provides all grades that student makes during the semester.

3.4 System requirements:

The system will use:

- Biometric Fingerprint Devices display software
- Web pages for the forms HTML, PHP
- Server

REQUIREMENTS VALIDATION TECHNIQUE

4.1 Prototyping:

The objective of this research were to develop an application prototype to verify attendance using facial recognition technology. Study of the student's attendance process found that the problem of attending classes was not punctual. The result shown students did not have the right to take the exam in that particular course and may be a problem in the future. In addition, the problem with the examination of attendance Instructors could not check the complete list at the time of commencement of the course. Attendance verification application prototype using facial recognition technology developed by Java script and Python language for application development which helps teachers and learners helped teaching activities effectively. The results of the research can be summarized as follows:

1) A prototype of an application was verify attendance using facial recognition technology was obtained. Work more efficiently, convenient, faster and get information. Characteristics of attending classes Improved tracking of learners' behavior in class attendance after modifying the attendance verification model

2) The results of the experts' assessment on the attendance verification application model using facial recognition technology in the overall picture got a consistency value of 0.88, indicating that the model worked have been appropriately consistent Appropriate for all users. 3) Satisfaction assessment results of satisfaction with the application model to check attendance using facial recognition technology. Out of 30 users, the overall average was 4.18 percent and the standard deviation was 0.67, indicating a very good level of satisfaction.

4.2 Test Case Design:

- Functional and navigation test cases.
- Need to find the list of employees who is from finance department having 1200.
- Negative scenarios for a test scenario.
- Fruit peeling machine test cases.
- Provision entry for expense.

4.3 Security Issues:

Security of data is essential in authentication systems such as attendance monitoring system. A Students' attendance monitoring system is an integral part of

Academic Information System (AIS) in most educational institution. Research have shown that biometric systems developed for authentication application stored template in unprotected format which are vulnerable and susceptible to security treats. This paper aims to develop a secured fingerprint based biometric cryptosystem for attendance monitoring. A total of 500 fingerprints were captured, out of which 300 fingerprints were used for training while 200 fingerprints were used for testing. Minutiae based algorithm was used to extract and select biometric features. Biometric features were encrypted using Advanced Encryption Standard Algorithm (AES). The system was developed and implemented using Java programming language to operate at varying threshold value. The developed system's performance was evaluated using False Reject Rate (FRR) and False Accept Rate (FAR) as performance metrics. The results for FRR were 0, 0, 1, and 2 % at 200, 300, 400 and 500 threshold value respectively while results for FAR were 2, 2, 0, 0 % at 200, 300, 400 and 500 threshold value respectively.

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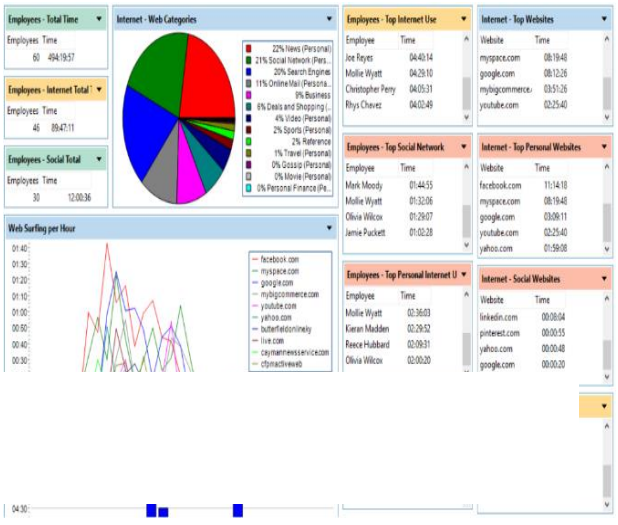

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