



Atmiya University

[Face Recognition Attendance System]

Under the course of Concept to Practice

BX-BY

(Group Number: 25653)

Group Member's name

Sr. no	Enrollment No.	Name students
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[Nisha Vadodariya]

A Report Submitted to

Atmiya University in Partial Fulfillment of the Requirements for the Concept to Practice

Faculty of Engineering and Technology

Department of Computer Engineering

Academic Year (2024-25)



ATMIYA UNIVERSITY

(Established under the Gujarat Private University Act 11, 2018)

Yogidham Gurukul, Kalawad Road, Rajkot - 360005, Gujarat (INDIA)

CERTIFICATE

This is to certify that Concept to Practice (C to P) work embodied report titled “**Face Recognition Attendance System**” was carried out by (**Group no. 25653**) for partial fulfillment of **C to P** to be awarded by Department of **Computer Engineering** Atmiya University. This work has been carried out under my guidance and supervision and it is up to my satisfaction.

Date: 21-Mar-2025

Place: B/H Pharmacy Library (Admission Cell)

Signature and Name of Mentor/Guide

Signature and Name of H.O.D.



Executive summary

This section provides a short and concise overview of what is contained in the C to P From 1st /3rd semester to the 4th / 6th semester. It is part of finishing school which indulge the entrepreneurial approach and thinking among our students. It is important that the executive summary hits the highlights the objectives of C to P Programme and intrigues the reader to read further. A poorly written rambling executive summary may lead the reader to form a less than positive opinion of the plan resulting in them leaving the bulk of the plan, Ideas unread, unexplored and get proper direction.

- The first is the Problem identification, where you list down the 5 major problems associated with your selected domain through the certified canvas i.e., observation caves, empathy canvas and problem identification canvas. Group has also aligned listed five problems with SDG goal which make them aware about the significant importance of SDG for their businesses. This is done during their first semester ad viva was supported by internal & external examiner.
- The second is Solution phase from one problem Identification phase, in which group has analyze possible solution through the use of brain storming, structure brain storming, Mind mapping, SCAMPER etc.
- The Third is Pre- Proto Type phase, where group has to prepare product or service of selected solution and demonstrate to the selected expert to check the suggestions for their product/services.
- The Third is Pre- Proto Type phase, where group has to prepare product or service of selected solution and demonstrate to the selected expert to check the suggestions for their product/services.

Finally, the launching of pre- proto type through feedback from internal & external stack holders for final modification & launching of Final proto type for business and also needs to submit business canvas, leaflet of Proto type and website development



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Acknowledgement

It gives me a great sense of pleasure to present the report of the Concept to Practice (CtoP) undertaken during Program Name **Computer Engineering** semester **6th**.

We would like to express our profound gratitude to **Ms. Tosal Bhalodia**, HOD of Computer Engineering department, and **Dr.Yagnesh Shukla**, Dean of Atmiya university for their contributions to the completion of my project titled **Attendance System using Face Recognition**.

We would like to express our special thanks to our mentor **Mrs. Nisha Vadodariya** for her time and efforts she provided throughout the year. Your useful advice and suggestions were helpful to us during the project's completion. In this aspect, we are eternally grateful to you.

We would like to acknowledge that this project was completed entirely by our group and not by someone else.

Group no.: **25653**

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Sem 3 : Activity

1. Observation Canvas


Objective: To analyse user behaviour, market trends, and the ecosystem for the project "**Small Scale Business Support**"

Key Elements:

- **Stakeholders:** Common people, Housewives, Senior Citizens, Job Seekers, Average Earners, Teenagers.
- **Actions:** Product listing, registration, product search, messaging, reviews, profile management, and promotions.
- **Things:** Website, Mobile App, Mobile, Laptop, Internet.
- **Interaction:** Searching, viewing, messaging, discussing, ordering, purchasing, and reviewing.
- **Situation:** Hiring artisans, finding tailors, identifying potters, discovering sculptors, engaging with quilt makers, and collaborating with basket weavers.

Insights:

- ✓ Rising demand for handmade products.
- ✓ Strong need for communication and feedback.
- ✓ User experience across platforms is crucial.
- ✓ Sellers require better visibility and promotion.



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Rajkot

OBSERVATION CANVAS

Domain Name Small Scale Enterprises Survey (For Job Connectivity and Role Enrichment)

Date: 18th October, 2023

Stakeholder

Share	Business	Material	Process	Strategic Unit
Product/Project	Client/Partner	Supply Chain	Infrastructure	Financial Unit
Market	Customer	Human Capital	Management	Technical Unit
Enterprise	Local	Global	Domestic	Strategic Unit

Actions

Business Process	Product/Service	Strategic Unit
Market Unit	Product/Service	Business Unit
Infrastructure	Product/Service	Strategic Unit
Management	Product/Service	Strategic Unit
Technical Unit	Product/Service	Strategic Unit

Things

Product/Service
Product/Service
Product/Service
Product/Service

Interaction

Product/Service
Product/Service
Product/Service
Product/Service

Situation

Product/Service
Product/Service
Product/Service
Product/Service

2. Empathy Mapping Canvas

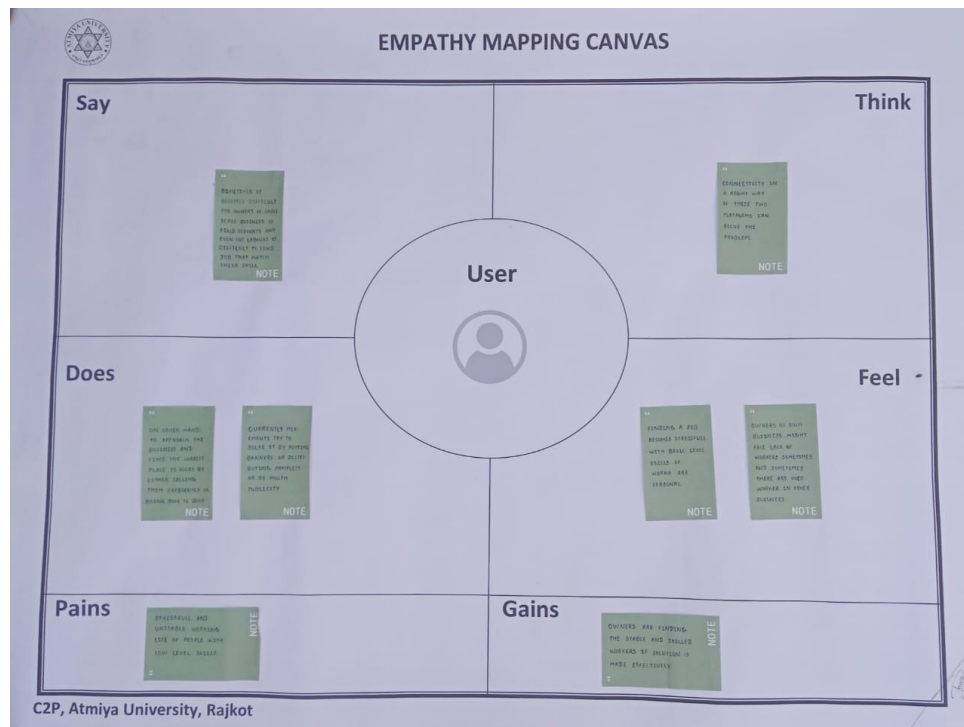
Objective: To understand the emotional and behavioural patterns of target users for the project "**Small Scale Business Support** "

Key Elements:

- **User:** Ananya Gupta – a potential buyer or artisan.
- **SAY:** Wants a reliable platform to find artisans and buy artwork.
- **THINK:** A dedicated platform would simplify finding and purchasing handmade products.
- **DO:** Explores the platform, contacts artists, and searches for specific handmade items.
- **FEEL:** Delighted and satisfied when the buying process is smooth and successful.
- **PAINS:** Difficulty in finding artisans and selling products, lack of customer base.
- **GAINS:** Easier for artisans to earn, buyers to find products, and smooth transactions.


Insights:

- ✓ Users value a user-friendly platform connecting them with artisans.
- ✓ Clear product listings and reliable seller details build trust.
- ✓ A smooth user experience increases repeat engagement.



The **Problem Identification Canvas** identifies key challenges faced by stakeholders in establishing a digital platform for the home industry.

- Goal:** Develop a user-friendly digital platform to connect artisans and buyers, promoting home-based products effectively.



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PROBLEM IDENTIFICATION CANVAS

Domain Name *SPECIAL SCALE BUSINESS/ SUPPORT*

Date: *08 October, 2025*

Team: *Anshu Deyani, Arshita Jena, Anshul Patel*

Stakeholder

PEOPLE WHO
RECEIVE INPUT
WELFARE
LINE

TECH
CLASSICAL
COMPUTER
SUPERSEDED

PEOPLE WHO
ARE PROVIDED
BUSINESS
LINE

TECH
DIGITAL/ALPH
WEBPAGE
CATERING

PEOPLE WHO
RECEIVE
ANALYSIS
LINE

TECHNIQUE
QUALITY/CLASS
ANALYSIS
CAPABILITY

PEOPLE WHO
ARE PROVIDED
BUSINESS/COMPLAINT
LINE

TECHNIQUE
CLASSICAL
COMPUTER
SUPERSEDED

Actions

GOING FORWARD
THINKING OF THE
THIS COMPANY
CAREER/STAY
BEFORE/NOT
FOR THE LEAD
ABOVE/STAY

TECH. JOB
BEFORE/NOT
WELFARE AND
WELL. STAY/NOT
ON PRODUCTION
GOING/NOT
GOING/NOT

TECHNICAL & COMPANY
PROVIDE/STAY
ON BUSINESS
ON WELFARE
ON WELFARE
ON WELFARE
ON WELFARE

TECH. JOB
BEFORE/NOT
WELFARE AND
WELL. STAY/NOT
ON PRODUCTION
GOING/NOT
GOING/NOT

Situation /Context /Location

TECH. JOB
BEFORE/NOT
WELFARE AND
WELL. STAY/NOT
ON PRODUCTION
GOING/NOT
GOING/NOT

TECH. JOB
BEFORE/NOT
WELFARE AND
WELL. STAY/NOT
ON PRODUCTION
GOING/NOT
GOING/NOT

TECH. JOB
BEFORE/NOT
WELFARE AND
WELL. STAY/NOT
ON PRODUCTION
GOING/NOT
GOING/NOT

TECH. JOB
BEFORE/NOT
WELFARE AND
WELL. STAY/NOT
ON PRODUCTION
GOING/NOT
GOING/NOT

No. of Problems

1
PEOPLE WHO
RECEIVE
ANALYSIS
CAPABILITY

2
PEOPLE WHO
RECEIVE
ANALYSIS
CAPABILITY

10/10/2025

C2P, Atmiya University, Rajkot

4. Mind Mapping Canvas

The **Mind Mapping Canvas** outlines the key features and structure of the digital platform for empowering home industries.

- **Home:** Overview of the platform, featured handmade creations, and latest activities.
- **Search:** Find skilled artisans by category and use advanced search options.
- **Profiles:** Showcase seller skills and previous works; understand buyer preferences.
- **Create Account/Sign In:** Registration and sign-in for sellers and buyers.
- **Orders:** Manage offers, discounts, and promotions; real-time messaging; rate and review sellers.
- **About Us:** Platform information, mission, vision, and values.
- **Contact Us:** Customer support, business inquiries, partnerships, and social media links.

Goal: Create a structured and user-friendly platform that enhances engagement and supports home-based businesses.



5. Brainstorming Canvas

The **Brainstorming Canvas** outlines the core structure and goals for creating a digital platform to empower home industries.

Clustering Main components:

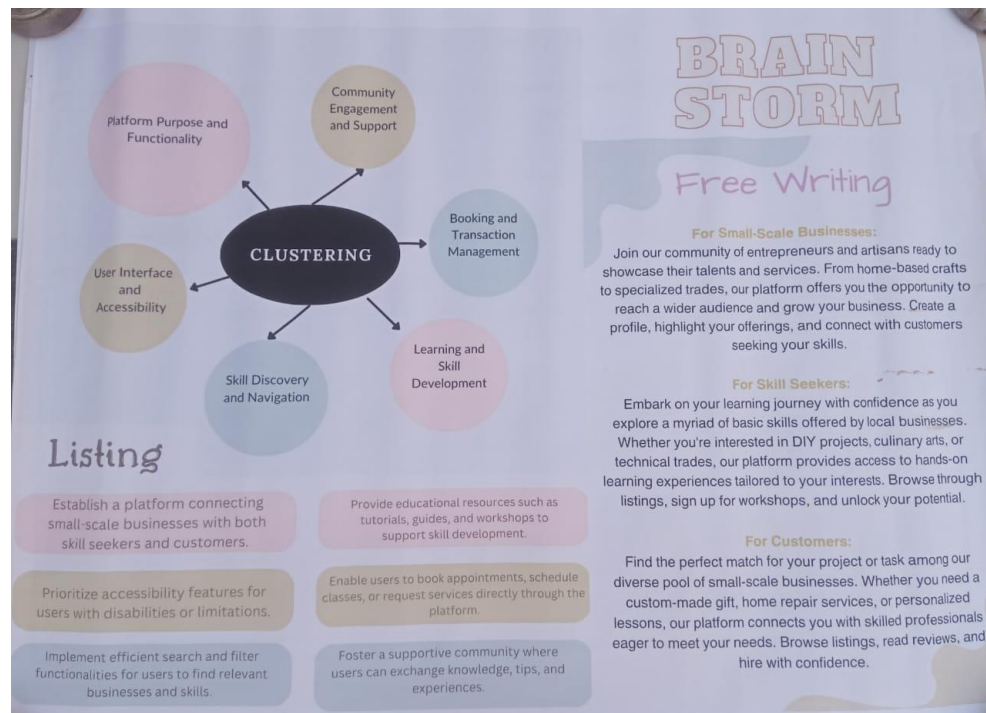
- **Home:** Overview and features
- **Search:** Find artisans by category
- **Profiles:** Seller profiles, dashboard, project posting
- **Orders:** Promotion, chat, reviews
- **Account:** Registration and sign-in
- **Contact Us:** Support and social links
- **About Us:** Platform info

Listing Benefits include:

- Showcasing talents, increased opportunities
- Business growth, financial empowerment
- Skill development, market access

Free-Writing:

Inspired by the creator's mother, who struggled to find work after relocating despite having strong skills. The platform aims to help artisans access broader markets and fair compensation.



6. SCAMPER Canvas

Objective: To explore ways to improve a digital platform for home industries using the SCAMPER technique.

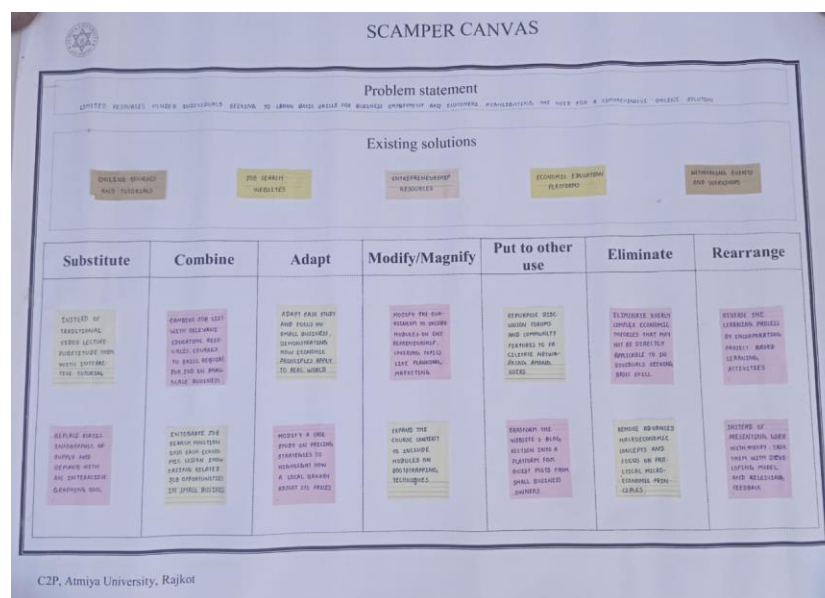
Problem Statement: Lack of a single platform for home industries to showcase and grow their business.

Existing Solutions:

- Small businesses rely on personal networks and word of mouth.
- Traditional methods used for order-taking and sales.

SCAMPER Breakdown:

1. **Substitute:** Shift from offline to digital business; global marketing through ratings and reviews.
2. **Combine:** List all handmade skills on one platform; include small-scale businesses.
3. **Adapt:** Develop a mobile app; provide educational resources and promote sustainability.
4. **Modify/Magnify:** Add advanced search, filtering, and subscription options; localized marketplace and data insights.
5. **Put to Other Use:** Include artisanal food, beverages, beauty, wellness, and community-based services.
6. **Eliminate:** Remove complicated checkout process, outdated content, and redundant blog/community sections.
7. **Rearrange:** Improve homepage layout, product display, search bar, artisan profile settings, and checkout process.



Sem 4 : Activity

Rough Prototype

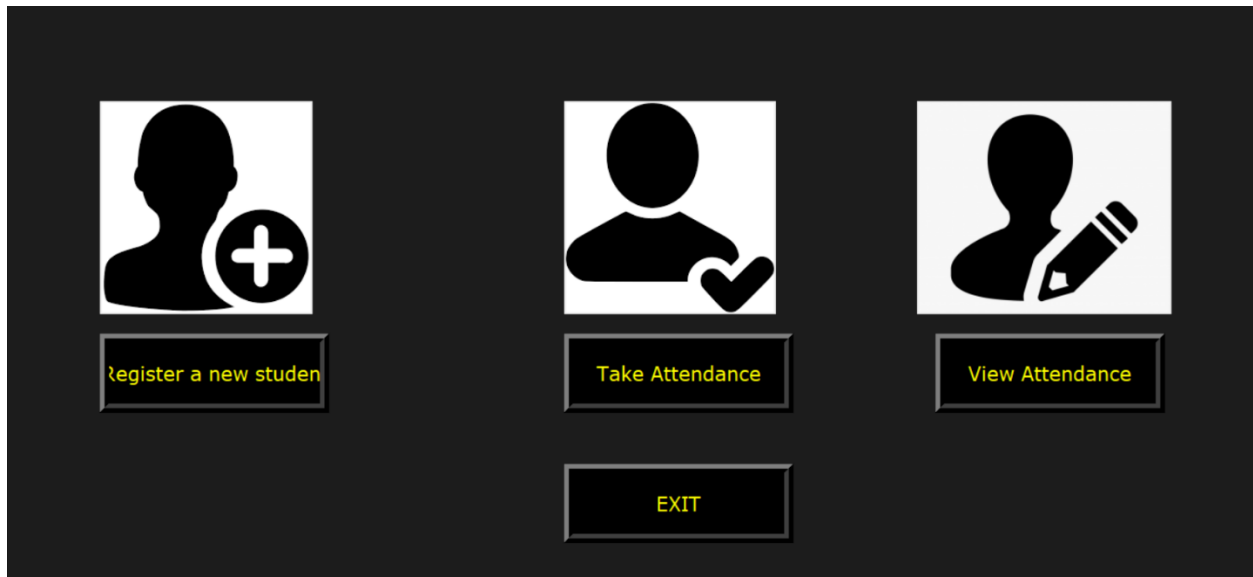
Objective: Validate basic face detection and attendance logging functionality.

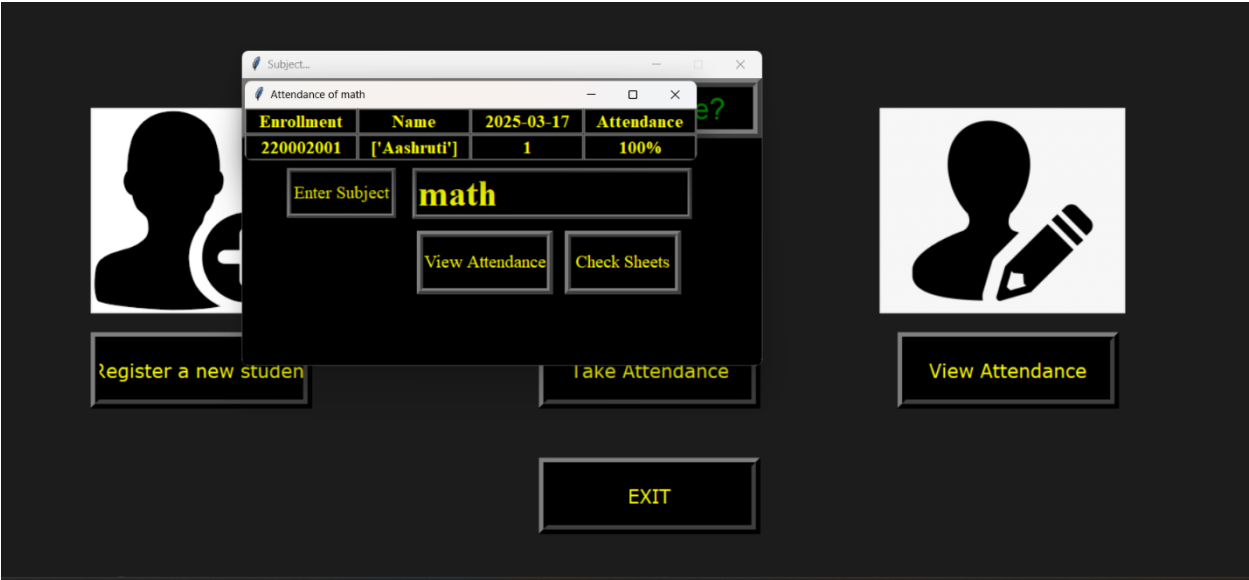
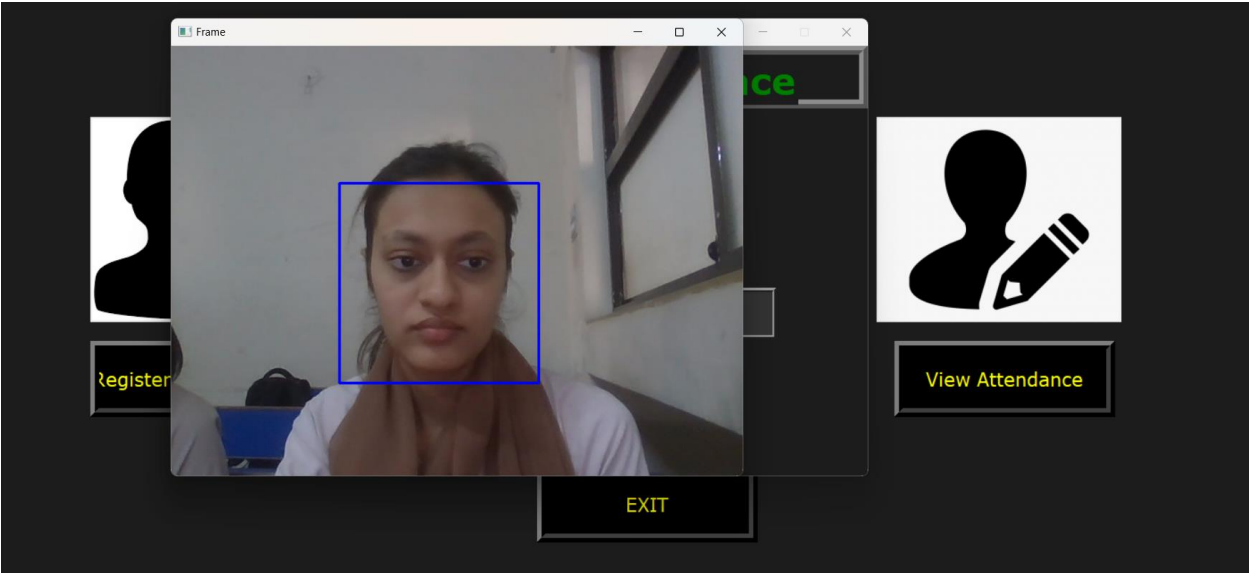
Key Elements:

- **Basic Face Detection** – OpenCV/dlib for initial face recognition.
- **Simple Database** – SQLite for storing names and attendance.
- **Manual UI** – Basic interface to start/stop recognition.
- **Single Camera Support** – Test with a basic webcam.

Insights:

- Optimize for speed and accuracy.
- Handle lighting, multiple faces, and errors.





Final Prototype

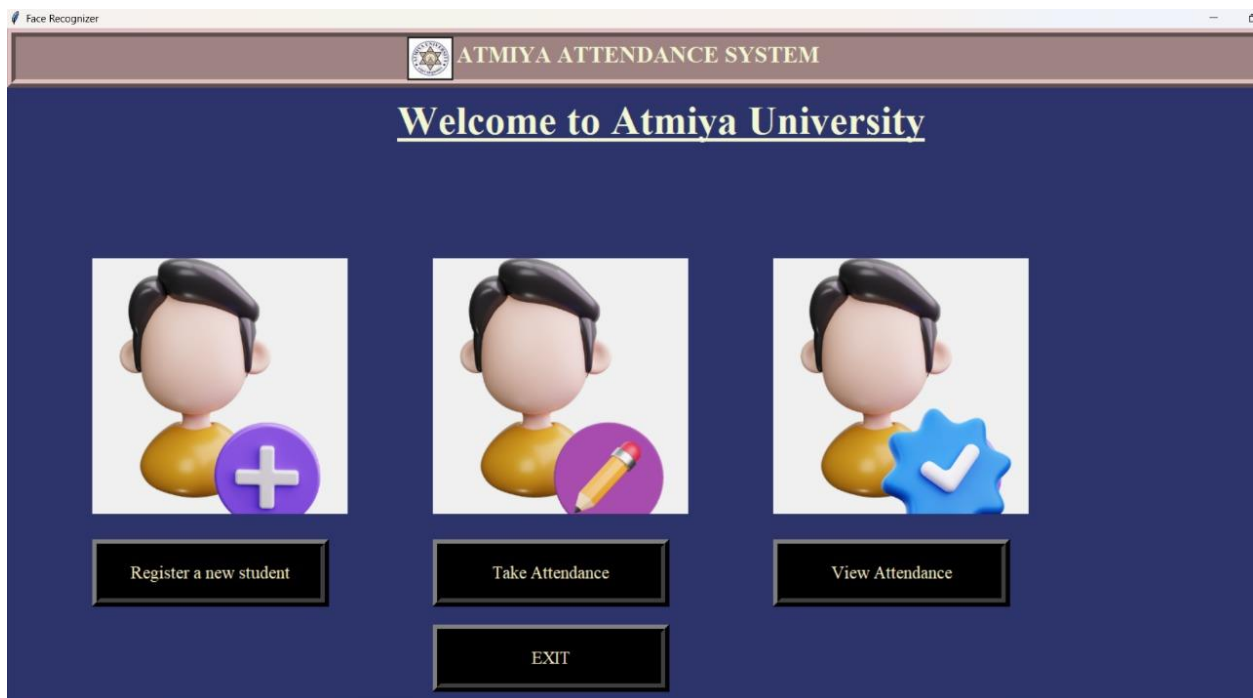
Objective: Deliver a reliable, secure, and user-friendly system with enhanced features for practical use.

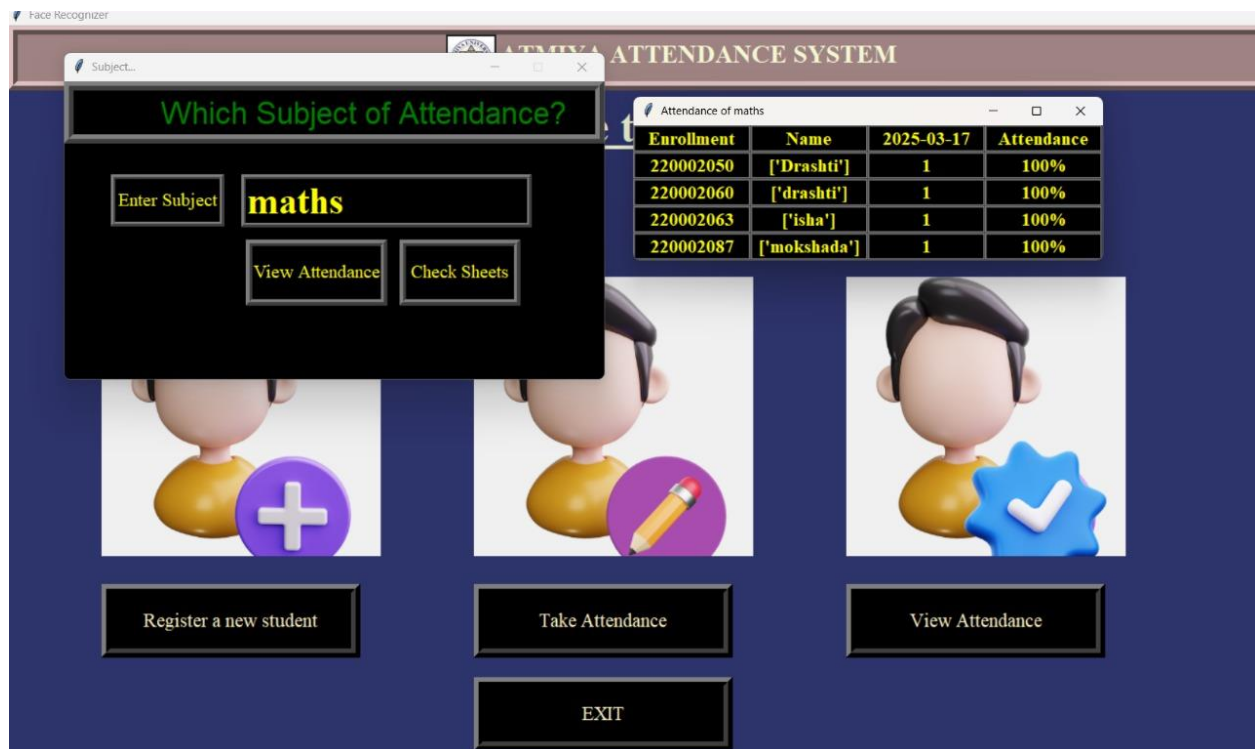
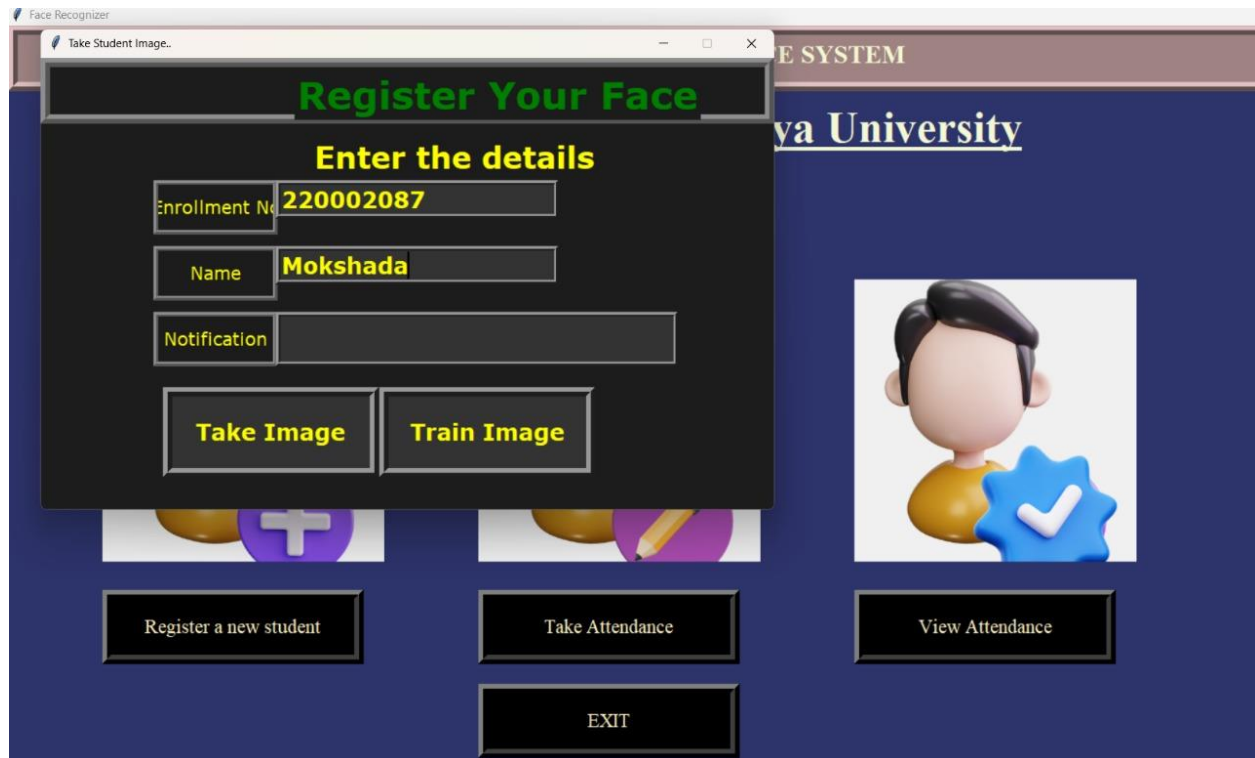
Key Elements:

- **Advanced Recognition** – Improved model (CNN, Haar Cascade) with better accuracy.
- **Enhanced Database** – Full attendance logs, student details, and reporting.
- **User-Friendly UI** – Admin dashboard for managing users and exporting logs.
- **Anti-Spoofing Security** – Liveness detection to prevent photo-based cheating.
- **Multiple Camera Support** – Wider coverage for large rooms.
- **Error Handling** – Detect and handle unknown faces, poor lighting, or multiple faces.

Insights:

- Improved accuracy, speed, and usability.
- Enhanced security and error handling.
- Ready for real-world deployment with analytics and remote access potential.





Objective:

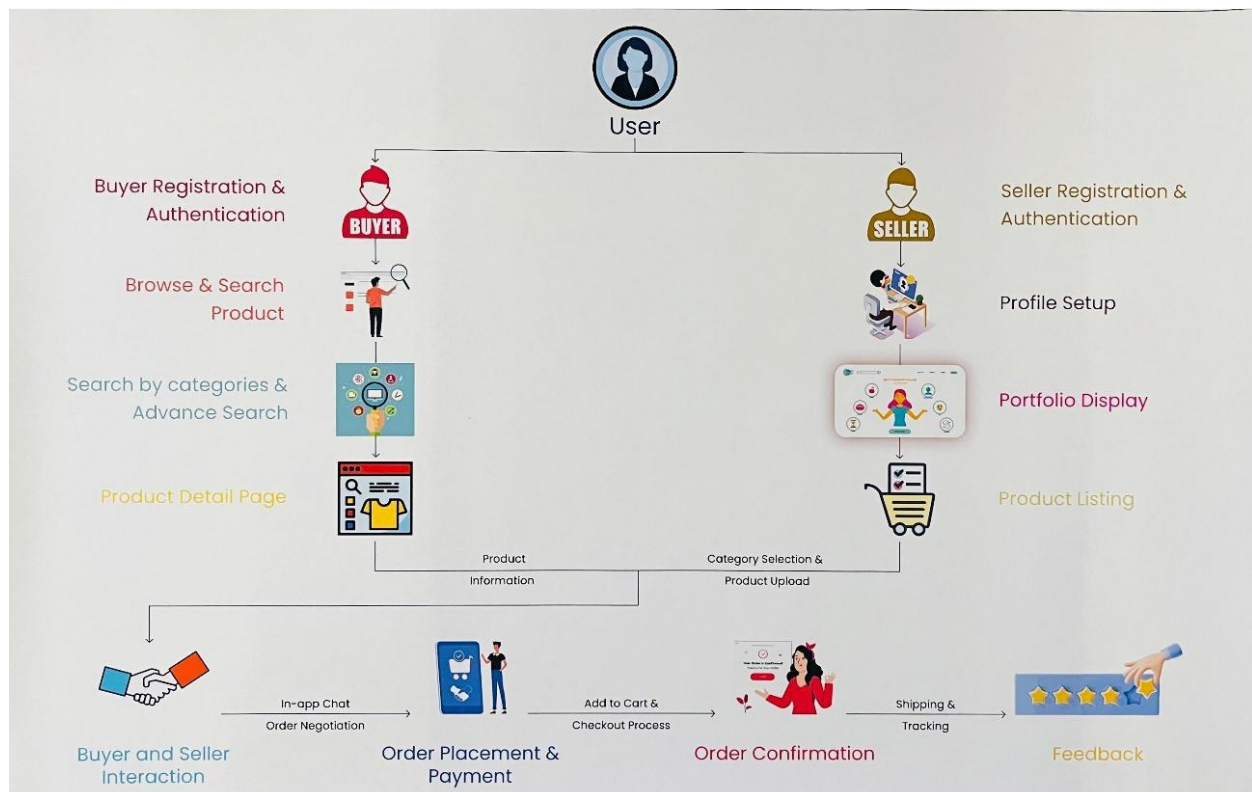
Provide an efficient, contactless attendance system that reduces manual effort, prevents proxy attendance, and ensures accurate tracking — ideal for schools, offices, and organizations.

Key Elements:

- **Value Proposition:** Automated, accurate, and secure attendance tracking — no proxies, no manual effort.
- **Customer Segments:** Schools, colleges, offices, factories, government, event management.
- **Revenue Streams:** One-time setup fee, subscription for maintenance/analytics, custom solutions.
- **Channels:** Direct sales, website, tech partners.
- **Key Resources:** Face recognition algorithm, database, camera, software team.
- **Key Activities:** Development, installation, marketing, support.
- **Cost Structure:** Hardware, software, cloud services, maintenance, marketing.

Insights:

- **High demand** for contactless systems after COVID-19.
- **Potential to scale** by integrating with HR, payroll, or smart security systems.



Problem Tree

Problem Tree for the Face Recognition Attendance System:

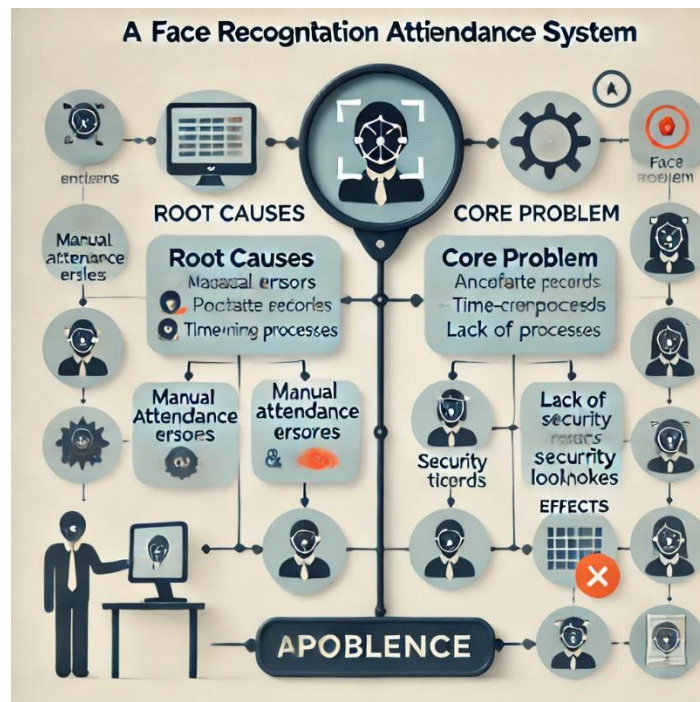
Root Causes (Why the problem exists)

- **Manual attendance errors** — Human mistakes lead to inaccurate records.
- **Proxy attendance (buddy punching)** — Students/employees marking attendance for others.
- **Time-consuming process** — Roll calls or biometric scans take too long.
- **Lack of analytics** — Traditional systems don't provide useful insights.
- **Security limitations** — Easy to bypass traditional methods.

Core Problem: - Inefficient, unreliable, and outdated attendance systems

Effects (The consequences of the core problem)

- **Wasted time** — Long attendance-taking processes slow things down.
- **Inaccurate records** — False data affects performance tracking and payroll.
- **Security loopholes** — Unauthorized entries or attendance fraud.
- **Poor administrative insights** — Hard to track trends, performance, or absenteeism.
- **Reduced productivity** — More effort spent managing attendance than actual work.



Conclusion

The **Face Recognition Attendance System** tackles the inefficiencies of traditional methods by offering a fast, accurate, and secure alternative. It eliminates proxy attendance, reduces manual errors, and saves time — all while providing real-time data and analytics for better management. With anti-spoofing measures, a user-friendly dashboard, and scalable architecture, the system is future-ready for educational institutions, offices, and large organizations. This technology enhances productivity, strengthens security, and streamlines administrative tasks — paving the way for a smarter, automated attendance management process.