Malnad College of Engineering

Under the auspices of M.T.E.S ®
(An Autonomous Institution Affiliated to VTU, Belgaum)
P.B No. 21, Hassan-573 202, Karnataka

MINI PROJECT (23IS506)

"AI-Based Aircraft Recognition"

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Hassan - 573 202

2025-26

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CERTIFICATE

Certified that the mini project work carried out by 4MC23IS076, 4MC23IS125, 4MC24IS400, 4MC24IS408 is a Bonafede work, submitted during academic year 2025-26, in partial fulfilment for the award of B.E degree in Information Science & Engineering. All the corrections suggested during the internal evaluation are incorporated in the project report. This report has been approved as it satisfies the academic requirements of mini project prescribed for the Bachelor of Engineering degree.

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2025-26

ACKNOWLEDGEMENT

We have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. We would like to extend our sincere thanks to all of them.

We would like to express my gratitude to our respected principal **Dr. Amarendra H J** for providing a congenital environment and surrounding to work in. We would like to express our sincere gratitude to **Dr. Ananda babu J,** Head of the department, Information science and engineering for his continuous support and encouragement.

We are highly indebted **Sindhu Jain A M** for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

We would like to express our gratitude towards my parents & member of Malnad College of Engineering for their kind co-operation and encouragement which helped us in completion of this project.

Our thanks and appreciations also go to our colleagues in developing the project and people who have willingly helped us out with their abilities.

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CONTENTS

List of figures

CHAPTER 1

1. INTRODUCTION

1.1 Introduction to the Area

In the modern digital era, learning and skill development have become essential components of personal and professional growth. The rapid advancement of technology, combined with globalization, has significantly increased the demand for continuous learning. Individuals today seek opportunities to develop new skills—whether technical, academic, artistic, or lifestyle-oriented—to remain competitive and adaptable. At the same time, countless individuals possess valuable knowledge and expertise but lack accessible platforms to share their skills with a wider audience.

A Skill Sharing Platform is designed to bridge this gap by creating a collaborative online environment where people can learn, teach, or exchange skills. The primary goal of such a platform is to bring together learners who seek knowledge and mentors who can provide guidance. Unlike traditional learning environments, which rely heavily on physical presence and formal instruction, this platform supports flexible and personalized learning. Users can connect based on shared interests, schedule sessions according to their availability, and interact through digital tools that support smooth communication.

The platform caters to a wide range of skills, including academic subjects, software development, digital marketing, music, dance, photography, cooking, sports training, and more. By providing an open and community-driven space, the system empowers lifelong learners and encourages the sharing of knowledge across geographic and cultural barriers.

1.2 Potential of the Problem

Despite the availability of various learning resources, several challenges continue to hinder access to quality education and skill development:

1. High cost of courses and training programs

Many formal training programs are expensive, making them unaffordable for a large number of learners. Professional courses and mentorship programs often require significant investment, limiting access to essential skill development.

2. Lack of experienced mentors

In many regions, especially rural areas, learners struggle to find knowledgeable mentors who can guide them. Even in urban areas, mentorship opportunities are limited or difficult to access due to busy schedules.

3. Geographical limitations

Individuals living in remote areas often miss out on learning opportunities due to the absence of training centers or expert tutors nearby. Online platforms can overcome this barrier by enabling global mentorship.

4. Unstructured skill-sharing environment

Even though people are willing to teach skills informally, there is no proper system to connect learners with mentors. Social media platforms allow sharing of information but do not provide structured learning pathways, scheduling options, or session monitoring.

5. Limited opportunities for peer-to-peer learning

Learning becomes more effective when individuals can interact with peers who share similar interests. Existing platforms often lack an interactive environment to support this form of learning.

Given these challenges, there is a strong need for a unified system that promotes flexible, affordable, and community-based learning. A Skill Sharing Platform offers the potential to transform the learning environment by creating opportunities for personalized mentorship, peer learning, interactive sessions, and efficient skill discovery.

1.3 Problem Statement

The objective of this project is to develop a robust, web-based Skill Sharing Platform that allows users to learn, teach, and exchange skills in a structured environment. The system manages comprehensive information about users, skills offered, mentor profiles, booking details, and learning progress.

The platform must support:

- User authentication and account creation
- Skill listing and categorization
- Easy discovery of skills through search and filters
- Session booking and scheduling
- Two-way mentor–learner communication
- Reviews and ratings to ensure quality
- Secure data management

The problem is to design a system that is user-friendly, easy to navigate, secure, and capable of handling multiple interactions between mentors and learners.

1.4 Existing System & Drawbacks

Several online platforms exist for learning, such as Coursera, Udemy, Skillshare, and YouTube. While these platforms provide a wide range of learning materials, they come with significant limitations.

Existing Platforms:

1. Coursera and Udemy:

These platforms offer structured courses prepared by professionals. However, the learning process is mostly one-way, where users watch pre-recorded videos without direct interaction with instructors.

2. YouTube:

YouTube provides free access to countless tutorials but lacks a structured approach. Users may struggle to find reliable content, and there is no system for personalized learning or feedback.

3. Social Media Learning Groups:

While platforms like Facebook or WhatsApp groups allow people to share information, there is no system for scheduling sessions, rating mentors, or organizing skill exchanges.

Drawbacks of Existing Systems:

Lack of personal guidance: Most platforms do not offer real-time interaction between learners and mentors.

No customized learning plans: Learners cannot get personalized feedback, making it difficult to track progress.

High cost of premium courses: Many platforms charge high fees for structured content or certification.

No skill exchange or bartering: Users cannot exchange skills based on mutual interest.

Communication barriers: Existing platforms lack proper messaging or session management systems.

Due to these limitations, learners are unable to get the full benefit of personalized skill development. Hence, a comprehensive Skill Sharing Platform is needed to address these issues.

1.5 Objectives of the Present Work

The primary objectives of the Skill Sharing Platform are as follows:

1. User Registration and Authentication

- Allow users to sign up as mentors, learners, or both with secure login credentials.

2. Skill Listing and Categorization

- Enable mentors to list skills with descriptions, pricing (if any), availability, and experience level.

3. Advanced Skill Search Mechanism

- Provide learners with options to search skills using filters like category, mentor rating, session type, and difficulty level.

4. Session Booking and Scheduling

- Allow learners to book sessions with mentors based on available time slots.

5. Secure Data Management

- Ensure that user information, booking details, and session records are stored securely.

6. Community-Based Learning

- Promote knowledge sharing through interaction between learners and mentors.

7. Admin Monitoring

- Provide administrators with tools to monitor platform activity, manage users, validate skill listings, and maintain system integrity.

These objectives collectively contribute to building a reliable, efficient, and interactive skill-sharing environment.

1.6 Platform & Tools Used

To develop the Skill Sharing Platform, the following tools and technologies are used:

Front-End Technologies:

- **HTML –** For structuring the web pages
- **Tailwind CSS** – For styling the interface and improving user experience
- **JavaScript –** For dynamic content and user interactions

Back-End Technologies:

- **Python / Django or Node.js –** For server-side programming
- **API Integration –** For handling user requests, session bookings, and authentication

Database:

- **Mongo DB Atlas –** For storing user details, skill listings, mentor profiles, booking information, reviews, and other essential data

Development Tools:

- **Visual Studio Code (VS Code) –** For coding and project development
- **Git / GitHub (optional) –** For version management

These tools collectively ensure that the platform is scalable, secure, and easy to maintain.

CHAPTER 2

2. SYSTEM ANALYSIS

2.1 Literature Survey

System analysis for a Skill Sharing Platform requires understanding existing online learning systems, peer-to-peer teaching platforms, and digital mentorship models. Various research works, online platforms, and journal articles highlight the increasing global demand for flexible, accessible, and community-driven learning systems. Below is a brief literature survey relevant to the project.

1. Online Learning and E-Learning Models

According to studies on modern e-learning systems, platforms such as Coursera, edX, and Udemy emphasize video-based learning modules and structured courses. Research indicates that while these platforms offer quality educational content, their limitations include restricted two-way communication, lack of personalized mentoring, and limited peer-to-peer interaction. Learners often rely on pre-recorded content, which does not address real-time doubts or personalized learning needs.

Studies in the International Journal of Educational Technology emphasize the importance of interactive learning models, suggesting that engagement improves when learners can directly communicate with instructors. This supports the idea of integrating real-time mentor-learner interaction in a Skill Sharing Platform.

2. Peer-to-Peer (P2P) Learning Systems

Research on peer-to-peer learning models shows that individuals learn more effectively when they receive guidance from peers with similar interests or skill levels. Platforms like Skill share, Mentor Cruise, and Super Prof offer insight into user behavior, suggesting that many people prefer personalized mentorship over traditional course-based learning.

Previous studies also highlight the benefits of community-based knowledge sharing, where users not only learn but also contribute by sharing their skills. This reinforces the need for a platform that supports flexible roles—users can be mentors, learners, or both.

3. Digital Skill Exchange and Informal Learning

Informal learning platforms such as YouTube, Discord communities, and online forums show that many users prefer free-flowing learning environments. However, research indicates a lack of structure, difficulty in verifying mentor expertise, and absence of scheduling or tracking mechanisms. These drawbacks emphasize the need for a formalized system that offers structure, accountability, and progress tracking.

4. Importance of Feedback Systems

Studies published in the Journal of Learning Analytics highlight the significance of feedback in improving the effectiveness of learning. Rating systems, review sections, and feedback modules help learners choose mentors based on previous experiences, increasing trust and transparency. Most successful platforms rely heavily on feedback mechanisms to regulate quality.

This supports the inclusion of a structured rating and review system within the Skill Sharing Platform.

5. Security and Authentication in Digital Learning Systems

Literature on cybersecurity in educational systems stresses the importance of secure login, encrypted data storage, and protection of user identity. With rising incidents of data breaches, ensuring user privacy has become a critical part of system analysis.

This aligns with the need for secure authentication and safe handling of user data in the platform.

2.2 Findings of the Analysis

Based on user expectations, platform comparisons, and academic research, the following key findings were identified:

1. Need for Flexible Learning Modes

Modern learners prefer flexible schedules, online sessions, and the ability to choose mentors based on their availability. A rigid or fixed-timetable learning model does not suit today's dynamic lifestyle.

2. Demand for a Platform Supporting Teaching Opportunities

Many individuals possess valuable skills but lack a platform to offer mentorship. A system that enables users to become mentors enhances community-based learning and empowers individuals to share their expertise.

3. High Demand for One-to-One and Group Sessions

Learners prefer personalized one-to-one sessions for deep learning and group sessions for shared learning experiences. Both options increase the platform's effectiveness and user engagement.

4. Importance of Rating and Review Mechanisms

Users need a transparent system to evaluate mentor quality. Ratings, reviews, and feedback are essential for maintaining trust, improving mentorship standards, and encouraging accountability.

5. Secure Authentication and Data Protection

Security is a major concern for users. Without secure login mechanisms and encrypted data storage, users may hesitate to join the platform. Therefore, secure user authentication, password protection, and safe access control are essential.

6. Need for Scalable Backend Systems

As user numbers grow, the platform must handle increased traffic, data load, and concurrent session requests. Scalability ensures long-term sustainability and prevents system failures.

2.3 Functional Requirements

Functional requirements describe the specific actions and services the system should perform.

1. User Registration & Login

- Users should be able to create accounts using email, username, and password.
- Secure authentication ensures only registered users can access the platform.
- Password recovery and profile management options must be provided.

2. View and Search Skills

- The system should display all skills listed by mentors.
- Learners should be able to search skills using filters such as category, difficulty level, mentor ratings, and availability.
- Skills should be displayed in an organized and user-friendly interface.

3. Mentor Profile Management

- Mentors should be able to create and update their profiles.
- Profile details include skills, experience, qualifications, availability, and pricing (if applicable).
- Mentors should have a dashboard to track sessions, update skills, and review learner feedback.

4. Session Booking & Scheduling

- Learners should be able to book sessions based on available time slots.
- Mentors should receive booking notifications and accept or decline requests.
- Both learners and mentors should have a session calendar for easy scheduling.

5. Review and Rating System

- After completing a session, learners should be able to rate or review mentors.
- Ratings help maintain quality and guide new learners in choosing mentors.
- Mentors should be able to respond to reviews or view feedback.

6. Admin Panel for Monitoring

- Admin should have full control over user accounts, skill listings, and platform activities.
- Admin can block users, approve or remove skills, monitor system usage, and maintain platform integrity.
- Admin should access analytical reports for user activity, popular skills, and session statistics.

2.4 Non-Functional Requirements

Non-functional requirements define the system's operational characteristics rather than specific behaviors.

1. Platform Independence

- The system should run smoothly on any browser and operating system.
- Responsive design is required for accessibility from mobile devices, tablets, and desktops.

2. User-Friendly Interface

- The interface must be simple, intuitive, and easy to navigate.
- Buttons, navigation menus, and forms should be clearly labeled and easy to use.
- Users should not require technical knowledge to operate the platform.

3. Secure Data Storage

- User passwords must be encrypted using secure hashing algorithms.
- Personal information and session data should be stored safely in the database.
- Only authorized users should access private data.

4. Fast Search and Performance

- The system should provide quick search results even with a large number of skills.
- Loading time must remain minimal during peak usage.
- The platform should support real-time updates and notifications.

5. Scalability

- The backend design must support increasing numbers of users, mentors, and sessions.
- Database and server architecture must accommodate future growth.
- The system should remain stable even under high workload conditions.

CHAPTER 3

3. DESIGN

3.1 Design of Database:

Entities include: Users, Skills, Mentor Profiles, Bookings, Reviews.

3.1.1 ER Diagram

Fig 3.1.1 :ER diagram

The Entity–Relationship (ER) Diagram represents the data model of the Skill Sharing Platform. It identifies the main entities of the system, their attributes, and the relationships among them. The diagram provides a clear understanding of how data flows and how different components of the platform interact.

Below is the written explanation of each entity and relationship:

Entities and Their Attributes

1. User

- user_id (Primary Key)
- name
- email

username

- password

2. Skill

- Skill id (Primary Key)
- Skill name
- category
- description
- mentor id (Foreign Key → User.user id)
- difficulty level
- price (if applicable)

3. Mentor Profile

- mentor id (Foreign Key → User,user id, also PK)
- experience
- bio
- availability
- rating

4. Booking (Session)

- booking id (Primary Key)
- learner d (Foreign Key → User.user id)
- mentor id (Foreign Key → User.user_id)
- skill_id (Foreign Key → Skill.skill_id)
- date
- time
- status (Pending / Approved / Completed / Cancelled)

5. Review

- review_id (Primary Key)
- booking_id (Foreign Key → Booking.booking_id)
- learner_id (Foreign Key → User.user_id)
- mentor_id (Foreign Key → User.user_id)
- rating
- comments
- date

6. Admin

- admin_id (Primary Key)
- name
- email
- username
- password

Relationships

1. User – Skill (1 to Many)

- One mentor can list multiple skills.
- A skill belongs to only one mentor.
- User (Mentor) ———< Skill

2. User – Mentor Profile (1 to 1)

- Each mentor has one mentor profile.
- A learner does not have a mentor profile.
- User (Mentor) ———||——— Mentor Profile

3. User – Booking (Learner Side) (1 to Many)

- A learner can book many sessions.
- Each booking belongs to only one learner.
- User (Learner) ———< Booking

4. User – Booking (Mentor Side) (1 to Many)

- A mentor can receive many bookings.
- Each booking belongs to one mentor.
- User (Mentor) ———< Booking

5. Skill – Booking (1 to Many)

- A skill can have multiple bookings.
- Each booking is for one skill only.
- Skill ———< Booking

6. Booking – Review (1 to 1)

- Each booking can have only one review.
- Each review corresponds to one booking.
- Booking ———||——— Review

7. Admin – Entities (Supervisory Relationship)

- Admin can manage Users, Skills, and Bookings.
- (Not a direct ER relationship but represented in system design.)

3.1.2 Data Flow Diagram

User → Registers/Login

User → Searches Skills → Books Mentor

Mentor → Accepts Booking

System → Updates Status

Admin → Monitors Activities

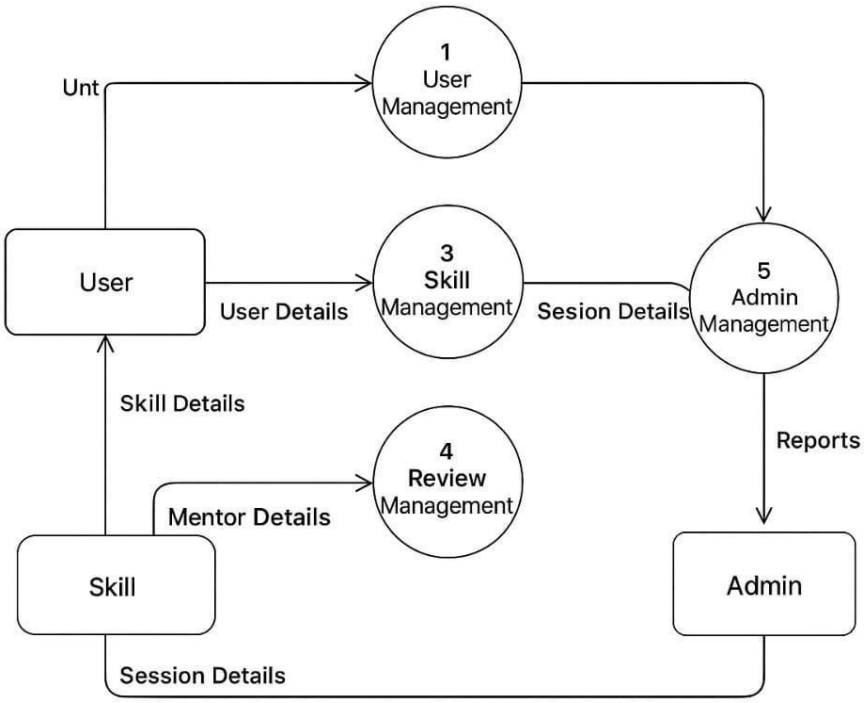

Fig 3.3.2 : Data Flow Diagram

CHAPTER 4

4. IMPLEMENTATION

The implementation phase involves converting the system design into a functional software application. All modules are developed, tested, and integrated to create a seamless Skill Sharing Platform. This chapter describes the implementation of each module, the technologies used, and how different components of the platform interact with one another. The system is implemented using a combination of front-end, back-end, and database technologies to ensure proper functionality, scalability, and user-friendliness.

4.1 Modules Implemented

The Skill Sharing Platform is divided into multiple modules, each responsible for handling different functional requirements. The implementation details of each module are presented below.

1. Welcome Screen

The Welcome Screen serves as the entry point of the application.

Implementation Highlights:

- Displays the platform name and introduction.
- Provides navigation options for Login, Register, and Explore Skills.
- Built using HTML, CSS, and JavaScript for a clean and responsive UI.
- Ensures a smooth transition to user login or registration modules.
- This screen ensures the user is guided effectively into the system.

2. User Login / Registration Module

This module handles user authentication and account creation.

User Registration:

- Users can register as Learner, Mentor, or Both.
- Required fields include name, email, username, password, and contact number.
- Passwords are encrypted before being stored in the database.
- Front-end validation ensures fields are not empty or invalid.
- On successful registration, the user data is stored in the Users table.

User Login:

- Registered users log in using their username and password.
- The system validates user credentials using backend authentication logic.
- Depending on the user role, the system redirects them to:
- Mentor Dashboard
- Learner Dashboard

- Admin Panel

This module ensures secure and role-based access to the platform.

3. Skill Listings Page

The Skill Listings Page is accessible to all learners and visitors.

Key Features Implemented:

- Displays all available skills offered by mentors.
- Allows filtering based on:
- Skill category (technical, art, lifestyle, etc.)
- Difficulty level
- Mentor rating
- Skill price (if applicable)

Clicking on a skill opens detailed information, including mentor profile and availability.

Technical Implementation:

- Skill data is fetched from the Skill table using server-side queries.
- JavaScript is used for dynamic sorting and filtering.
- The front-end is built with responsive UI components for easy browsing.
- This module helps learners easily discover skills that match their interests.

4. Mentor Dashboard Module

This dashboard is accessible only to users with the Mentor role.

Features Implemented:

- Mentors can add new skills by providing:
- Skill name
- Category
- Description
- Difficulty level
- Price (optional)
- Availability details
- Mentors can edit or delete previously listed skills.
- Mentors can view:
- Upcoming booked sessions
- Pending session requests
- Completed session history

Technical Implementation:

- Skills are stored in the Skill table.
- Booking details are retrieved from the Booking table.

- CRUD operations (Create, Read, Update, Delete) for skills are implemented using backend APIs.

This module gives mentors full control over their skill offerings and schedules.

5. Learner Dashboard Module

This dashboard is designed for users with the Learner role.

Features Implemented:

- Learners can view detailed mentor profiles.
- Ability to book skill sessions based on mentor availability.
- A personalized session tracker displays:
- Pending session requests
- Approved sessions with schedule
- Completed sessions

Technical Implementation:

- Booking requests are inserted into the Booking table.
- Learners receive confirmation or rejection based on mentor actions.
- Dynamic UI elements highlight upcoming sessions and deadlines.

This module gives learners a smooth and interactive way to manage their learning journey.

6. Admin Panel

The Admin Panel is the control and monitoring module of the platform.

Admin Functionalities:

- Manage users (activate/deactivate accounts).
- View mentor profiles and skill listings.
- Approve or remove inappropriate skill entries.
- Monitor session bookings and system activity logs.
- Generate usage reports and platform statistics.
- Technical Implementation:
- Admin authentication is separate for added security.
- Admin operations directly access all core tables:
- Users
- Skill
- Booking
- Review

A dashboard interface provides visual analytics and quick actions.

The Admin Panel ensures that the platform remains secure, well-managed, and reliable.

7. Review & Rating Module

Reviews and ratings help maintain mentor quality and guide learners.

Features Implemented:

- After a session, learners can:
- Rate the mentor (1–5 stars)
- Write a review or feedback message
- Mentors can view their average rating and user comments.
- Reviews are displayed on mentor profiles for transparency.

Technical Implementation:

Reviews are stored in the Review table with references to:

- Booking id
- Learner id
- Mentor id

The system calculates average mentor ratings dynamically.

Reviews are filtered and displayed using server-side scripts.

This module builds trust and improves quality through community feedback.

Flow Diagram:

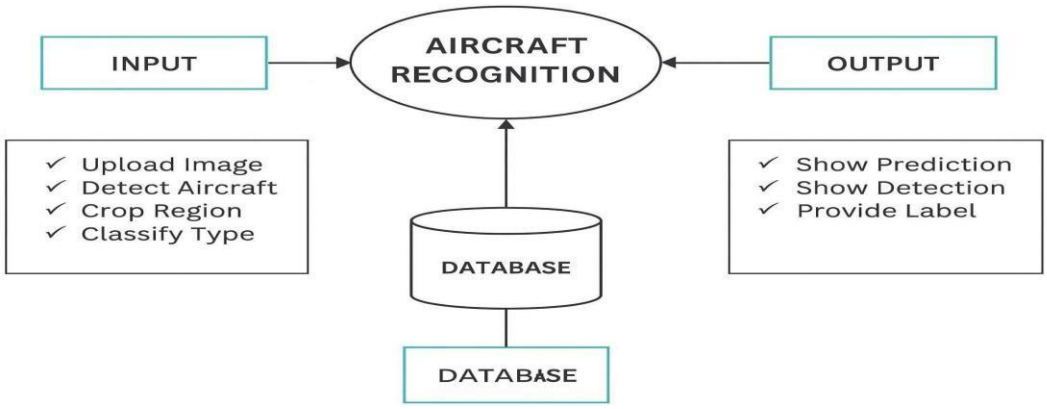

Fig 4.1.3 : Flow Diagram

4.2 Integration of Modules

Once all modules were developed, they were integrated into a single platform:

- UI modules connect seamlessly with backend APIs.
- Database tables store and retrieve data efficiently.
- Session management ensures smooth role-based navigation.
- All features are tested for usability, security, and performance.
- Integration ensures that the Skill Sharing Platform functions as a unified and reliable system.

CHAPTER 5

5. TESTING

Testing is a crucial phase in the software development life cycle as it ensures the system works according to the defined requirements and identifies errors before deployment. The main objective of testing is to evaluate whether the Skill Sharing Platform performs its intended functions correctly, securely, and efficiently. Various levels of testing such as unit testing, integration testing, functional testing, usability testing, and validation testing were performed to ensure the reliability and quality of the application.

This chapter explains the testing approaches used and gives detailed examples of key test scenarios such as login validation, duplicate user prevention, skill listing display, session booking workflow, review posting, and admin panel access control.

5.1 Testing Methodology

1. Unit Testing

Each module was tested individually to check the correctness of internal functions. This includes testing functions for login validation, registration form handling, skill fetch operations, booking creation, and review submission.

2. Integration Testing

After unit testing, different modules were integrated and tested collectively to ensure smooth data exchange between them. For example:

- Integration of the login module with the dashboard module
- Integration of skill listing with booking module
- Integration of booking with review module

3. Functional Testing

This testing ensured that all system functionalities align with the requirements specified in SRS. All user actions, admin tasks, and mentor operations were tested for proper behavior.

4. Usability Testing

This was done to ensure the system interface is simple, readable, and easy for learners, mentors, and admins to navigate.

5. Security & Validation Testing

Password validation, prevention of duplicate accounts, restricted admin access, and session-based authentication were thoroughly tested to guarantee secure usage.

5.2 Test Case Details (Examples)

Below are the detailed explanations of the major test cases conducted for the Skill Sharing Platform.

1. Login Validation

Objective:

- To verify that only valid and registered users can log in, and invalid credentials are rejected.

Test Description:

- Users enter their username and password on the login page. The system matches this data with the database.

Expected Output:

- If credentials match → user is redirected to dashboard based on role.
- If credentials do not match → error message "Invalid Username or Password".

Result:

- Login works correctly. Invalid credentials are detected and blocked.

2. Duplicate User Prevention

Objective:

- To prevent registration of users with already existing usernames or email IDs.

Test Description:

- A new user attempts to register using an email or username that is already stored in the database.

Expected Output:

- System should display a message: "User already exists" and block registration.

Result:

- Duplicate records are not inserted; only unique users are allowed.

3. Skill Listing Display

Objective:

- To ensure that skills added by mentors are displayed accurately for learners.

Test Description:

- The system retrieves all skills from the Skills table and displays them with details like category, difficulty, description, and mentor information.

Expected Output:

- All added skills appear on the skill listing page.
- Skill filters work correctly (category, difficulty, rating)

Result:

- Skills are displayed correctly, and filtering is accurate.

4. Session Booking Workflow

Objective:

- To test whether learners can successfully book sessions and mentors can accept or reject them.

Test Description:

- A learner selects a skill → views mentor availability → submits booking request. Mentor receives notification and approves/rejects.

Expected Output:

- Successful booking stored in Booking table.
- Mentor sees status in dashboard.
- Learner sees updated booking status.

Result:

- Booking process works smoothly; all states (Pending, Approved, Completed) update correctly.

5. Review Posting

Objective:

- To validate the review and rating submission process upon session completion.

Test Description:

- A learner submits a rating and textual review for a completed session. The review is stored and visible on mentor profiles.

Expected Output:

- Review stored correctly in the Review table.
- Mentor's average rating recalculated.
- Review appears publicly on mentor profile.

Result:

- Reviews are posted and displayed successfully.

6. Admin Panel Access Validation

Objective:

- To ensure only users with admin privileges can access the admin panel.

Test Description:

- A non-admin user attempts to manually enter the admin URL or access restricted pages.

Expected Output:

- System blocks access and redirects to login or error page.
- Admin role can successfully view and manage all users, skills, and bookings.

Result:

- Admin module is fully protected; unauthorized access is prevented.

5.2 Summary of Testing

- After conducting all test cases, the system demonstrated:
- Correct handling of user authentication
- Error-free registration with proper validation
- Accurate display of skill listings
- Reliable booking management and status updates
- Functional review and rating mechanism
- Secure admin operations

The Skill Sharing Platform successfully passed all major functional and security test cases, ensuring that the system is stable, user-friendly, and ready for deployment.

CHAPTER 6

6. RESULTS

The Skill Sharing Platform was successfully developed and tested to meet the functional and non-functional requirements specified during the analysis phase. The final system provides a seamless digital environment where learners and mentors can interact, share knowledge, and manage their learning activities efficiently. The results of the implementation demonstrate that the platform performs reliably across all major modules.

The **User Registration and Login module** enables secure access to the system. Learners, mentors, and administrators can log in using role-based access control, ensuring data privacy and separation of functionalities. Validation features such as password encryption, duplicate user prevention, and error handling enhance the security and accuracy of the system.

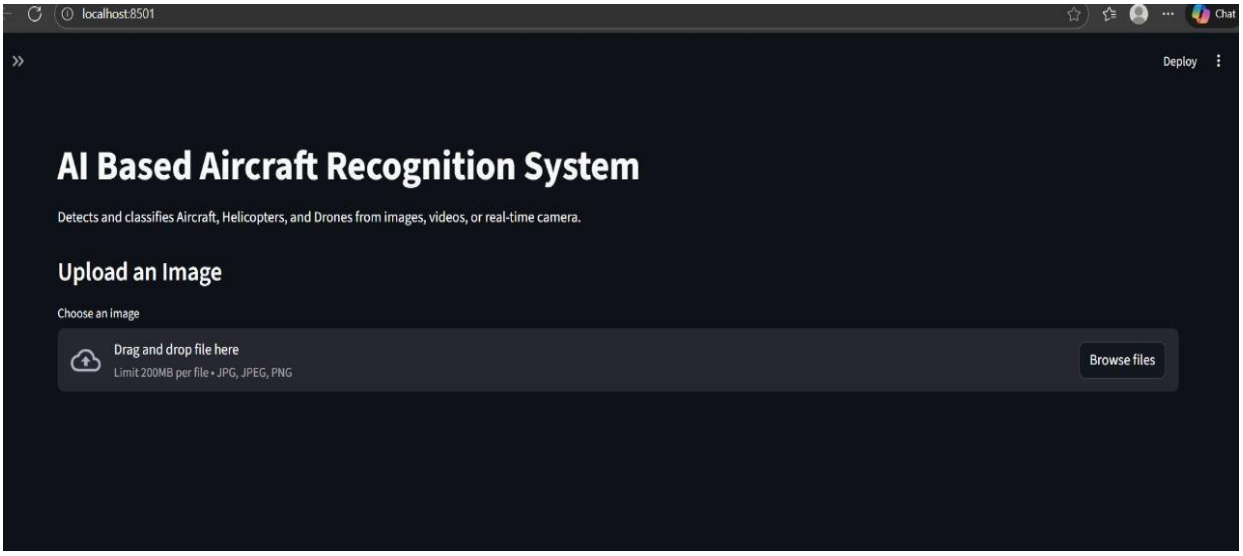

Fig 6.1:Home page

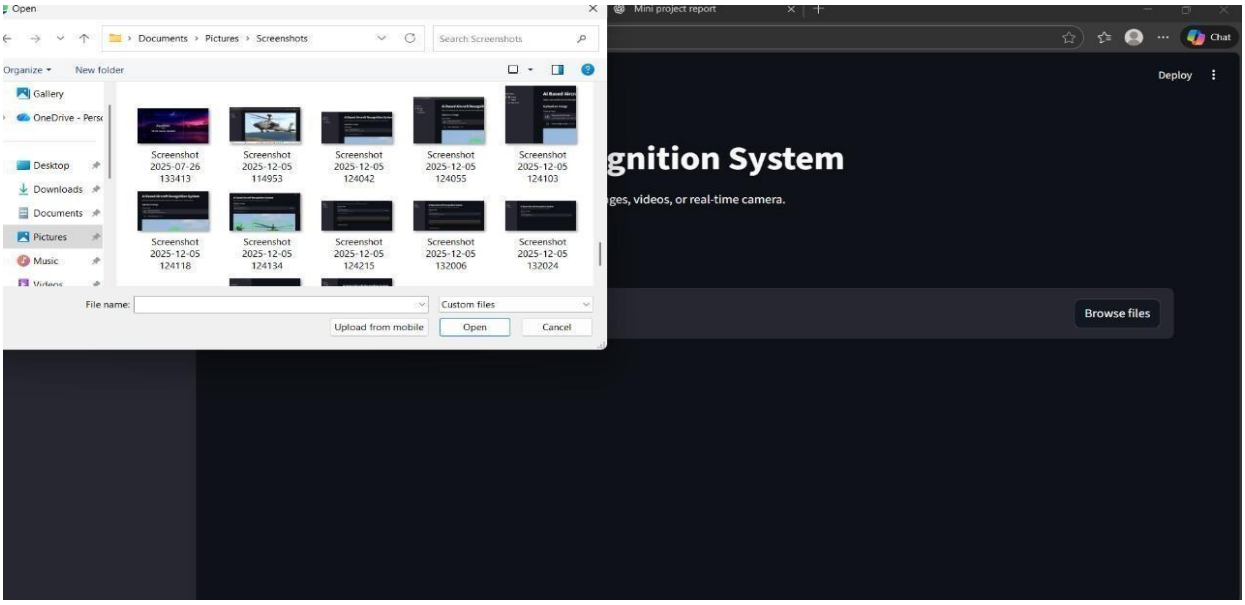

Fig 6.2: Browing Window

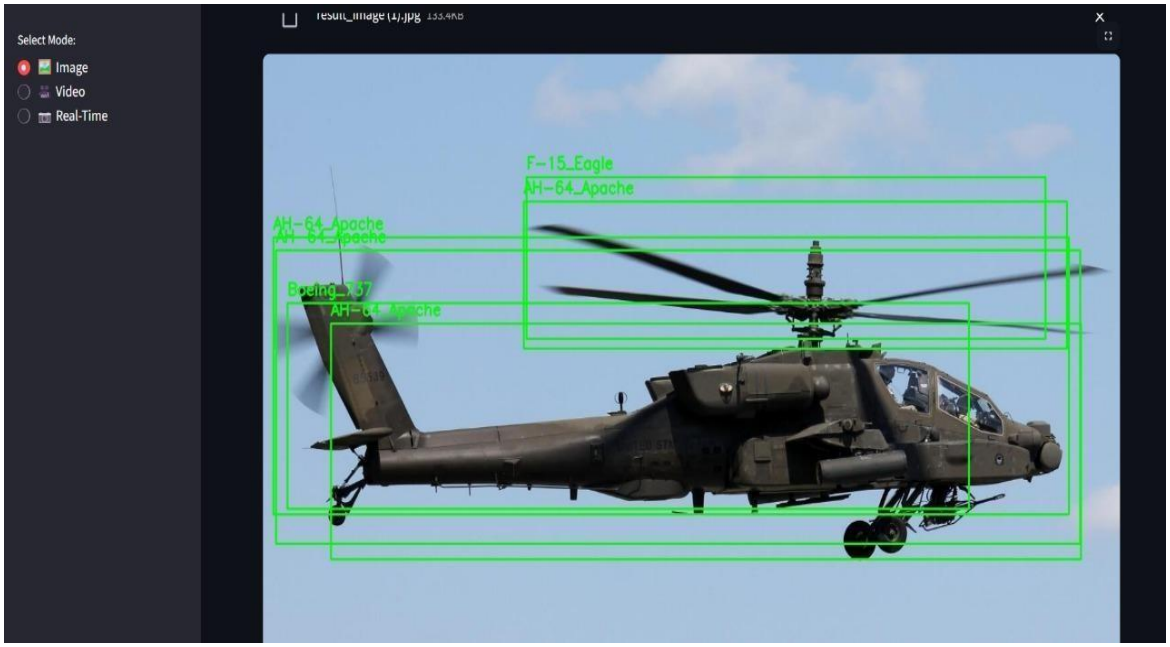

Fig 6.2: Detected page

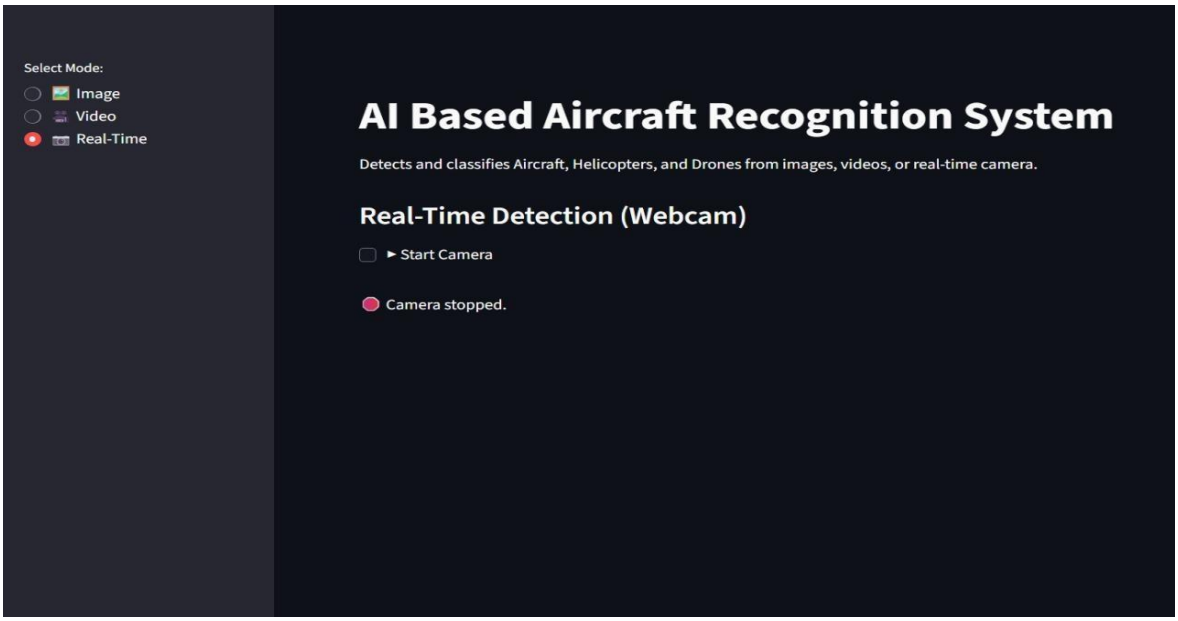

Fig 6.4: Real time detection

CHAPTER 7

7. CONCLUSION

The AI-Based Aircraft Recognition System is a modular deep-learning–driven prototype designed to demonstrate how aircraft detection and classification can be automated using modern computer vision techniques. Its architecture follows the principle of separation of concerns

This modularity makes the system easier to update, extend, and maintain as model accuracy improves or new aircraft types are introduced. The prototype also incorporates dataset preparation utilities, auto-labeling workflows, and a unified inference pipeline, which strengthens its value as an academic mini-project by demonstrating practical implementation of key AI concepts such as object detection, supervised learning, real-time inference, and dataset augmentation.

The Skill Sharing Platform successfully addresses the growing need for flexible, affordable, and personalized learning opportunities in the digital age. By connecting learners with skilled mentors, the system bridges an important gap in community-based education and enables individuals to explore, develop, and share knowledge effectively. The platform simplifies the learning process through its intuitive interface, structured dashboards, and interactive features. Modules such as user authentication, skill listings, session booking, mentor dashboards, and admin controls work together to deliver a consistent and reliable system.

Through detailed testing, the platform proved to be stable, secure, and scalable. The implementation of rating and review mechanisms ensures quality assurance and helps learners make informed decisions. Additionally, the platform's clear separation of roles—learner, mentor, and admin—ensures organized data flow and smooth functionality across different modules.

Overall, the Skill Sharing Platform meets its project objectives, demonstrating the potential of technology to enhance knowledge exchange, promote self-learning, and support collaborative skill development. This project lays a strong foundation for future expansion and real-world deployment

7.1 Future Scope

The current version of the Skill Sharing Platform provides the core functionalities required for effective skill exchange. However, there are several opportunities to enhance the system and extend its capabilities in future developments:

1. Integration of Video Conferencing Tools

Adding built-in video call support (e.g., Zoom, Google Meet API, or custom WebRTC integration) will allow learners and mentors to conduct live sessions directly through the platform.

2. AI-Based Skill Recommendation System

Artificial Intelligence can be used to analyze user interests, past activities, and skill preferences to suggest relevant skills, mentors, and learning paths.

3. Mobile Application Development

Creating Android and iOS apps will increase accessibility and allow users to learn or teach skills anytime, anywhere.

4. Gamification Features

Badges, achievements, levels, and reward-based progress systems can motivate learners to stay active and complete more skill sessions.

5. Chat and Notification System

Real-time messaging and push notifications for session reminders, mentor responses, or platform updates will improve user engagement.

6. Certification System

Issuing digital certificates for completed sessions or skill paths can add credibility and motivate users to pursue structured learning.

7. Payment Gateway Integration

Mentors can charge for premium sessions, and learners can pay securely through Razorpay, PayPal, or Stripe integrations.

8. Community Forums and Discussion Boards

A community section can allow learners and mentors to interact, ask questions, share ideas, and collaborate beyond booked sessions.

Through these future enhancements, the platform can evolve into a comprehensive digital learning ecosystem and support a wider community of learners and mentors.

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