(Designing Alumni Portal For Enhancing Professional Engagement.)

Submitted in partial fulfilment of the requirements of the degree of

BACHELOR OF COMPUTER ENGINEERING

by

(Savinay Pandey, 21102125)

(Pranav Patil, 21102180)

(Pratik Patil, 21102099)

(Gautam Pandey, 21102117)

Guide:

(Dr. S.S. Aloni)

Department of Computer Engineering

A. P. SHAH INSTITUTE OF TECHNOLOGY, THANE

(2024-2025)

A.P. SHAH INSTITUTE OF TECHNOLOGY, THANE

CERTIFICATE

This is to certify that the project entitled "**Designing Alumni Portal For Enhancing Professional Engagement.**" is a bonafide work of **"Savinay Pandey" (21102125), "Pranav Patil" (21102180), "Pratik Patil" (21102099), "Gautam Pandey" (21102117)** submitted to the University of Mumbai in partial fulfilment of the requirement for the award of the degree of **Bachelor of Engineering** in **Computer Engineering**

_____	_____
(Dr. S.S. Aloni)	(Prof. D.S. Khachane)
Guide	Project Coordinator
_____	_____
(Prof. S.H. Malave)	(Dr. Uttam D Kolekar)
Head of Department	Principal

A.P. SHAH INSTITUTE OF TECHNOLOGY, THANE

Project Report Approval for B.E.

This project report entitled ***(Designing Alumni Portal For Enhancing Professional Engagement.)*** by ***Savinay, Pranav, Pratik, Gautam*** is approved for the degree of ***Bachelor of Engineering*** in ***Computer Engineering***, ***2024-25***.

Examiner Name	Signature
1._____	_____
2._____	_____

Date:

Place:

Declaration

We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Savinay Pandey - 21102125

Pranav Patil - 21102180

Pratik Patil - 21102099

Gautam Pandey - 21102117

Date:

Abstract

The Alumni-Student Networking Platform connects students with alumni to encourage mentorship, open communication, and career support within a secure and inclusive environment. It includes a structured buddy-pairing system that allows students to receive time-bound guidance from experienced alumni. A real-time chat feature powered by web sockets enables quick and seamless conversations. Alumni can share job and internship opportunities directly with students, helping them access relevant career paths. The platform also offers a personalized follow system and advanced filters to help users discover useful posts and discussions. A strict verification process ensures only genuine users can join, and strong data protection measures keep user information safe. Automated notifications keep everyone updated on pairings, meetings, and mentorship progress. The platform supports sustainability by strengthening long-term connections within the academic community and encouraging knowledge sharing across generations. In line with the goals of creating inclusive, safe, and sustainable communities, it promotes access to opportunities, reduces inequality within the academic network, and supports social inclusion through meaningful engagement between students and alumni.

Keywords : Alumni-Student Networking, Mentorship, Buddy Pairing System, Real-Time Communication, Career Development, Job and Internship Postings, Secure Authentication.

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CHAPTER 1

Introduction

The Alumni-Student Networking Platform is designed to promote seamless interaction between alumni and students, creating a collaborative environment for mentorship, career development, and professional networking. Many educational institutions struggle with maintaining strong alumni engagement, leading to missed opportunities for students who could benefit from valuable industry insights, guidance, and direct career connections. Traditional methods of alumni interaction, such as occasional networking events or informal communication channels, often fail to provide a structured and sustainable approach. This project aims to address these challenges by developing a user-friendly, feature-rich, and secure platform where alumni and students can interact effectively, share opportunities, and build long-lasting professional relationships.

One of the core features of the platform is the buddy pairing system, which facilitates structured mentorship by allowing students to connect with experienced alumni for career guidance, professional advice, and industry exposure. This system is designed to be time-bound, ensuring that students receive focused mentorship while allowing alumni to assist multiple students over time. The platform also integrates real-time communication through a web sockets-powered chat system, enabling instant conversations between alumni and students. Whether seeking career advice, discussing job opportunities, or networking for future collaborations, users can engage

in meaningful discussions without the delays associated with traditional communication methods.

To further enhance engagement, the platform allows alumni to post job opportunities, internships, and career-related announcements, giving students direct access to employment prospects within their institutional network. These posts are interactive, enabling students to like, comment, and apply directly through the platform. A content personalization system ensures that students receive relevant updates by allowing them to follow specific alumni or categories of interest, making their experience more tailored and efficient. Additionally, advanced post filtering and search functionalities help users find top-rated discussions, trending job opportunities, and mentorship content based on their preferences.

Security and exclusivity are critical to maintaining the integrity of the platform. A strict authentication and verification process ensures that only verified alumni and students can access the platform, preventing unauthorized users from engaging in discussions or accessing sensitive information. The platform also prioritizes data protection and privacy, ensuring that all interactions remain secure. Notifications and alerts keep users informed about new buddy pairings, scheduled mentorship sessions, job postings, and important updates, encouraging active participation.

By bringing together these features in a single, cohesive platform, this project goes beyond improving alumni-student interaction—it actively supports the creation of inclusive, safe, and connected academic communities. Aligned with the goals of sustainable development, it helps institutions build supportive networks that encourage equal access to mentorship, career opportunities, and lifelong learning. Through ongoing engagement, the platform strengthens the bonds between alumni and students, contributing to a more collaborative and future-ready academic environment.

CHAPTER 2

Literature Survey

1. **Smith, J. A., & Doe, R. B.** (2021). "The Impact of Alumni Networks on Career Advancement." *Journal of Career Development*, 47(3), 201-214 et al. This study investigated how alumni networks contribute to career advancement for recent graduates, demonstrating that alumni connections significantly improve job placement rates and mentorship opportunities.
2. **Brown, L. M.**, & **Taylor, P. R.** (2020). "Strengthening the Alumni-Student Connection: Best Practices for Effective Engagement." *International Journal of Educational Management*, 34(5), 953-968 et al. This article discussed effective strategies for institutions to engage alumni, highlighting successful online platforms that enhance interaction and networking among alumni and students.
3. **Johnson, T. K., & Patel, A.** (2019). "The Role of Alumni Networks in Higher Education: A Survey of Best Practices." *Journal of Higher Education Policy and Management*, 41(2), 175-190 et al. This research outlines various alumni engagement models and their effectiveness in supporting students' career transitions.
4. **Chen, W.**, & **Wang, Z.** (2022). "Leveraging Technology for Alumni Engagement: A Case Study of Online Platforms." *Computers in Human Behavior*, 122, 106871 et al. This case study explored how online platforms enhance alumni engagement, focusing on the design and functionality of successful alumni networking websites.

5. **Garcia, R.**, & **Lee, M.** (2023). "The Effectiveness of Social Media in Alumni Networking: Insights from a Survey." *Social Media + Society*, 9(1), 1-12 et al. This paper concluded presents survey findings on the role of social media in advancing alumni connections and networking, revealing the potential for increased engagement through these platforms.
6. **Kumar, S., & Singh, R.** (2021). "Building Stronger Alumni Communities through Online Platforms." *Journal of Educational Technology & Society*, 24(3), 55-68 et al. This research discusses the design features that enhance user engagement in online alumni networks, emphasizing the importance of user-friendly interfaces.
7. **Peterson, H. R.**, & **Wilson, F.** (2020). "Mentorship in the Digital Age: The Role of Technology in Alumni-Student Interactions." *Mentoring & Tutoring: Partnership in Learning*, 28(2), 170-185 et al. This study examined how digital tools facilitate mentorship relationships between alumni and students, providing insights into best practices for online mentorship.
8. **Anderson, P. J., & Green, T. E.** (2018). "The Impact of Mentorship on Student Career Success: A Comparative Study." *Journal of Applied Psychology*, 103(4), 391-402 et al. This research highlights the correlation between mentorship quality and career success for students, reinforcing the need for structured mentorship programs within alumni networks.
9. **Miller, D. L., & Rogers, K. J.** (2019). "Alumni Mentoring Programs: A Review of Current Practices and Future Directions." *Educational Research Review*, 26, 15-30 et al. This review outlines current trends in alumni mentoring programs, identifying key factors that contribute to successful outcomes for both mentors and mentees.
10. **Lee, C., & Kim, Y.** (2021). "User Experience in Online Alumni Networks: An Empirical Study." *Journal of Usability Studies*, 16(3), 91-106 et al. This study investigated user experience factors that influence alumni engagement in online platforms, providing recommendations for enhancing usability and user satisfaction.
11. **Taylor, S. M., & Hayes, R. L.** (2020). "Designing for Engagement: Features of Successful Alumni Platforms." *International Journal of Human-Computer Studies*, 138, 102-117 et al. This article explored design principles that enhance engagement in alumni networks, including user interface design, social features, and personalized content delivery.

	Paper Name	Strengths	Drawback
[1]	Alumni Networking Systems for Career Growth	Provides a structured framework for alumni-student interaction, focusing on career opportunities.	Lacks real-time engagement features like chat or notifications.
[2]	Mentorship Platforms in Higher Education	Highlights the importance of structured mentorship programs for student success.	Does not address security concerns related to user data and verification.
[3]	Role of Social Media in Alumni Engagement	Discusses how LinkedIn, Facebook, and other platforms help alumni stay connected.	Social media lacks exclusivity and structured career-oriented interactions.
[4]	Building Secure Online Alumni Networks	Focuses on data privacy, authentication, and cybersecurity for alumni platforms.	Limited discussion on user engagement and interactive features.
[5]	Impact of Alumni Mentorship on Student Employability	Shows a positive correlation between mentorship programs and student job placements.	Does not explore technological solutions for scalable mentorship programs.
[6]	Real-time Communication in Professional Networking	Highlights the benefits of web sockets and real-time chat in networking platforms.	Implementation challenges and scalability issues not fully addressed.

CHAPTER 3

Limitation of Existing system

1. **Limited Interactivity**: Many existing platforms focus primarily on job postings and professional announcements without offering robust interactivity features. Users often find it challenging to engage deeply with posts, as the lack of comment threads or reaction options limits meaningful discussions. This shortfall in interactivity can lead to a less engaging experience for both alumni and students.

2. **Poor User Experience**: Some platforms suffer from outdated user interfaces and complicated navigation systems, making it difficult for users to find relevant information quickly. A cluttered design can overwhelm users, discouraging them from fully utilizing the platform's features. Moreover, inconsistent performance across devices can affect user satisfaction, as many users prefer accessing these platforms via mobile devices.

3. **Inadequate Mentorship Opportunities**: While many existing systems provide alumni with the ability to post job opportunities, they often fall short in facilitating mentorship connections. The lack of structured mentorship programs or features that encourage pairing alumni with students can result in missed opportunities for professional guidance and support.

Research Gap

Despite the advancements made by existing alumni networking platforms, a notable research gap persists in understanding how to effectively integrate interactivity, mentorship, and user experience in these systems. Specifically, the following areas require further exploration:

1. **Enhanced Interactivity Features**: There is a need for research into innovative ways to increase interactivity on alumni platforms, including features that facilitate real-time discussions, polls, and Q&A sessions. Understanding what types of interactive elements resonate most with users could enhance engagement levels significantly.
2. **Effective Mentorship Models**: Current systems often lack structured mentorship frameworks. Research is needed to identify best practices for pairing alumni with students based on interests, career goals, and expertise. This could lead to the development of mentorship programs that are more effective and beneficial for both parties.

CHAPTER 4

Problem Statement

Educational institutions often face challenges in maintaining a robust connection between their alumni and current students. Existing platforms lack essential features such as real-time communication, seamless mentorship programs, and user-friendly interfaces that can encourage meaningful interactions. As a result, opportunities for professional networking, job placements, and alumni engagement are frequently missed, limiting students' access to career development resources and alumni support. The lack of a dedicated platform that facilitates both job-related announcements and mentorship interactions highlights the need for a more integrated and interactive solution.

Objectives and Scope

- Allow alumni to share job opportunities and important announcements, promoting access to career resources within the academic community.
- Enable students to engage with posts through likes, comments, and job registration, fostering inclusive participation and interaction.
- Integrate a real-time global chat feature to support instant, meaningful communication and knowledge sharing.
- Ensure secure user authentication and strong data protection to maintain a trusted, safe digital space.

CHAPTER 5
Proposed System

DFD Level 0 :

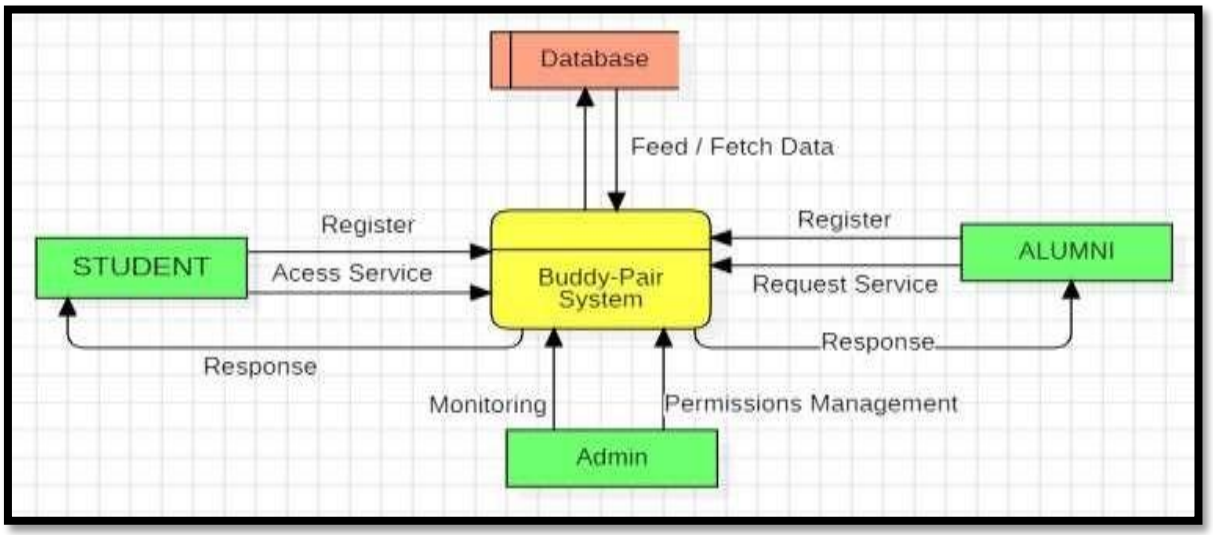

Figure 5.1

This is the highest level of the Data Flow Diagram (DFD), providing an overview of the entire "Alumni Connect" system. It represents the system as a single process node, showing how external entities such as alumni and students interact with the system through data inputs and outputs. Key data flows include user authentication, job postings by alumni, student engagements (likes, comments, registrations), and system responses such as job application confirmations.

DFD Level 1 :

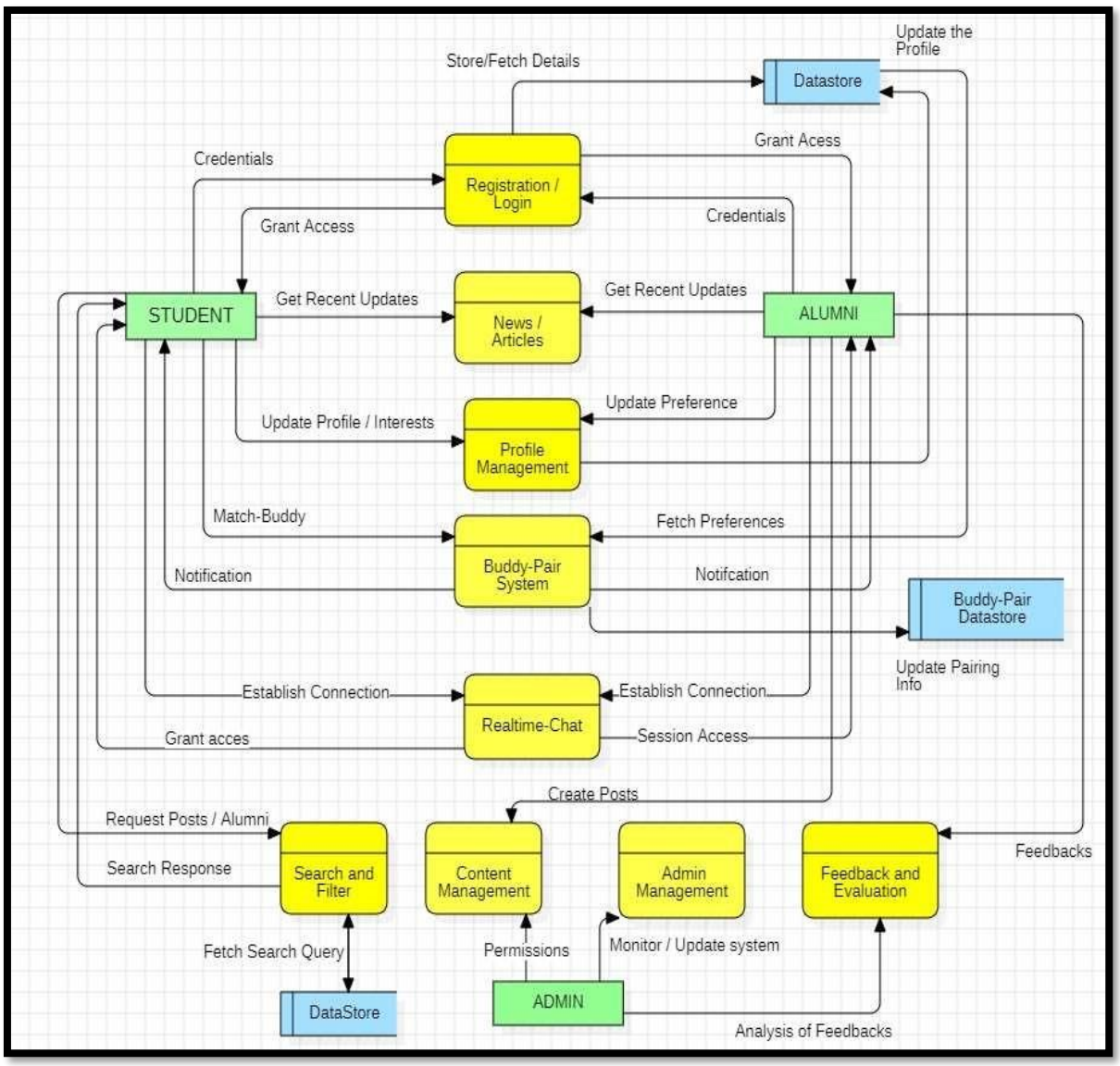

Figure 5.2

The DFD Level 1 further decomposes the system into major functional areas or processes. It breaks down the interactions into smaller subprocesses, such as handling alumni posts, managing student interactions with those posts, and enabling communication via real-time chat. The diagram shows the flow of information between these processes and the external entities, illustrating how data moves through each subsystem of the platform.

DFD Level 2 :

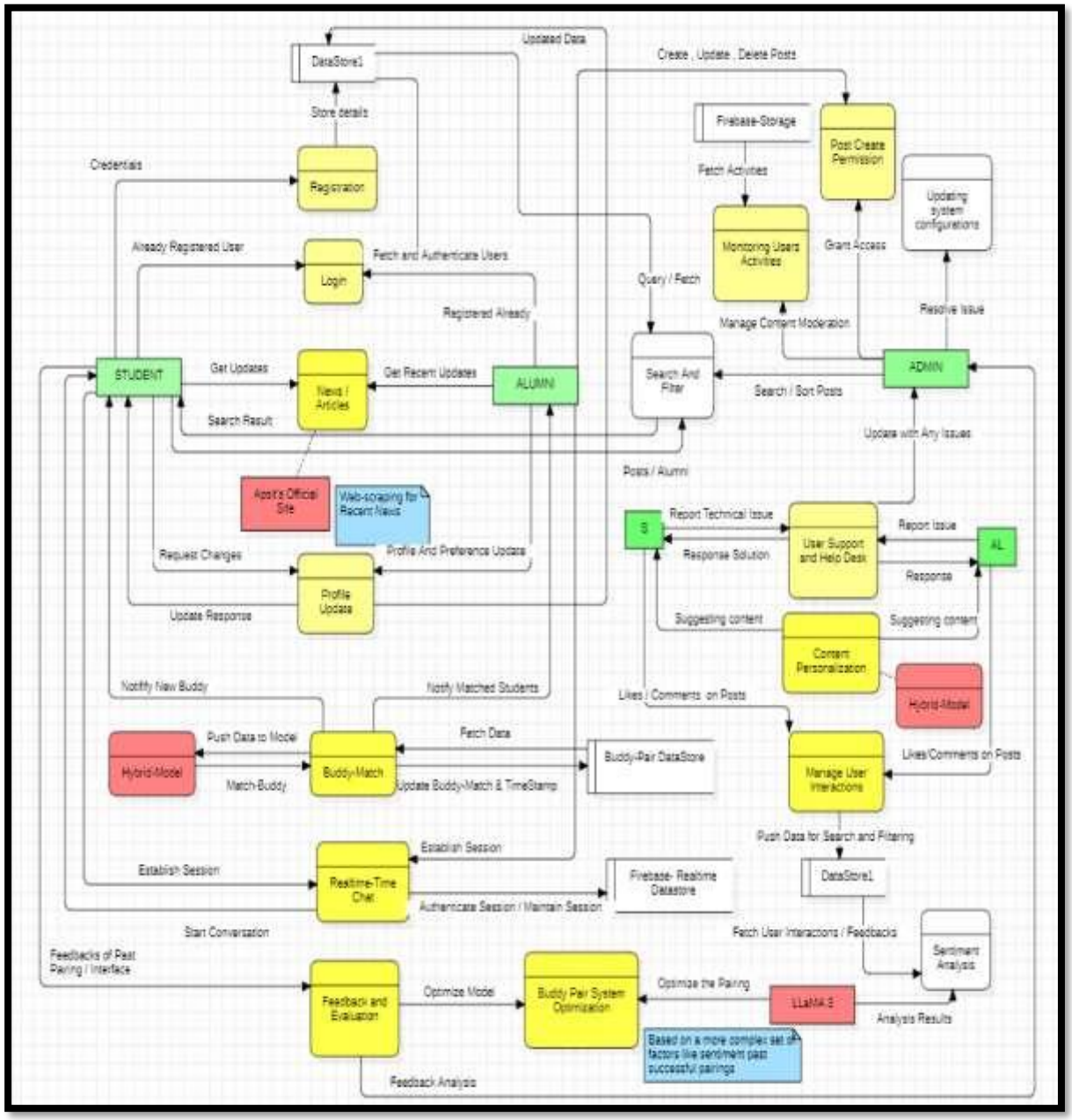

Figure 5.3

The DFD Level 2 goes into even more detail, focusing on specific subprocesses. For example, it may depict how a job posting from an alumnus gets stored in the system, is displayed to students, and allows student interactions like applying or commenting. This detailed level helps in identifying the flow of data within internal processes such as authentication, post management, and chat features.

Architecture/Block Diagram :

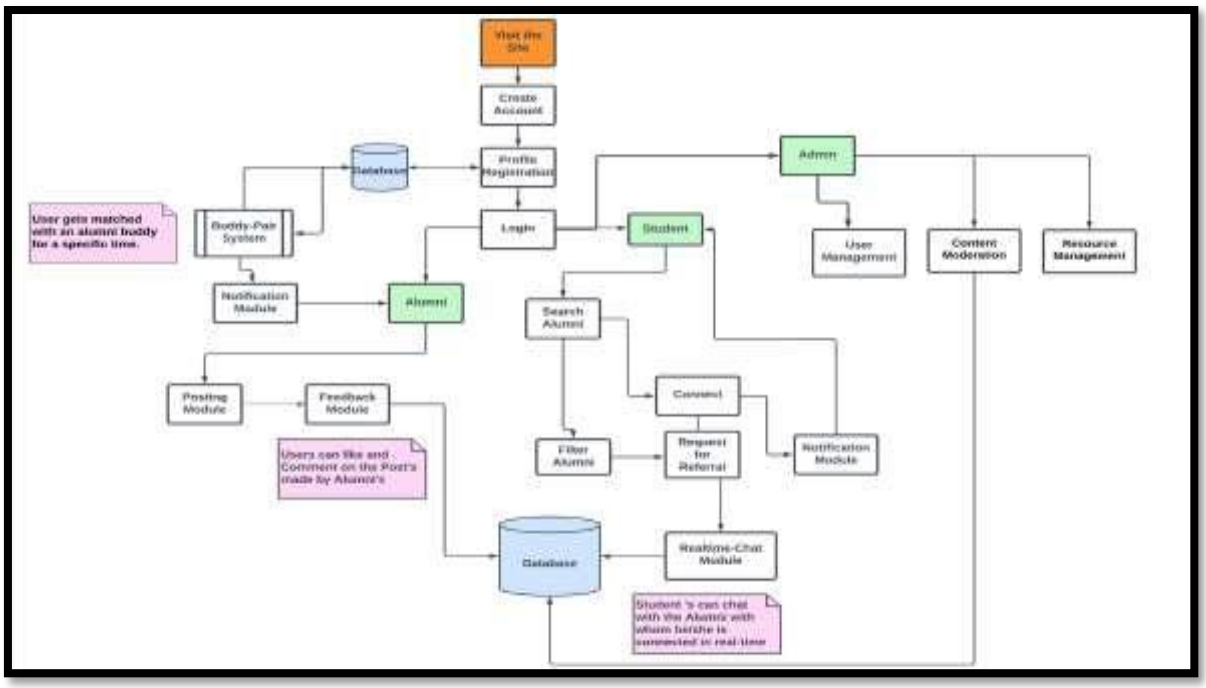

Figure 5.4

This diagram shows the overall architecture of the system, highlighting key components such as the frontend, backend, database, and communication protocols. The block diagram clarifies how different technologies, such as Flask (for the backend), Firebase (for real-time data management), and WebSockets (for real-time communication), are integrated to create a cohesive system. It illustrates how user data flows from the frontend to the backend, is processed, and how real-time updates are managed across the system.

Use Case Diagram :

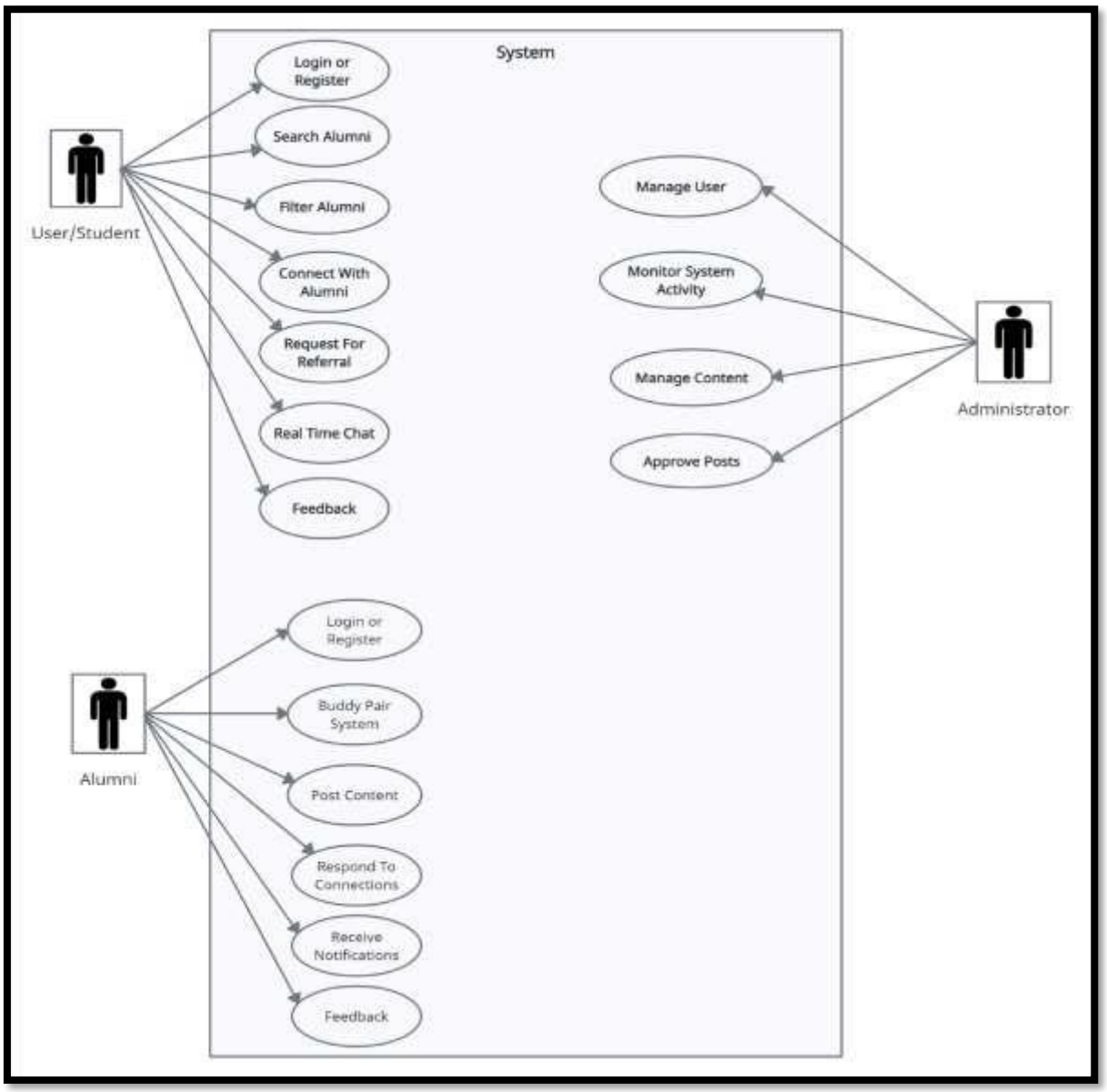

Figure 5.5

The Use Case Diagram visually represents the interactions between users (alumni and students) and the system. It highlights the different functionalities available to users, such as posting jobs, commenting, liking posts, and registering for job opportunities. It also shows the roles of external users and how they interact with specific functions of the system, emphasizing the user-centered design of the platform.

Sequence Diagram :

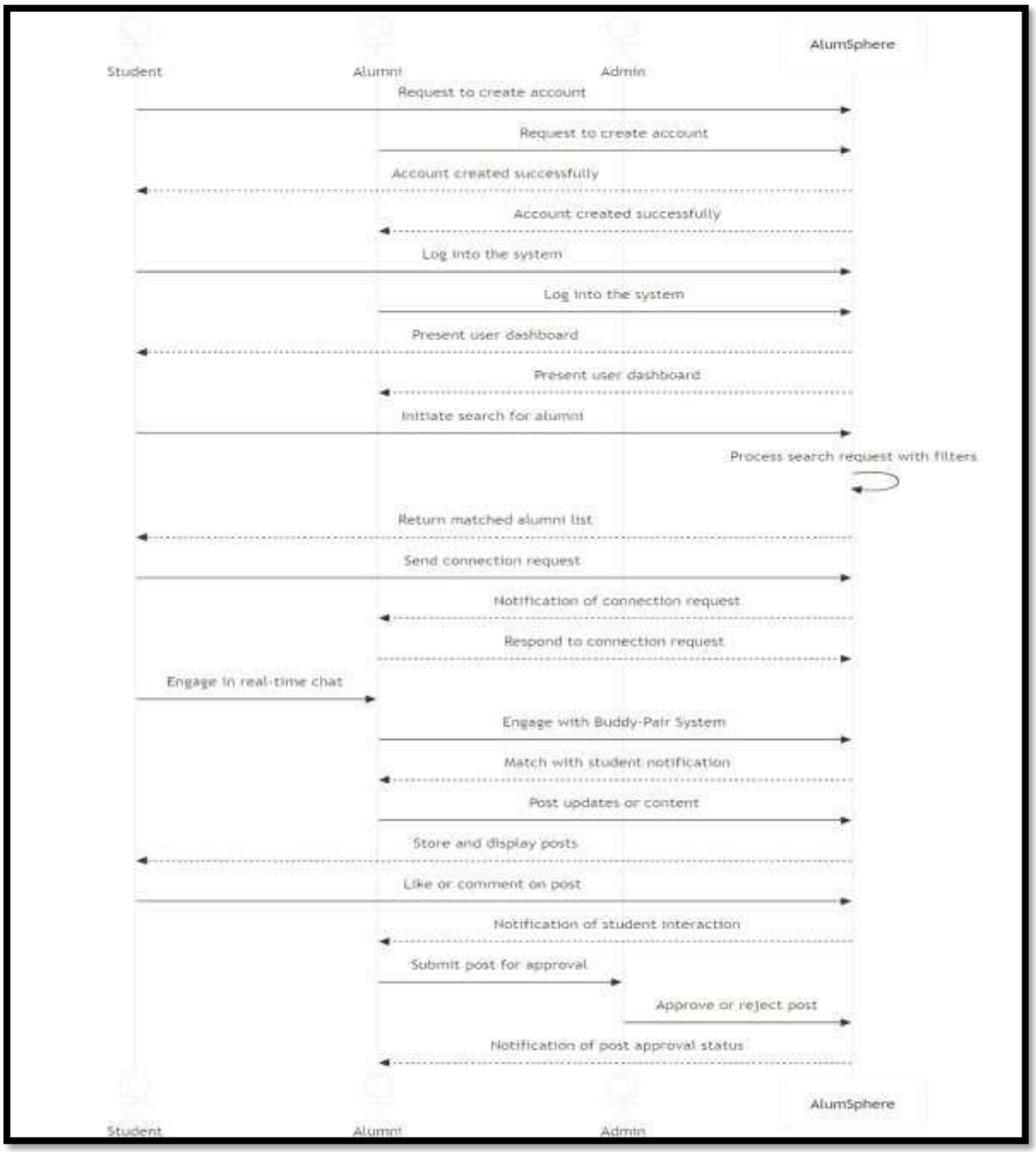

Figure 5.6

The Sequence Diagram outlines the sequence of interactions between different system components and users. It typically focuses on specific user actions, such as a student registering for a job post or an alumni posting a job. It details the flow of requests and responses between the user interface, backend, database, and real-time systems offering insight into the timing and order of operations necessary to handle user actions.

Activity Diagram :

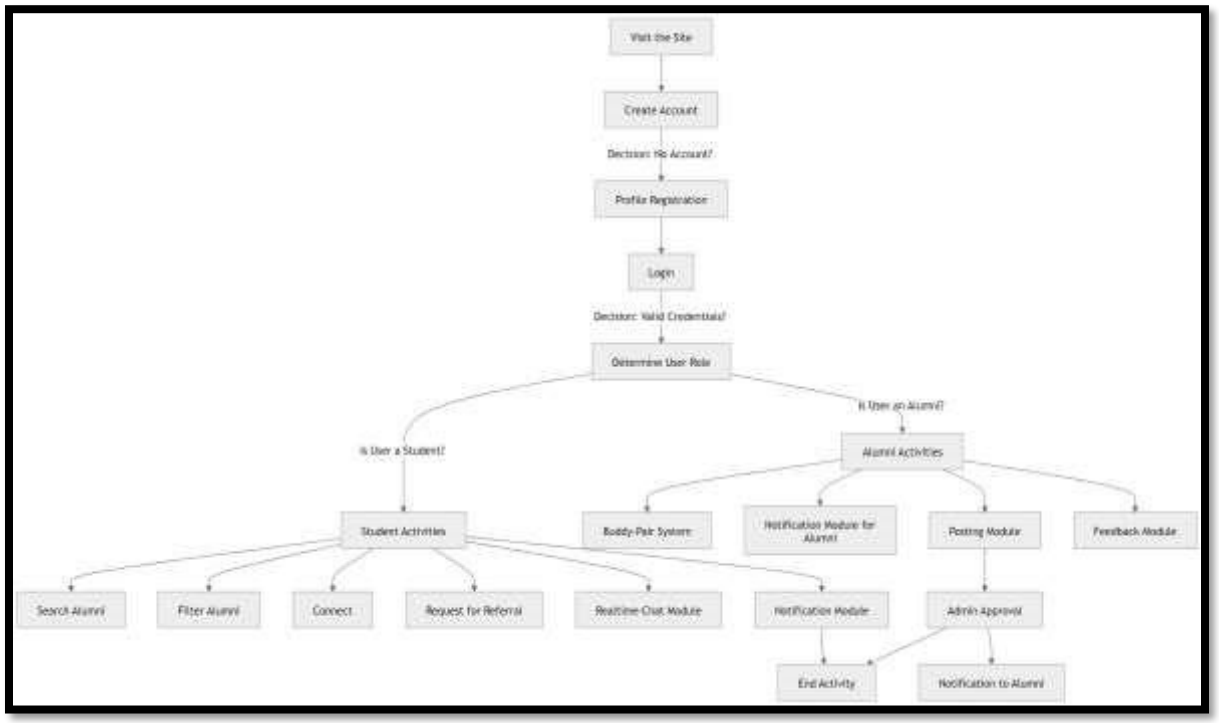

Figure 5.7

The Activity Diagram represents the flow of activities and decision points within the system. It visualizes the step-by-step process, such as how a student browses posts, interacts with them, and applies for a job. The diagram is useful for showing decision-making processes, such as the verification step required before a student can access job posts or register for them. It also maps out the process for alumni to create and submit job opportunities, helping to visualize the overall workflow.

CHAPTER 6

Experimental Setup

1. Details of Database or Input to the System

The "Alumni Connect" project relies on data inputs from both alumni and students to create a comprehensive and interactive platform. The system manages a range of data that includes user profiles, job postings, announcements, comments, likes, and real-time chat messages. The key input data points are:

- **User Profiles**: Information from both alumni and students, including names, contact details, education histories, and professional backgrounds. This data is essential for enabling user interactions and personalizing content.
- **Job Postings and Announcements**: Alumni contribute to the platform by posting job opportunities, internships, and professional announcements. Each post includes details such as job title, description, requirements, location, and application deadlines.
- **Student Engagement Data**: Input from students includes likes, comments, and registrations for job posts. This engagement data is stored and utilized to track user interactions and assess platform effectiveness.
- **Chat Messages**: Real-time communication data, including text messages exchanged between students and alumni in the global chat feature. This data is processed and stored for communication history purposes.

The database for this system can be hosted on **Firebase**, which provides real-time data synchronization and secure storage. Firebase allows easy handling of real-time updates, ensuring

that any changes to the job posts, comments, and user interactions are reflected instantly across all users.

2. Performance Evaluation Parameters (for Validation)

To evaluate the effectiveness of the "Alumni Connect" platform, several performance metrics and validation parameters are identified. These metrics ensure that the system performs optimally and meets its objectives in providing a seamless experience for both alumni and students. The key performance evaluation parameters are:

- **User Engagement**: Metrics like the number of posts, likes, comments, and job registrations are tracked to measure overall engagement on the platform. High engagement rates would validate the platform's ability to promote interaction between students and alumni.
- **Response Time**: The time it takes for actions like posting jobs, commenting, or registering for positions to reflect on the platform. This includes the response time for real-time chat messages. An optimal response time would indicate that the platform is running efficiently and users are having a smooth experience.
- **Scalability**: The ability of the system to handle increased data input and user load without degradation in performance. Scalability is tested by simulating a growing number of users and interactions to ensure that the system can maintain functionality under higher loads.
- **Security and Privacy**: The platform's authentication protocols, user verification processes, and data encryption measures are evaluated to ensure the secure handling of user data. Regular security audits and penetration testing help to validate the safety of the system.
- **User Satisfaction**: User feedback through surveys or usage analytics will be a key validation metric. Metrics like retention rates, average time spent on the platform, and frequency of use are indicative of user satisfaction.
- **System Downtime**: Measuring the platform's uptime and ensuring minimal downtime is crucial to its success. A reliable platform with high availability will validate the robustness of the system.

3. Software and Hardware Setup

To successfully deploy and operate the "Alumni Connect" platform, both software and hardware components are carefully selected to ensure optimal performance and scalability.

- **Software Setup**:
    - **Frontend**: The user interface is developed using HTML5, CSS3, and JavaScript. These technologies provide a responsive, modern design and ensure compatibility across devices such as desktops, laptops, and mobile phones.

- **Backend**: The backend framework is built using **Python** and **Flask**, which handle user authentication, database management, and processing of requests. Flask is chosen for its lightweight nature, making it ideal for a scalable web application. ○ **Database**: **Firebase** is used for real-time data storage, handling user profiles, job posts, comments, and chat logs. Firebase's real-time synchronization feature ensures that all users have instant access to the latest data.
- **Real-Time Communication**: The chat feature is implemented using **WebSockets**, enabling instant messaging between users. This ensures a smooth and uninterrupted communication flow, with real-time updates.
- **Security**: User authentication and secure login systems are implemented using Flask's built-in authentication methods and third-party services like **OAuth** for secure access. Data encryption and SSL certificates ensure the protection of user data.

• **Hardware Setup**:

- **Development Machines**: For local development and testing, modern development laptops or desktops with at least 8 GB of RAM, a multi-core processor, and SSD storage are required. These setups ensure smooth execution of code and efficient testing.
- **Servers**: Backend servers in the cloud are configured with at least 2 virtual CPUs, 4 GB RAM, and SSD storage to handle the application load. As the platform scales, resources can be expanded based on traffic.

CHAPTER 7

Implementation and result

The models.py file is responsible for managing the user model and identifying the role of each user—whether they are a student or an alumnus. It contains a roleProvider function that checks the Firebase Firestore database to determine the user's role based on their email username by searching in the 'Student' and 'Alumini' collections. The file also defines a User class that extends Flask-Login's UserMixin, which is essential for session management in Flask. The User class stores key attributes like UID, email, username, and role and includes properties required by Flask-Login, such as is_active, is_authenticated, and get_id. This model helps ensure that each user has personalized access and permissions according to their role in the application.

models.py(user model):

```
from ait import login_manager
from flask_login import UserMixin
from firebase_admin import auth
from . import db_fire
from datetime import date
def roleProvider(email):
    username = email.split('@')[0]  # Extract username from the email
    role = None
    student_doc = db_fire.collection('Student').document(username).get()
    alumini_doc = db_fire.collection('Alumini').document(username).get()
    if student_doc.exists:
        role = 'Student'
    elif alumini_doc.exists:
        role = 'Alumini'
    return role
@login_manager.user_loader
```

```
def load_user(uid):
    try:
        user = auth.get_user(uid)
        return User(uid, user.email)
    except:
        pass
class User(UserMixin):
    def __init__(self, uid, email):
        self.uid = uid
        self._email = email
        self.username = email.split('@')[0]
        # self.username = email
        self.role = roleProvider(email)
    def get_id(self):
        return str(self.uid)
    @property
    def email(self):
        return self._email
    @email.setter
    def email(self, value):
        self._email = value
    @property
    def is_active(self):
        return True
    @property
    def is_authenticated(self):
        return True
    @property
    def is_anonymous(self):
        return False
```

The chat.py file manages the real-time chat functionality within the platform. Using Flask-SocketIO, it listens for incoming messages through the "message" socket event, prepends the current user's username to the message, and then broadcasts it to all connected clients. This setup allows students and alumni to communicate instantly and interactively. The file also defines a route /chat that is protected with @login_required, ensuring that only logged-in users can access the chat interface. When accessed, it retrieves the user's data from Firestore and renders the chat interface (chat.html) with the user's username and details. This module is crucial for enabling live communication between users, enhancing networking and mentoring on the platform.

chat.py:

```
from flask import render_template, Blueprint
from flask_login import current_user, login_required
```

```
from ait import db_fire, socketio
from flask_socketio import send
chat =Blueprint('chat',__name__)
@socketio.on("message")
def sendMessage(message):
    message = current_user.username+ ": " + message
    print(message)
    send(message, broadcast=True)
@chat.route('/chat')
@login_required
def chat_app():
    username = current_user.username
    user_data =
db_fire.collection(current_user.role).document(current_user.username).get().to_dict()
    return render_template('chat.html', username = username, user_data = user_data)
```

The init.py file serves as the central configuration point for initializing the Flask application. It sets up the Flask app instance, configures Flask-SocketIO for real-time communication, and integrates Firebase services using the Admin SDK and Pyrebase for authentication, storage, and database management. It defines essential configurations like the secret key and database URI for SQLite. The file also initializes Firestore as db_fire, sets up Flask-Login with custom login views and messages, and registers various blueprints that organize the application into modular components such as authentication, chat, posts, profiles, notifications, and more. This structure ensures that the application is scalable, organized, and ready to handle user interactions across different modules.

init.py :

```
from flask import Flask, send_from_directory
from flask_login import LoginManager
from flask_socketio import SocketIO, send
import firebase_admin
from firebase_admin import credentials
from firebase_admin import firestore
import pyrebase
from cryptography.fernet import Fernet
import os
import json
from datetime import datetime
with open(
        os.path.join(os.path.dirname(__file__),
                'config/firebase_config.json')) as f:
    firebase_config = json.loads(f.read())
with open(
        os.path.join(os.path.dirname(__file__),
```

```
                'config/admin_config.json')) as f:
    admin_config = json.loads(f.read())
app = Flask(__name__)
socketio = SocketIO(app, cors_allowed_origins="*")
app.config['SECRET_KEY'] = ""
app.config['SQLALCHEMY_DATABASE_URI'] = 'sqlite:///site.db'
cred = credentials.Certificate(admin_config)
firebase_admin.initialize_app(
    cred, {'storageBucket': 'your storage bucket url'})
pyrebase = pyrebase.initialize_app(firebase_config)
db_fire = firestore.client()
login_manager = LoginManager(app)
login_manager.login_view = 'authentication.login'
login_manager.login_message_category = 'info'
from ait.views import authentication, chat, connection, error_handling, home, post,
profile,notification,onechat,model_api
app.register_blueprint(authentication.authentication)
```

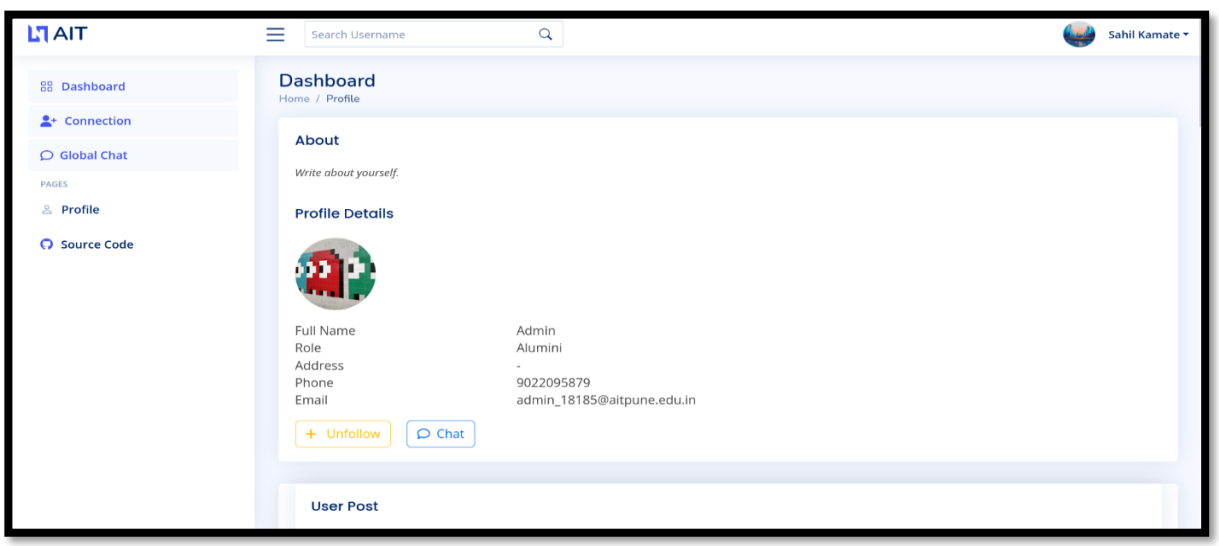

Fig 7.1 Profile

The profile section showcases a user's personal and academic details, including their profile picture, name, course, and other relevant information. This section helps personalize the user experience and allows other users to view background details when interacting or matching for opportunities. It acts as a digital identity on the platform and can be extended to include features like profile editing, social media links, or a user's activity history. The profile interface plays a vital role in building trust and transparency within the Alumni Connect ecosystem.

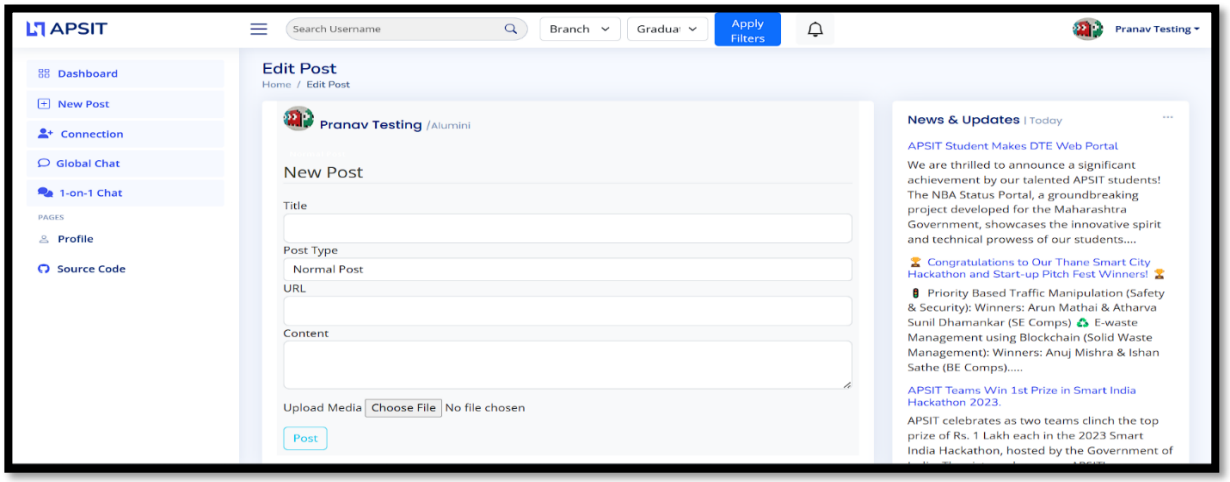

Fig 7.2 Post Creation

This section allows users, particularly alumni, to create and publish job-related posts, announcements, or opportunities for students. Each post can contain a title, description, and relevant details regarding the job or event. Students can view these posts and interact with them through actions such as registering or applying. The design ensures that information is presented in a clean, accessible format, enabling effective communication between alumni and students. This module serves as the core of the platform's engagement feature, bridging professional opportunities with student participation.

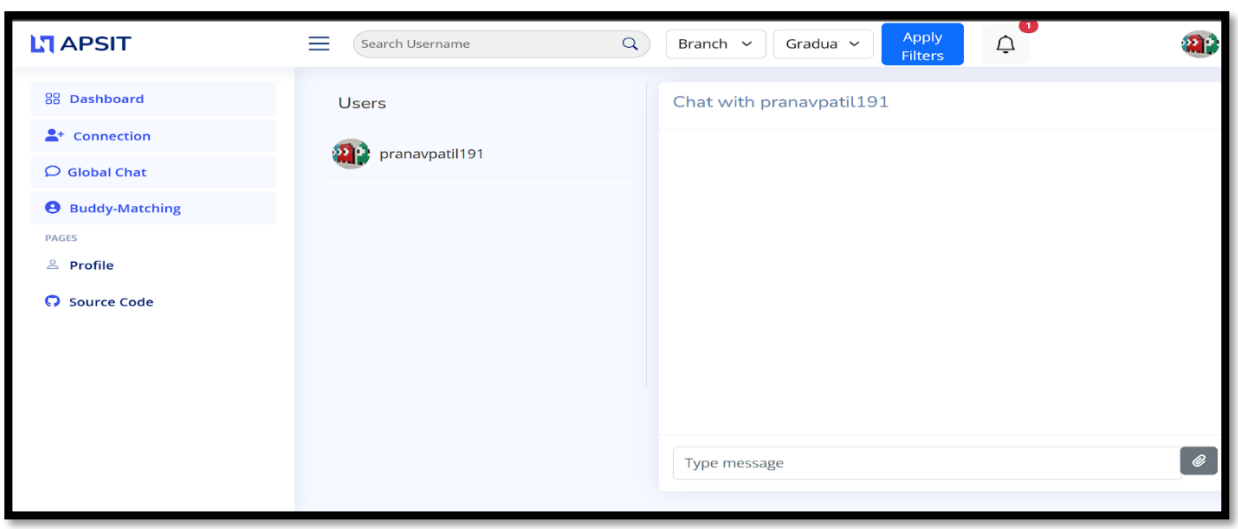

Fig 7.3 Chatting (Global / One On One)

The chat section provides a real-time global chat feature that facilitates seamless communication among all users on the platform, including both students and alumni. The interface displays messages in a conversational format, ensuring clarity and ease of use. This feature enhances networking and allows users to share guidance, ask questions, or discuss job opportunities. It supports the platform's goal of fostering a connected community by enabling instant, informal interactions beyond static posts or profiles.

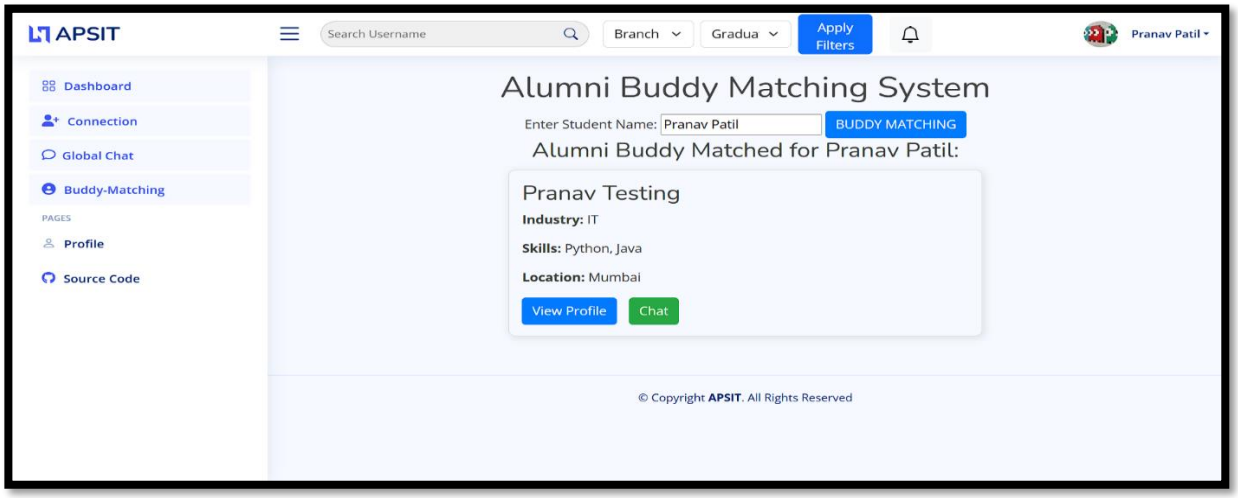

Fig 7.4 Alumni Buddy Matching System

The buddy matching section is designed to connect students with suitable alumni based on similar interests, domains, or academic backgrounds. This feature helps foster mentorship, guidance, and peer learning by suggesting relevant connections. The interface presents user cards or profiles that can be explored and matched, encouraging meaningful engagement between the two groups. The buddy system is an integral part of the platform, promoting a supportive environment and enriching the professional journey of both students and alumni.

CHAPTER 8

Project Plan

Gantt chart:

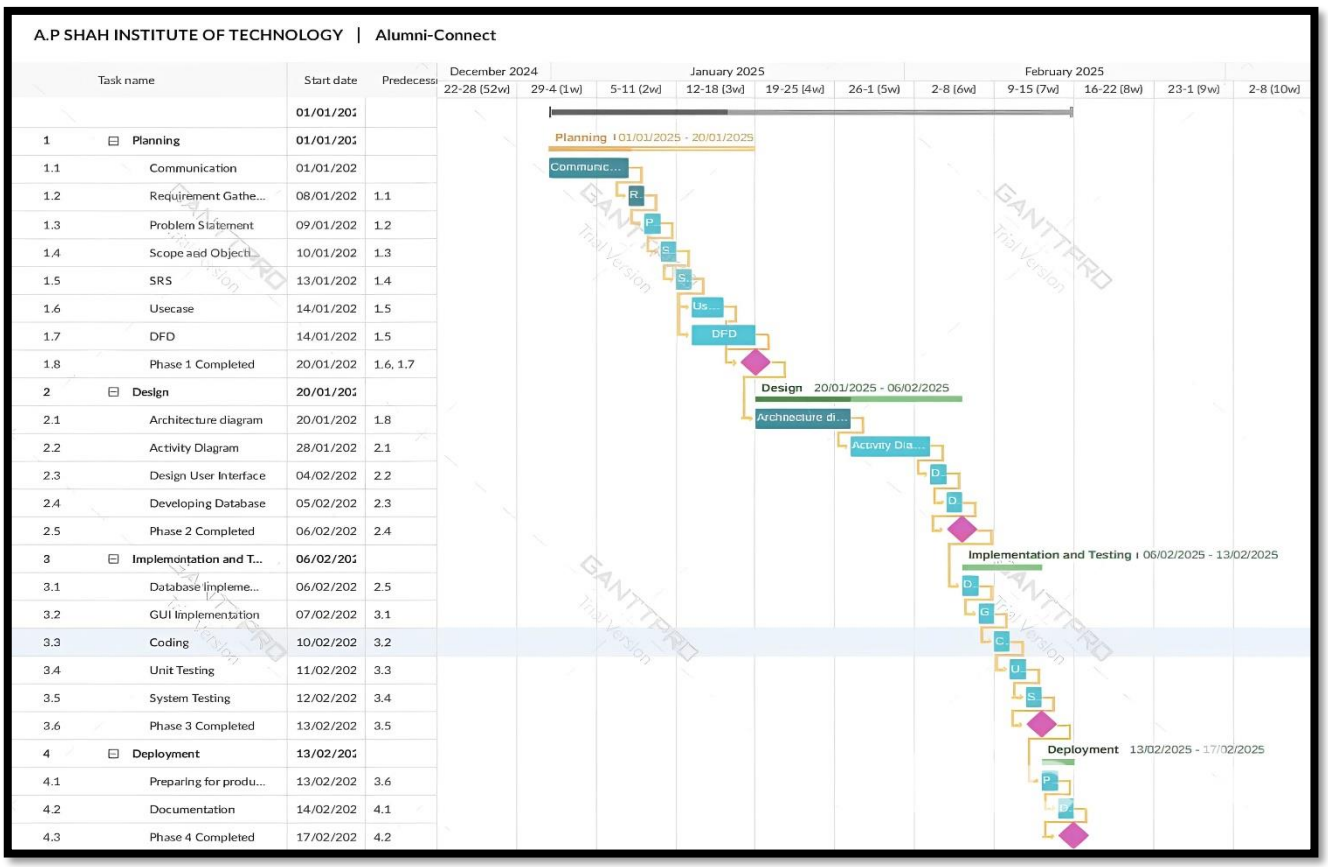

Fig 8.1 Gantt Chart

CHAPTER 9

Conclusion

The Alumni-Student Networking Platform effectively bridges the gap between alumni and students, encouraging mentorship, career development, and professional networking within a secure and structured environment. By integrating key features such as buddy pairing, real-time chat, job postings, personalized content, and secure authentication, the platform enhances engagement and facilitates meaningful connections. Students benefit from direct access to mentorship, career guidance, and job opportunities, while alumni can contribute by sharing knowledge and industry insights. With real-time communication, advanced search filters, and automated notifications, the platform ensures a seamless user experience. By leveraging modern technology and prioritizing security, it establishes a sustainable, well-connected, and thriving alumni network, ultimately strengthening institutional ties and empowering students for successful career transitions.

CHAPTER 10

Future Scope

AI-Driven Career Recommendations – Implement AI and machine learning algorithms to provide personalized job, mentorship, and networking suggestions based on user activity, interests, and career goals.

Blockchain-Based Verification – Enhance security and credibility by using blockchain technology to verify alumni credentials, academic records, and job experiences, preventing fraudulent profiles.

Integration with Industry Partners – Collaborate with companies and recruiters to offer exclusive job postings, internships, and career guidance tailored to students and recent graduates.

Gamification & Rewards System – Introduce leaderboards, badges, and reward-based participation to encourage active engagement from alumni and students, making networking more interactive.

Virtual & Augmented Reality Networking – Develop VR/AR-powered virtual meetups, networking events, and career fairs to provide immersive engagement opportunities for alumni and students worldwide.

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Annexure-I Project Cost Estimation

- Category of the Software project: - It's a *Semi-Detached* project (moderate complexity , some experience).

- Considering Efforts Adjustment Factor (EAF) = 1

- LOC = 7320
  KLOC = 7.320

- $E = a * (KLOC)^b * EAF$
  For Sem-Detached Project: a=3.0, b=1.12, c=2.5, d=0.35 E = 27.88 P-M
  (Person - Month)

- $T = c * (E)^d$
  T = 8.01 ≈ 8 Months

- P = Effort (E) / Time (T)
  P = 5 Person

Effort E	27.88
Time T	8
People P	5

- **Cost Estimation: -**

1. Average Monthly Developer Salary = Rs. 20,000/- per month
2. Developer Cost = 8 x Rs. 20,000/- x 3 = Rs. 4,80,000/-
3. 3. System Cost = Cost of 1 Machine x (No. of members)
   = 55000/- x 4 = Rs. 2,20,000/-
   Additional Hardware Cost if any (like VR set etc.) = 0/-
   So, Final System Cost = {System Cost – (75% of System Cost)} + Additional H/W Cost
   = {2,20,000 − (1,65,000)} + 0 = Rs. 55,000
4. Paid Software Costing = Rs. 00/-
5. Miscellaneous Costs = Rs. 10, 000/-

- **Total Cost = 4,80,000 + 55,000 + 0 + 0 + 10,000**
  = Rs. 7,07,250/-