

***Interactive Achievements' Inventory with AI-based Staff
Assistant and Resume Builder***

**A Minor Project Report Submitted to
Rajiv Gandhi Proudhyogiki Vishwavidyalaya**



**Towards Partial Fulfillment for the Award of
Bachelor of Engineering in Computer Science Engineering**

Submitted by:

**Aarohi Rathore(0827CS201004)
Abhishek Rawat (0827CS201011)
Aieshah Nasir (0827CS201018)**

Guided by:

**Prof. Priyanka Jangde
Professor, CSE**



Acropolis Institute of Technology & Research, Indore

Jan - June 2023

EXAMINER APPROVAL

The Minor Project entitled ***“Interactive Achievements’ Inventory with AI-based Staff Assistant and Resume Builder”*** submitted by **Aaro**hi Rathore(0827CS201004) Aieshah Nasir (0827CS201018) Abhishek Rawat (0827CS201011) has been examined and is hereby approved towards partial fulfillment for the award of ***Bachelor of Technology degree in Computer Science Engineering*** discipline, for which it has been submitted. It understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed, or conclusion drawn therein, but approve the project only for the purpose for which it has been submitted.

(Internal Examiner)

Date:

(External Examiner)

Date:

RECOMMENDATION

This is to certify that the work embodied in this minor project entitled ***“Interactive Achievements’ Inventory with AI-based Staff Assistant and Resume Builder”*** submitted by **AaroHi Rathore , Aieshah Nasir, Abhishek Rawat** is a satisfactory account of the bonafide work done under the supervision of ***Dr. Kamal Kumar Sethi***, is recommended towards partial fulfillment for the award of the Bachelor of Technology (Computer Science Engineering) degree by Rajiv Gandhi Proudyogiki Vishwavidhyalaya, Bhopal.

(Project Guide)

(Project Coordinator)

(Dean Academics)

STUDENTS UNDERTAKING

This is to certify that the minor project entitled ***“Interactive Achievements’ Inventory with AI-based Staff Assistant and Resume Builder”*** has been developed by us under the supervision of ***Dr. Kamal Kumar Sethi***. The whole responsibility of the work done in this project is ours. The sole intention of this work is only for practical learning and research.

We further declare that to the best of our knowledge; this report does not contain any part of any work which has been submitted for the award of any degree either in this University or in any other University / Deemed University without proper citation and if the same work is found then we are liable for explanation to this.

Aarohi Rathore(0827CS201004)
Aieshah Nasir (0827CS201018)
Abhishek Rawat (0827CS201011)

Acknowledgement

We thank the almighty Lord for giving me the strength and courage to sail out through the tough and reach on shore safely.

There are a number of people without whom this project would not have been feasible. Their high academic standards and personal integrity provided me with continuous guidance and support.

We owe a debt of sincere gratitude, deep sense of reverence and respect to our guide and mentor **Dr. Kamal Kumar Sethi**, Professor, AITR, Indore for his motivation, sagacious guidance, constant encouragement, vigilant supervision, and valuable critical appreciation throughout this project work, which helped us to successfully complete the project on time.

We express profound gratitude and heartfelt thanks to **Dr Kamal Kumar Sethi**, Professor & Head CSE, AITR Indore for his support, suggestion, and inspiration for carrying out this project. I am very much thankful to other faculty and staff members of the department for providing me all support, help and advice during the project. We would be failing in our duty if we do not acknowledge the support and guidance received from **Dr S C Sharma**, Director, AITR, Indore whenever needed. We take the opportunity to convey my regards to the management of Acropolis Institute, Indore.

We are grateful to **our parents** and **family members** who have always loved and supported us unconditionally. To all of them, we want to say “Thank you”, for being the best family that one could ever have and without whom none of this would have been possible.

AaroHi Rathore(0827CS201004),Aieshah Nasir (0827CS201018),Abhishek Rawat (0827CS201011)

Executive Summary

Interactive Achievements' Inventory with AI-based Staff Assistant and Resume Builder

This project is submitted to Rajiv Gandhi Proudyogiki Vishwavidhyalaya, Bhopal (MP), India for partial fulfillment of Bachelor of Engineering in Information Technology branch under the sagacious guidance and vigilant supervision of ***Dr. Kamal Kumar Sethi***.

The project is based on Web Development and Cloud Storage. In the project, the frontend is built using React, which is a free and open-source front-end JavaScript library for building user interfaces based on components maintained by Meta (formerly Facebook) and a community of individual developers and companies. The backend of the project is built using Flask, which is a micro web framework written in Python. The project addresses the issue of large scale data collection and routes it to the cloud for mass storage. The purpose of this project is to implement an interactive inventory management application for the college faculty and students.

Key words: Inventory management, data collection, AWS S3, Cloud Storage

Table of Contents

CHAPTER 1 . INTRODUCTION	1
.....	
1.1Overview	1
..	
1.2Background and Motivation	2
.....	
1.3Problem Statement and Objectives	2
....	
1.4Scope of the Project	3
1.5Team Organization	5
.....	
1.6Report Structure	5
..	
CHAPTER 2 . REVIEW OF LITERATURE	7
.....	
2.1Preliminary Investigation	7
.....	
2.1.1 Current System	7
...	
2.2Limitations of Current System	8
2.3Requirement Identification and Analysis for Project	8
2.3.1 Conclusion	14
.....	
CHAPTER 3 . PROPOSED SYSTEM	15
.....	
3.1 The Proposal	15
3.2 Benefits of the Proposed System	15
3.3 Block Diagram	16

3.4 Feasibility Study	16
.....	
3.4.1 Technical	16
.....	
3.4.2 Operational	17
.....	
3.5 Design Representation	18
.....	
3.5.1 Data Flow Diagrams	20
.....	
3.5.2 Database Structure	21
.....	
3.6 Deployment Requirements	21
.....	
3.6.1 Hardware	21
.....	
3.6.2 Software	22
.....	
CHAPTER 4 . IMPLEMENTATION	23
.....	
4.1 Technique Used	23
.....	
4.1.1 Deep-Learning	23
.....	
4.1.2 Neural Networks :	24
.....	
4.2 Tools Used	25
.....	
4.2.1 OpenCV	25
.....	
4.2.2 Tensor Flow	26
...	
4.2.3 Models	27
.....	
4.3 Language Used	31
.....	
4.4 Screenshots	32
.....	
4.5 Testing	33
.....	
4.5.1 Strategy Used	33

.....	
4.5.2 Test Case and Analysis	33
.....	
CHAPTER 5 . CONCLUSION	3
.....	6
5.1 Conclusion	36
.....	
5.2 Limitations of the Work	36
....	
5.3 Suggestion and Recommendations for Future Work	37
....	
BIBLIOGRAPHY	3
.....	8

Chapter 1.

Introduction

Introduction

Professors across colleges need to collect certificates and other data at the end of every semester to keep students' details and achievements updated in the college records and for internal evaluation. This is a time-consuming and tedious task. Students are bound to misplace their certificates or fail to submit them on the scheduled time. Traditionally this process is done with the word-of-mouth accompanied by submission of hard copies. However, in recent years, this task has been facilitated by the usage of technology like Google Forms, monday WorkForms, Google Classroom, Microsoft Forms etc where students can upload their documents. Although these solutions are appealing to the general public, access to them is unrestricted & insecure. Thus, we intend to develop a secure web application for data collection of students to ensure on-demand availability of their achievements to the concerned staff.

1.1 Overview

Data collection from students regarding certifications, achievements in sports / extra - curricular activities, internships etc. is a tedious task for the professors during the short-span of internal submission and evaluation. With the use of a web application, students can upload their documents whenever possible irrespective of their current semester and the concerned staff can easily access it as per requirement.

1.2 Background & Motivation

Traditionally data collection of students' achievements is done with word-of-mouth accompanied by submission of hard copies. However, in recent years, this task has been facilitated by the usage of technology like Google Forms, Monday Work Forms, Google Classroom, Microsoft Forms etc where students can upload their documents. Although these solutions are appealing to the general public, access to them is unrestricted & insecure. Thus, we intend to develop a secure web application for data collection of students to ensure on-demand availability of their achievements to the concerned staff.

1.3 Problem Statement and Objectives

- To design & develop a web-based software solution for data collection from students
- To build an engaging and interactive website for securely storing personal information & achievements and perform data analytics for visualization
- To present collected data, sorted as per the categories specified, to the concerned staff.
- To ensure on-demand availability of & ease-of-accessibility to students' academic and extra - curricular achievements.
- To provide an inventory for students to store their certificates digitally.

- To provide the professors with analytics of students' data in the form of interactive graphs and plots.
- To help students build a resume using the data uploaded by them.

1.4 Scope of the Project

The web application to be designed is intended to be used by the students and faculty of a college. The students are categorized on the basis of departments, branches and year of study. The faculty and the students will be registered on the website and can access the database as per the approval of the administrator once their identity is confirmed. The students can create, update and delete their personal records whereas the staff can view and read these records without modifying them. On successful completion, this project can be expanded across.

1.5 Team Organization

AAROH RATHORE

I worked on the documentations and spent much time and effort in looking for the right technology to implement the proposed solution. I am extremely glad that this project was a success.

ABHISHEK RAWAT

I investigated and found the right technology and studied it. For the implementation of the project, I collected the object data and trained the model for it. Implementation logic for the project objective and coding of internal functionalities is also done by me. Front end was also included in my work-area. Also, worked on Back end design for storing results in the database for maintaining logs.

AI SHAH NASIR

Along with doing preliminary investigation and understanding the limitations of current system, I studied about the topic and its scope and surveyed various

research papers related to the object detection and the technology that is to be used. Worked on creating database for storing results in atabase.Documentation is also a part of the work done by me in this project.

1.6 Report Structure

The project **Interactive Achievements' Inventory with AI-based Staff Assistant and Resume Builder** report is categorized into five chapters.

Chapter 1: Introduction- introduces the background of the problem followed by rationale for the project undertaken. The chapter describes the objectives, scope and applications of the project. Further, the chapter gives the details of team members and their contribution in development of project which is then subsequently ended with report outline.

Chapter 2: Review of Literature- explores the work done in the area of Project undertaken and discusses the limitations of existing system and highlights the issues and challenges of project area. The chapter finally ends up with the requirement identification for present project work based on findings drawn from reviewed literature and end user interactions.

Chapter 3: Proposed System - starts with the project proposal based on requirement identified, followed by benefits of the project. The chapter also illustrate software engineering paradigm used along with different design representation. The chapter also includes block diagram and details of major modules of the project. Chapter also gives insights of different type of feasibility study carried out for the project undertaken. Later it gives details of the different deployment requirements for the developed project.

Chapter 4: Implementation - includes the details of different Technology/ Techniques/ Tools/ Programming Languages used in developing the Project. The chapter also includes the different user interface designed in project along with their functionality. Further it discuss the experiment results along with testing of the project.

Chapter 5: Conclusion - Concludes with objective wise analysis of results and limitation of present work which is then followed by suggestions and recommendations for further improvement.

Chapter 2 . Review of Literature

Review of Literature

Data collection from students regarding certifications, achievements in sports / extra - curricular activities, internships etc. is a tedious task for the professors during the short-span of internal submission and evaluation. With the use of a web application, students can upload their documents whenever possible irrespective of their current semester and the concerned staff can easily access it as per requirement.

2.1 Preliminary Investigation

There exist no specifically designed platforms, available on a global scale, which fulfill all the objectives of our project. However, several systems are ad-hocly used for collecting certificates and achievements from the students and displaying them to the staff in a categorical manner.

2.1.1 Current System

Google Classroom:

Google Classroom is a free blended learning platform developed by Google for educational institutions that aims to simplify creating, distributing, and grading assignments. The primary purpose of Google Classroom is to streamline the process of sharing files between teachers and students.

Google Forms:

Google Forms is a survey administration software included as part of the free, web-based Google Docs Editors suite offered by Google. The service also includes Google Docs, Google Sheets, Google Slides, Google Drawings, Google Sites, and Google Keep. Google Forms is only available as a web application.

Monday Work Forms:

With Monday Work Forms, you can create and use custom forms to collect, track, and analyze data while automatically syncing with your monday.com boards and workflows. In this article, we'll learn how to build and customize a WorkForm, as well as how the results can be connected to your very own monday.com account

2.2 Limitations of Current System

Google Classroom:-- Internet necessary

- Can't classify students as per their merit
- Can be used only by Google account holder.

Monday WorkForms: Internet necessary

- Can't classify students as per their merit
- Can be used only by Google account holder

Cuvette: Internet necessary

- used mainly by students for job & internship search

Google Forms: internet necessary

- Integrating data collected from different surveys is time consuming

2.3 Requirement Identification and Analysis for Project

No specific system exists for the described problem statement and the proposed system is unique in its essence because on the proposed platform the students can simultaneously generate resume with their uploaded data, add them to their LinkedIn profile and the concerned staff can analyze the collected data as per the required categories, generate reports of students skilled in the specified domain, and generate posts on LinkedIn on-the-go.

This project will be the best platform for student and mentor interaction. The resume-builder functionality is easy and efficient for quickly building their resume. Students can upload their respective data accordingly. It will easily find out which kind of job domain is well-suited to their profile and report to the faculty on priority based on their skills.

2.3.1 Conclusion

This chapter reviews the literature surveys that have been done during the research work. The related work that has been proposed by many researchers has been discussed.

Chapter 3 .

Proposed System

Proposed System

3.1 The Proposal

Students will upload their achievements and all of their data will be automatically stored in our AWS(S3), because we are using AWS so we have a large amount of storage capacity as well as the database will always be active. All the students will be able to store all of their important data and information into a secured place and they can extract them whenever they want to use them.

3.2 Benefits of the Proposed System

The current system had a lot of challenges that are overcome by this system :

Easy-to-use, hassle-free web-application with a clean UI.

All the students will be able to store all of their important data and information.

Teachers can now easily find out by themselves how many students have done a particular task and how to identify the correct percentage and amount of students who actually did a particular task.

Not only students but any working person can also use this application as it is useful for every section of society either student, teacher or any working professional.

3.3 Block Diagram

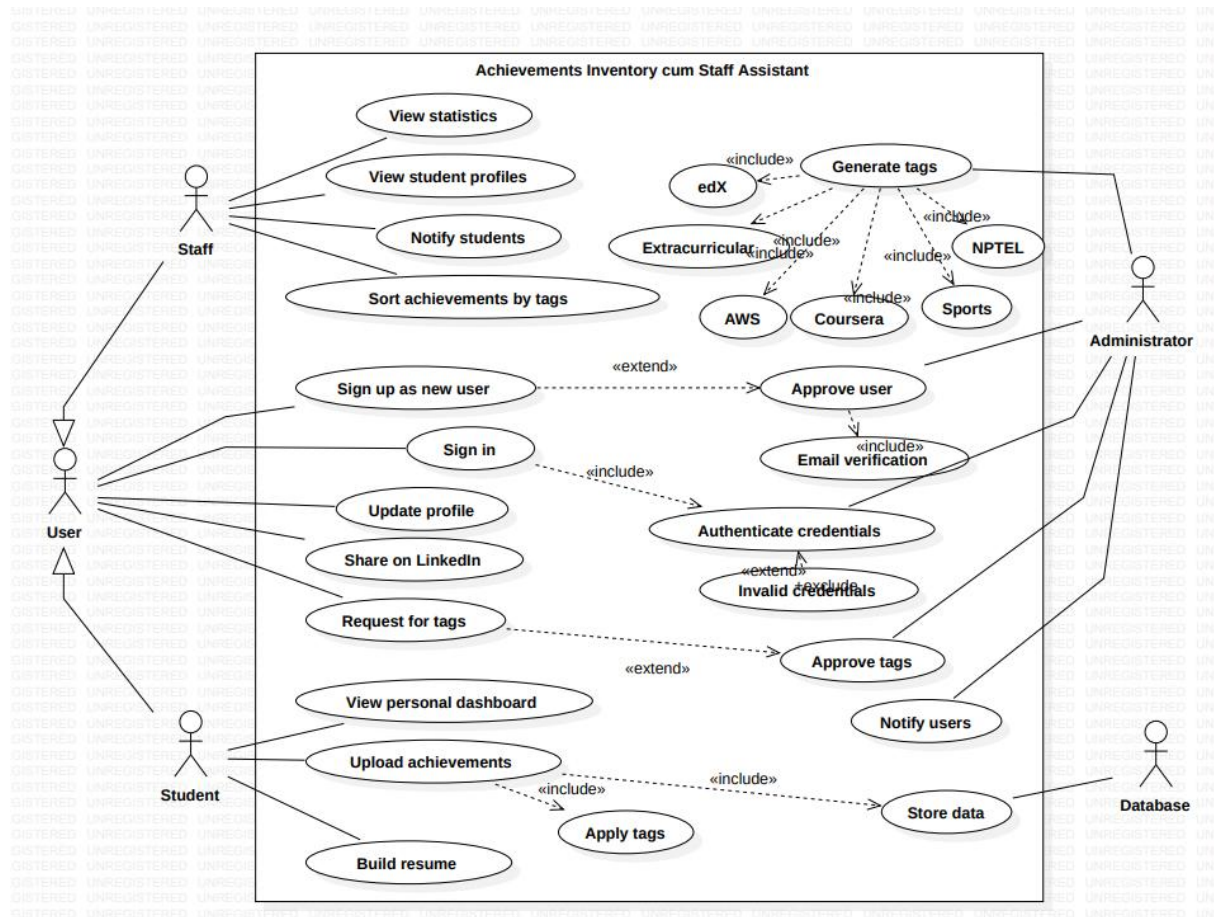


Figure 3-1 : Block Diagram

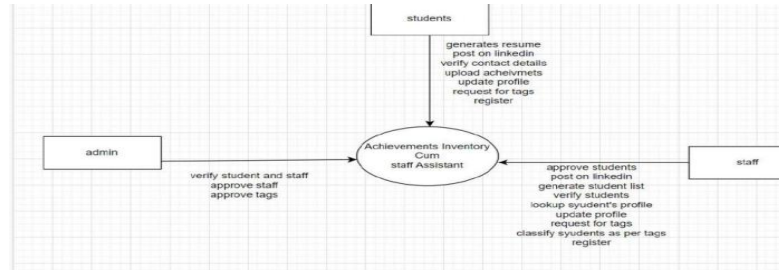
3.4 Feasibility Study

The web application to be designed is intended to be used by the students and faculty of a college. The students are categorized on the basis of departments, branches and year of study. The faculty and the students will be registered on the website and can access the database as per the approval of the administrator once their identity is confirmed. The students can create, update and delete their personal records whereas the staff can view and read these records without modifying them. On successful completion, this project can be expanded across other colleges also.

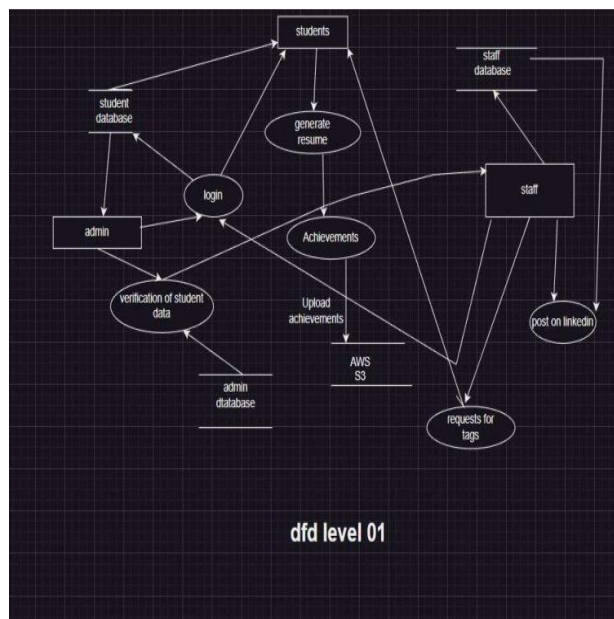
Several systems exist for collecting certificates and achievements from the students and displaying them to the staff in a categorical manner as mentioned further. But none of them address the problem statement effectively

3.5 Design Representation

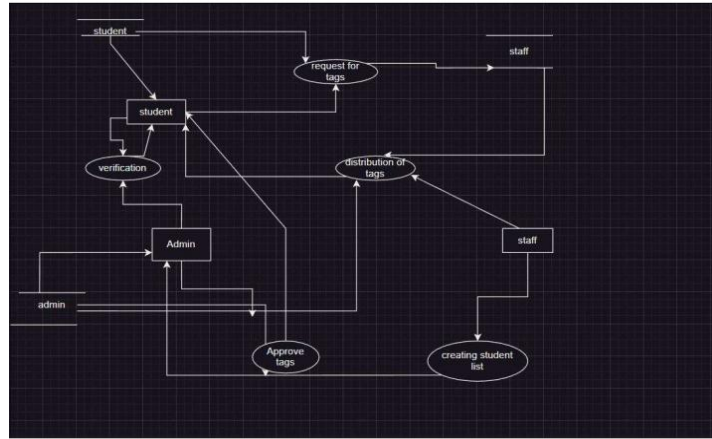
3.5.1 Data Flow Diagrams



Data Flow Diagram Level 0



Data Flow Diagram Level 1



Dfd level 02

3.5.2 Database Structure

The name of the database created is “db_detect” and there is one table in the database named “logs” for storing the records.

The “Logs” table has the following structure :

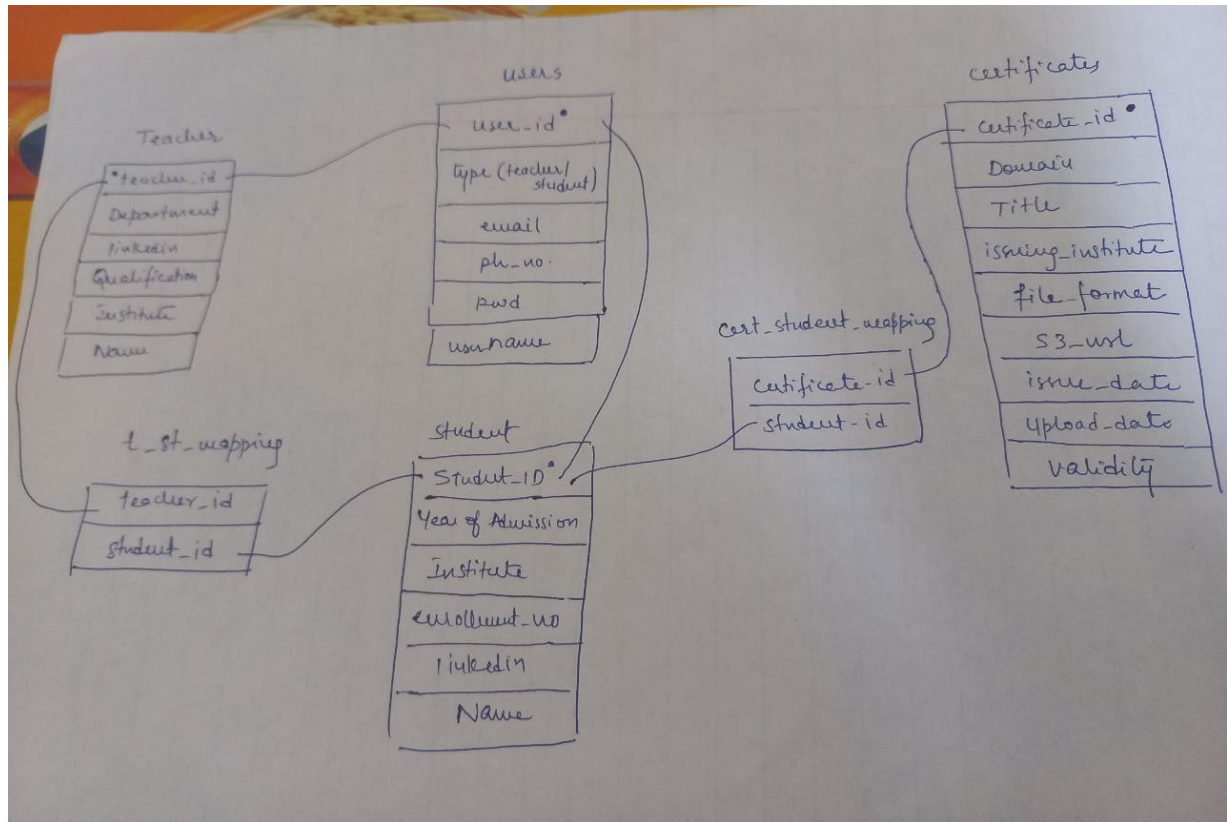


Table 2 : Database Structure

3.6.1 Hardware

- 32-bit, x86 Processing system
- Windows 7 or later operating system
- High processing computer system without GPU or with GPU (high performance)
- High- definition Camera

Chapter 4 .

Implementation

Implementation

For the problem of counting the number of students and vehicles entering the college campus manually, the system is designed in such a way so as to automate the process by placing a camera at the entrance gate so that students, bikes and cars getting inside the college campus can be identified and counted.

4.1 Technique Used

- Flask
- HTML
- CSS
- JavaScript
- AWS S3
- Apache Airflow
- Docker
- APIs (Linked In etc.)

• **Python Libraries**

Considering the number of map-based visualization libraries available for python, it is nearly impossible (and not helpful either) to cover every library. As mentioned above, we kept exploring libraries until we were able to find a good one for all the visualizations that we had envisioned. therefore, will be limited to the comparison of those libraries only. They are:

1. Cartopy
2. geopandas
3. Plotly
4. Plotly with map-box
5. Plotly with Datashader
6. Folium

• **SQL**

SQL is a short-form of the structured query language. This database language is mainly designed for maintaining the data in relational database management systems. It is a special tool used by data professionals for handling structured data (data which is stored in the form of tables). You can easily create and manipulate the database, access and modify the table rows and columns, etc. We will use PostgreSQL for querying and pgAdmin 4 to maintain the database.

• **HTML**

HTML stands for Hyper Text Markup Language. It is the standard markup language for creating web pages. It describes the structure of a web page. HTML consists of a series of elements. HTML elements tell the browser how to display the content.

• **CSS**

CSS stands for Cascading Style Sheets. It describes how HTML elements are to be displayed on screen, paper, or in other media. It can control the layout of multiple web pages all at once, and saves a lot of work. External stylesheets are stored as CSS files.

• **Javascript**

JS or Javascript is used to program the behavior of web pages. JS libraries and frameworks make website and application development easier with wide-ranging features and functionalities. The one we are going to use in the smart map is Leaflet.

- **Apache Airflow**

Apache Airflow is an open-source platform for developing, scheduling, and monitoring batch-oriented workflows. Airflow's extensible Python framework enables you to build workflows connecting with virtually any technology. A web interface helps manage the state of your workflows.

- **Amazon AWS**

Amazon Web Services, Inc. (AWS) is a subsidiary of Amazon that provides on-demand cloud computing platforms and APIs to individuals, companies, and governments, on a metered, pay-as-you-go basis. Oftentimes, clients will use this in combination with auto scaling (a process that allows a client to use more compute in times of high application usage, and then scale down to reduce costs when there is less traffic). These cloud computing web services provide various services related to networking, compute, storage, middleware, IOT and other processing capacity, as well as software tools via AWS server farms.

- **Flask**

Flask is a web application framework written in Python. It was developed by Armin Ronacher, who led a team of international Python enthusiasts called Pocco. Flask is based on the Werkzeug WSGI toolkit and the Jinja2 template engine. Both are Pocco projects.

4.4 Screenshots

The Following are the screenshots of the result of the project :

Figure 4-1 : Screenshot 1

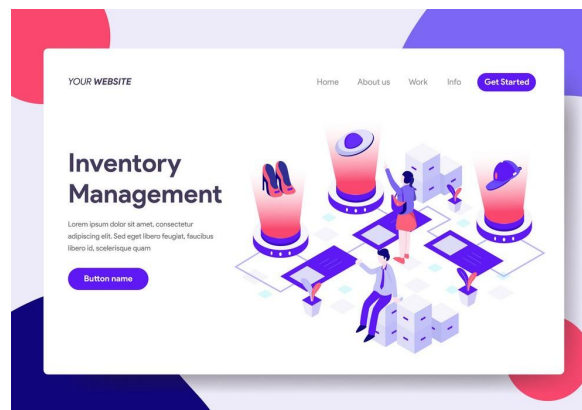


Figure 4-2 : Screenshot 2

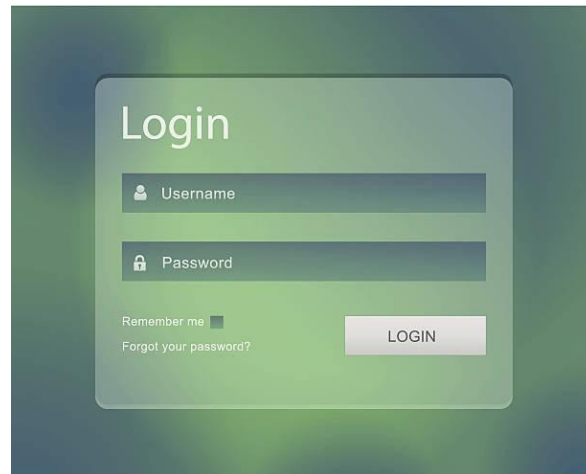


Figure 4-3: Screenshot



4.5 Testing

Testing is the process of evaluation of a system to detect differences between given input and expected output and also to assess the feature of the system. Testing assesses the quality of the product. It is a process that is done during the development process. .

4.5.1 Strategy Used

Tests can be conducted based on two approaches –

Functionality testing

Implementation testing

The testing method used here is Black Box Testing. It is carried out to test functionality of the program. It is also called 'Behavioral' testing. The tester in this case, has a set of input values and respective desired results. On providing input, if the output matches with the desired results, the program is tested 'ok', and problematic otherwise.

,

Chapter 5.Conclusion

Conclusion

5.1 Conclusion

All the registered students of the specified institute will be able to store their important data and information in a secure place. This system will ensure easy retrieval of data on demand. Students will not have to spend a lot of time building a resume from scratch and can just fill up their information, useful skills and achievements and get their resume emailed or on WhatsApp at any instance. Teachers can now easily identify the number of students who have done a particular task. They will be categorized on the basis of their skills, tags on their uploaded certificates and their interests. This can heavily improve the on-campus placement process. As per the information provided, teachers can easily classify students in a particular company according to their interests and then they can just allow those students for placement in a particular company. Not only students but any working person can also use this application as it is useful for every section of society either student, teacher or any working professional. Because of these features, it can be used by people of any age and that is the reason that its targeted audience is very large and also it is required by any person regularly so its demand will also be higher for a long time. As we use AWS, we don't have to worry about space and databases so we can store a very large amount of data without any server failure. Because of its unique features it will be used by colleges/universities as well and they might just make it compulsory to use this application because of its new and innovative features. This website is helpful for searching or getting a job. In this era of catfight for Employment this is a life-saving service for the students.

5.2 Limitations of the Work

No specific system exists for the described problem statement and the proposed system is unique in its essence because on the proposed platform the students can simultaneously generate resume with their uploaded data, add them to their Linked-In profile and the concerned staff can analyze the collected data as per the required categories, generate reports of students skilled in the specified domain, and generate posts on Linked-In on-the-go.

This project will be the best platform for student and mentor interaction. The resume-builder functionality is easy and efficient for quickly building their resume. Students can upload their respective data accordingly. It will easily find out which kind of job domain is well-suited to their profile and report to the faculty on priority based on their skills.

Limited features

A free tool might only be available for the IOS but not for the phone and other endpoint monitors.

You need internet access

Whether you are using a free online ticketing system or a paid one, you cannot access it without an internet connection.

Influx of customers

Attracting a large number of customers is suitable for any business. If you have limited resources to hire more customer reps, this becomes a problem.

Bibliography

[1] "Google Classroom" Available at: [https://en.wikipedia.org/wiki/Google_Classroom]

[2] Sun H-L, Sun T, Sha F-Y, Gu X-Y, Hou X-R, Zhu F-Y and Fang P-T (2022) The Influence of Teacher–Student Interaction on the Effects of Online Learning: Based on a Serial Mediating Model. *Front. Psychol.* 13:779217. doi: 10.3389/fpsyg.2022.779217

[3] Wang L (2022) Student Intrinsic Motivation for Online Creative Idea Generation: Mediating Effects of Student Online Learning Engagement and Moderating Effects of Teacher Emotional Support. *Front. Psychol.* 13:954216. doi: 10.3389/fpsyg.2022.954216

[4] Sen, Kristen. "Importance of teacher-student interaction" Reference: [<https://www.primescholarslibrary.org/articles/importance-of-teacherstudent-interaction-72269.html>].

[5]"RESUME BUILDER APPLICATION", *International Journal of Emerging Technologies and Innovative Research* (www.jetir.org | UGC and issn Approved), ISSN:2349-5162, Vol.8, Issue 3, page no. pp18-20, March-2021, Available at : <http://www.jetir.org/papers/JETIREN06004.pdf>