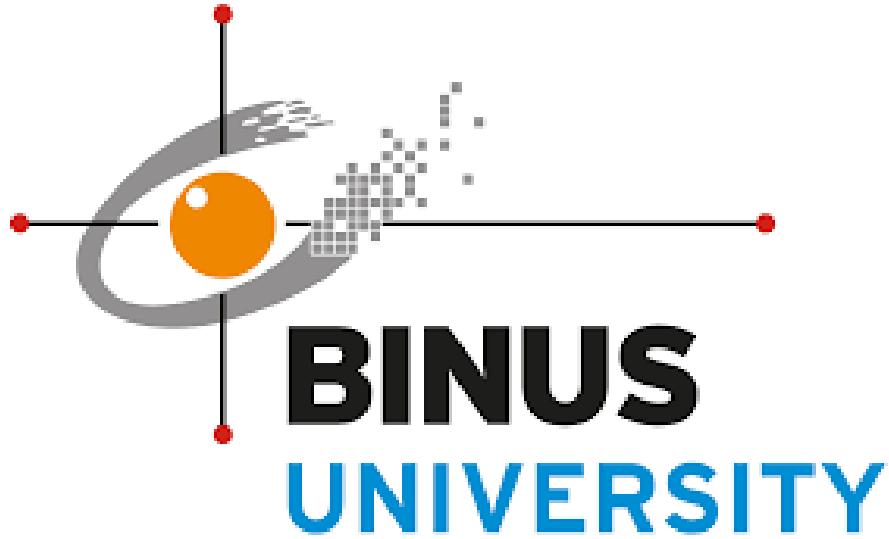


AoL Software Engineering Technical Report
Face Recognition Absence System for University



Arranged by :

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**UNIVERSITAS BINA NUSANTARA
JAKARTA
2024**

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CHAPTER 1

Introduction/ Background

1.1 Why did we choose to make this software

We choose to develop this face recognition-based absence system software to address several challenges and inefficiencies present in traditional attendance tracking methods. Here are some key reasons. First the accuracy and reliability, face recognition provides a more accurate and reliable way to ensure that the recorded attendance is genuine. Our software automates this process, saving valuable time for both employees and administrators.

Face recognition technology enhances security by ensuring that only authorized individuals can mark their presence. This is particularly useful in environments where security and access control are critical. It's also very convenient because users do not need to carry additional items like cards or badges. Face recognition works seamlessly without requiring any physical contact or additional devices, making the process more convenient. The software can be integrated with existing systems and scaled to accommodate organizations of any size. It offers flexibility to adapt to different use cases and environments.

1.2 What is(are) our new feature(s) (which is not available in other similar application)

Our face recognition-based absence system software incorporates a unique feature that distinguishes it from other similar applications, such as “Unauthorized Person Detection”. Our software can detect and alert administrators if someone who is not a part of the registered class or group attempts to mark their attendance. The alerts will show “Siswa tidak ditemukan di kelas ini”. This feature enhances security and ensures that only authorized individuals are present and accounted for in the class.

CHAPTER 2

Description of the Software

2.1 Describe your software and its features

Our face recognition-based absence system is a cutting-edge software designed to streamline and secure the process of attendance tracking in educational institutions and workplaces. Utilizing advanced facial recognition technology, the system accurately identifies and records the presence of individuals, ensuring that only authorized persons can mark their attendance. This eliminates common issues associated with traditional methods such as manual errors, buddy punching, and the need for physical tokens like ID cards. The software is compatible with various devices making it versatile and easy to integrate into existing setups.

2.1.1 Features of the Software

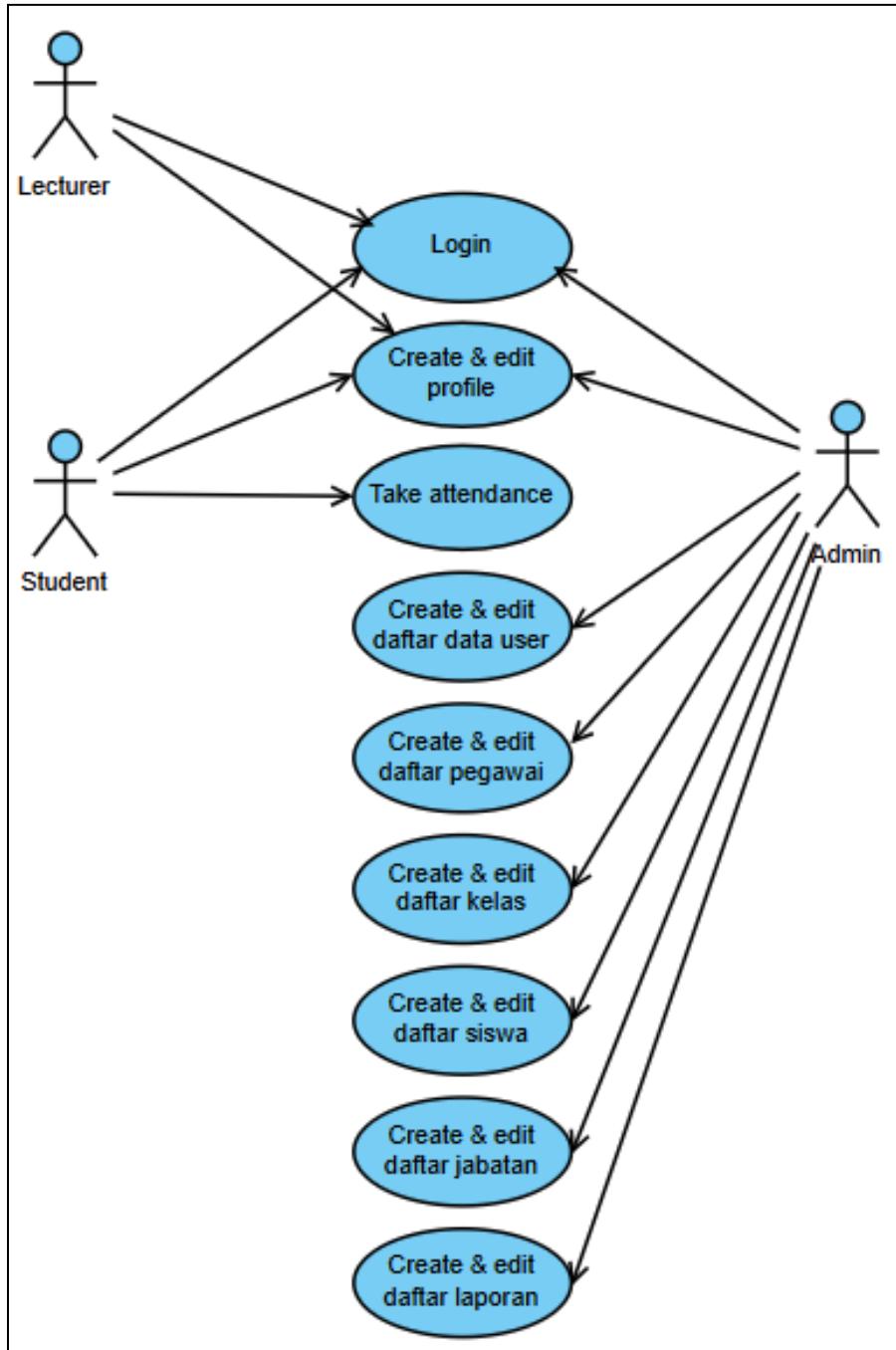
- Face Recognition Absence (System): Using a webcams through this system's website
- Detecting Authorized & Unauthorized Users (System):

One of the key features of this system is its ability to detect both authorized and unauthorized users. The system maintains a database of authorized individuals, including students and employees, and uses this database to verify identities during attendance marking.

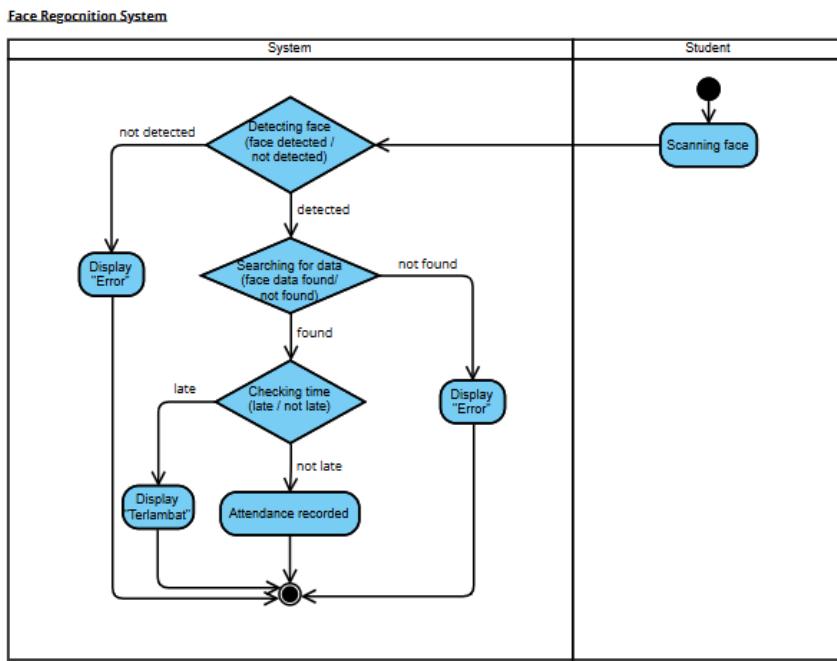
When a person attempts to check in, the system captures their facial image and compares it against the stored data. If the person is not found in the database or if there is a mismatch, the system flags the attempt and alerts administrators immediately. This real-time detection enhances security and ensures that only legitimate individuals can mark their attendance.

- Create and Edit Various Information (Admin)
 - User Data
 - Position/Job Data
 - Employee Data
 - Student Data
 - Attendance Data
- Attendance Report: Will give the full information regarding attendance status and notes

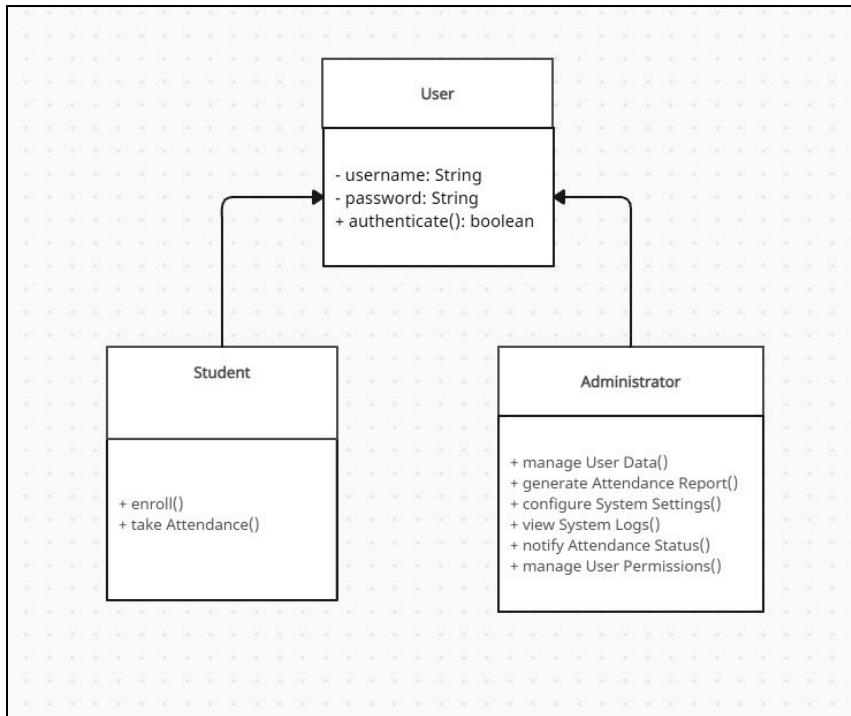
2.2 Use Case Diagram



2.3 One activity diagram of one Use Case (Face recognition system)



2.4 Class Diagram



CHAPTER 3

Process Model & Documentations

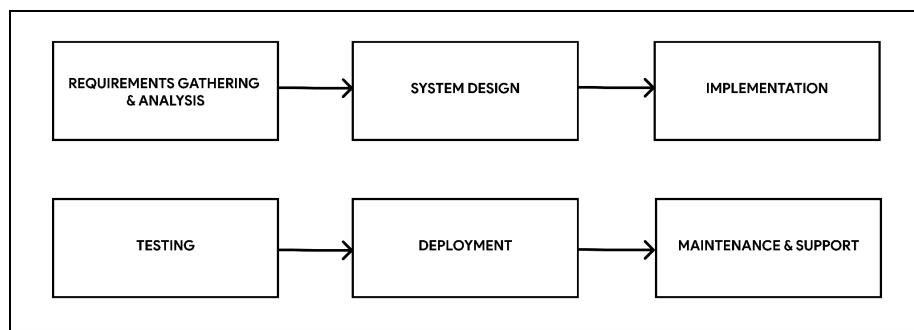
3.1 Software Process Model

Link Trello Board:

<https://trello.com/invite/b/CrQQTQpR/ATTI00145022897e99cdb08f62ccb863b3de1537F452/lc01-kelompok-5-softeng>

We choose the Waterfall process model for this software because it is efficient for developing a face recognition-based absence system because it provides a clear, structured, and systematic approach to managing complex projects. Its emphasis on detailed planning, thorough documentation, and sequential development helps ensure that the final product meets the specified requirements with high quality and reliability. This approach reduces the risk of project overruns and ensures that stakeholders are aligned and informed throughout the development process.

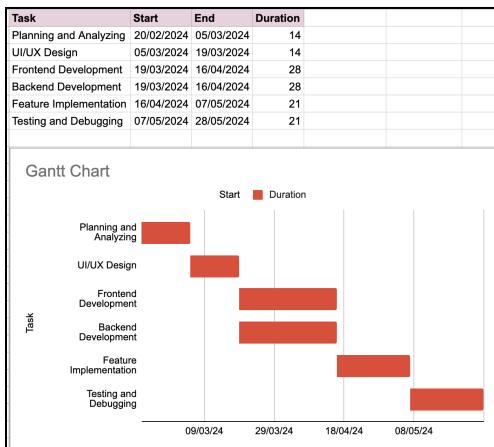
Our Software Process Model (Waterfall)



- **Requirements Gathering and Analysis:** Gather the data from environment's needs regarding absence system through survey and analysis
- **System Design**
 - Architectural Design → Design the system's overall architecture
 - Detailed Design → Create detailed designs for each module (through Trello)
 - User Interface Design → Design user-friendly interfaces (through Figma)
- **Implementation**

- Module Development → Develop individual modules based on detailed designs
 - Face Recognition Module: Implement and train the face recognition algorithm
 - Unauthorized Person Detection Module: Develop the detection logic
 - Database Management Module: Set up a secure database
 - Reporting Module: Implement reporting features
- Integration → Integrate the modules into a complete system
- **Testing**
 - Unit Testing → Test individual modules
 - Integration Testing → Test the integrated system
 - System Testing → Conduct end-to-end testing
 - User Acceptance Testing (UAT): Allow stakeholders to test the system
 - * In this case, our Lecturer
- **Deployment**
 - Deployment Planning → Plan the deployment process
 - Installation → Deploy the system in the live environment
 - Training → Train administrators and users
- **Maintenance & Support**
 - Monitoring → Continuously monitor the system
 - Bug Fixes and Updates → Address issues and release updates
 - User Support → Provide ongoing support to users

Software Making Schedule



3.2 Software Documentations

Login

Data User

No	NIP	Nama	Email	Username	Role	Aksi	
1	199208262017051001	Ratu Faradiba	ratu.faradiba@binus.ac.id	Ratu Faradiba	Mahasiswa		
2	199208262017051001	Liman Antiane	pengajar1@gmail.com	pengajar1	Pegawai		
3	199208262017051001	Mumpuni Hidayat	pengajar2@gmail.com	pengajar2	Pegawai		
4	199208262017051001	Bagas Rajasa	pengajar3@gmail.com	pengajar3	Pegawai		
5	199208262017051001	Imra Wulandari	pengajar4@gmail.com	pengajar4	Pegawai		

Home Screen

Database Pegawai

No	NIP	Nama Lengkap	No. Handphone	Jabatan	Keterangan	Aksi	
1	D2632	Dr. ZULFANY, B.Sc., MMsl	081234567890	Dosen			
2	D6659	EXO SETYO, S.Pd., M.Kom.	081234567891	Dosen			
3	D6669	EDO, S.T., M.Kom.	081234567892	Dosen			
4	D1832	Dr. HADY, S.Kom., M.T.I.	081234567893	Dosen			
5	D1747	Dra. HERNA TANTY, M.Si	081234567894	Dosen			
6	D5544	WAWAN, S.Kom., M.T.I	081234567895	Dosen			

User Profile

Detail Pegawai

Database Kelas

No	Mata Kuliah	Dosen	Jam Masuk	Jam Pulang	Aksi	
1	Software Engineering	Dr. ZULFANY, B.Sc., MMsl	11:20	13:00		
2	Database Design	EXO SETYO, S.Pd., M.Kom.	13:20	15:00		
3	Distributed Cloud Computing	EDO, S.T., M.Kom.	13:20	15:00		
4	Big Data Processing	Dr. HADY, S.Kom., M.T.I.	09:20	11:00		

Database Mahasiswa

No	NIS	NIK	Nama Lengkap	Kelas	Alamat	Nama Orang Tua	No. Handphone	Wali Kelas	Aksi	
1	0001	260210	Viola	SE	Jl. Kenanga	Jennie	0821998765432	Dr. ZULFANY, B.Sc., MMsl		
2	0002	260210	Dianira Nathania	SE	Jl. Anggrek	Usa	081398765456	Dr. ZULFANY, B.Sc., MMsl		
3	0003	260210	Ratu Faradiba	SE	Jl. Syahdan	Rose	085243540568	Dr. ZULFANY, B.Sc., MMsl		
4	0004	260210	Andika Muhammad	SE	Jl. Kijang	Jisoo	08989759579	Dr. ZULFANY, B.Sc., MMsl		

Database Jabatan

Halo, Ratu Faradiba!
6 Monday 2024 13:20

Daftar Jabatan

No.	Nama Jabatan	Aksi
1.	Staff	
2.	Dosen	
3.	Dosen Pengganti	
4.	Rector	
5.	Dekan	
6.	Ketua Jurusan	

Showing 1 to 7 of 7 entries
Prev/Next | Next

Data presensi

Halo, Ratu Faradiba!
6 Monday 2024 13:20

Daftar Laporan

Pilih Tanggal: 08/01/2024 | Filter Tanggal | Reset Tanggal

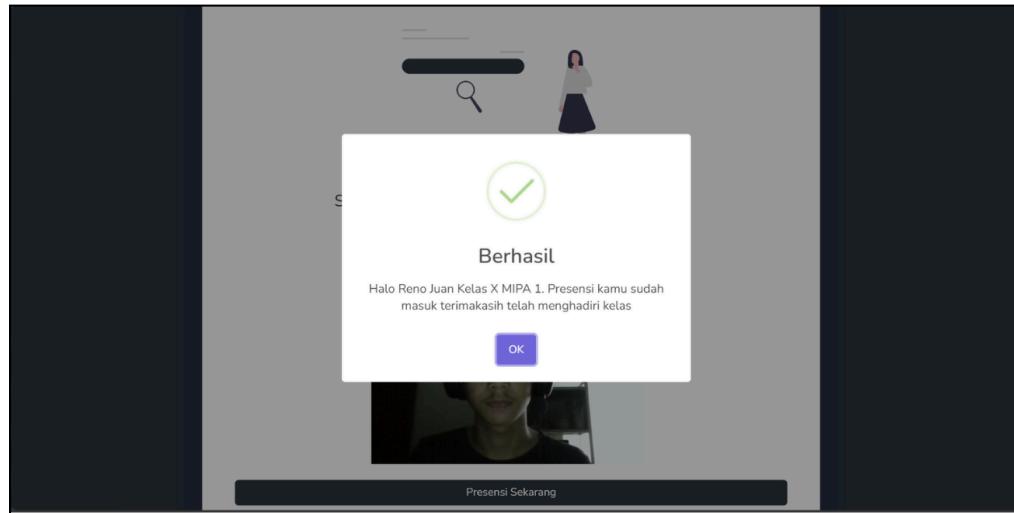
No.	NS	NISN	Nama Siswa	Kelas	Wali Kelas	Tanggal	Waktu Masuk	Waktu Pulang	Status	Keterangan	Aksi
1	0001	260210	Viola	SE	Dr. ZULFANY, B.Sc., MMsl	08/01/2024	08:00	16:00	Bersama	Sehat	
2	0002	260211	Diandra Nathania	SE	Dr. ZULFANY, B.Sc., MMsl	08/01/2024	08:00	16:00	Bersama	Sehat	
3	0003	260212	Ratu Faradiba	SE	Dr. ZULFANY, B.Sc., MMsl	08/01/2024	08:00	16:00	Bersama	Sehat	
4	0004	260213	Andika Muhammad	SE	Dr. ZULFANY, B.Sc., MMsl	08/01/2024	08:00	16:00	Bersama	Sehat	

Link Figma :

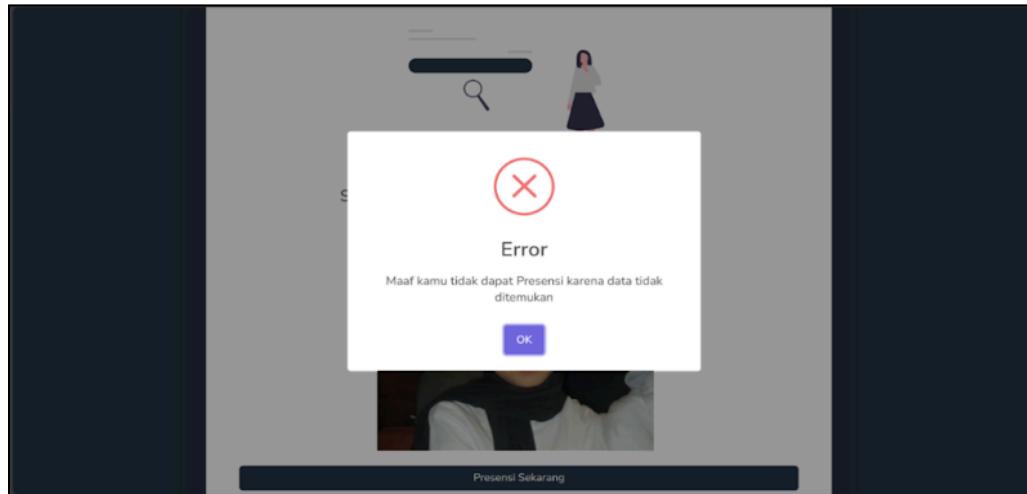
<https://www.figma.com/design/GxKC9L15umG6oWhGUhXqtT/Project-Software-Engineering?node-id=0-1&t=qNd0CIzp5XZR10wV-0>

● Process Test

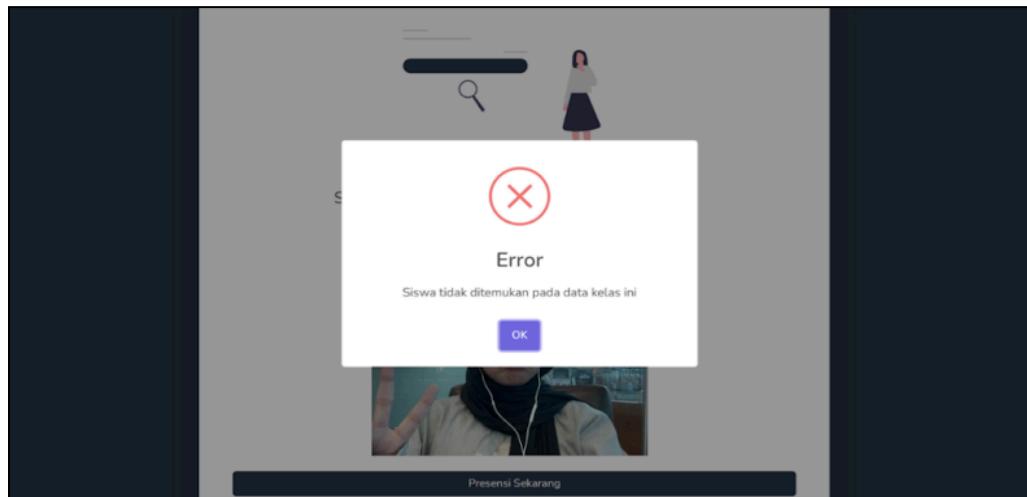
- Face Detected (Success)



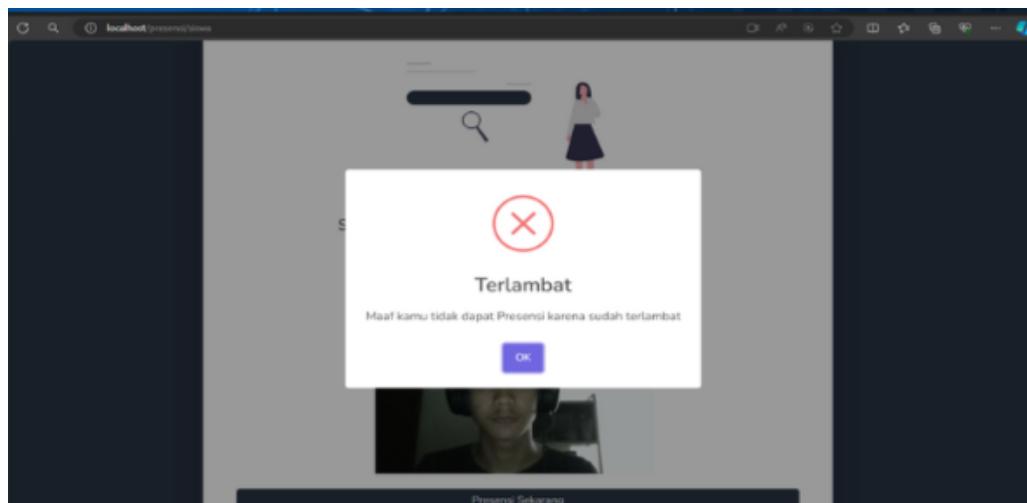
- Face Undetected (Failed)



- Unauthorized Users Detected (Failed)



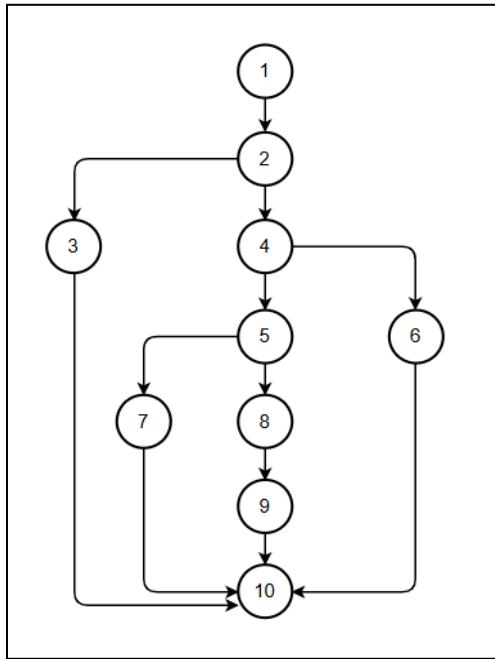
- Exceeding the maximum attendance time limit (Failed)



CHAPTER 4

Software Complexity

4.1 Software Complexity Calculation



$$\text{Node (N)} = 10$$

$$\text{Edge (E)} = 12$$

$$V(G) = E - N + 2$$

$$= 12 - 10 + 2$$

$$= 4$$

Connected Node												
Node		1	2	3	4	5	6	7	8	9	10	Sum - 1
	1		1									1 - 1 = 0
	2			1	1							2 - 1 = 1
	3									1		1 - 1 = 0
	4					1	1					2 - 1 = 1
	5							1	1			2 - 1 = 1
	6									1		1 - 1 = 0
	7									1		1 - 1 = 0
	8								1			1 - 1 = 0
	9									1		1 - 1 = 0
	10											Total 3

$$\text{Total (P)} = 3$$

$$V(G) = P + 1$$

$$= 3 + 1$$

$$= 4$$

* $V(G)$ atau Himpunan Vertex (Bulatan) → with a $V(G)$ value of 4, we can conclude that the program has an intermediate level of complexity. This means that the program is neither too simple nor overly complicated.

CHAPTER 5

Effort Estimation

5.1 Effort Estimation Using FP Analysis

		Login						Face Detection					
		Login	No	Simple	Avg	Complex	Total	Face Detection	No	Simple	Avg	Complex	Total
External Inputs (EI)		Username, Password	2	0	2	0	8	User Facial Image, Image Preprocessing Configurations	2	1	1	0	7
External Outputs (EO)		Login fail message	1	1	0	0	4	Detected Facial Geometries Result	1	0	1	0	5
External Enquiry (EQ)		None	0	0	0	0	0	Face Detection Request, Face Verification Request	2	0	2	0	8
Internal Logic Files (ILF)		User account database, logs of authentication attempts	2	0	2	0	20	User Profile Database, Face Image Repository, Training Data	3	1	1	1	32
External Interface Files (EIF)		None	0	0	0	0	0	Image Input Files, Database Files	2	2	0	0	10
Sub Total (point)			5				32		10				62

FUNCTIONAL BASED																	
Attendance Report						Profile						Create User					
Attendance Report	No	Simple	Avg	Complex	Total	Profile	No	Simple	Avg	Complex	Total	Create User	No	Simple	Avg	Complex	Total
Face Image Input, Attendance Information Input	2	0	2	0	8	Profile Update Form Submission	1	0	1	0	4	User Informations Submission, User Face Image	2	0	2	0	8
Attendance Report	1	0	1	0	5	User Informations, Profile Update Confirmation	2	2	0	0	8	Registration Success Notification, Error Messages	2	2	0	0	8
Check Attendance Status	1	0	1	0	4	View Profile	1	1	0	0	3	Check Duplicate User	1	1	0	0	3
User Attendance Database	1	0	1	0	10	User Profile Database	1	0	1	0	10	User Database, Face Recognition Data	2	0	2	0	20
Face Recognition Database	1	0	0	1	10	None	0	0	0	0	0	Face Recognition Model Files	1	0	0	1	10
	6				37		5				25		8				49

Total Point				FP = count total * [0.65 + 0.01 * (Total Comp Adj Val)]			
	Simple	Avg	Complex	Total Unadjective FP	205		
External Inputs (EI)	3	4	6	Total Adjustment Value			28
External Outputs (EO)	4	5	7	Total Adjusted FP			190.65
External Enquiry (EQ)	3	4	6	Note: 1 FP = 1 man day			
Internal Logic Files (ILF)	7	10	15	Total Man Days =			191
External Interface Files (EIF)	5	7	10				

CHAPTER 6

Risk Table

6.1 Software Risk Table

Risk Management Table for Face Recognition Attendance System					
No	Risk	Impact	Probability	Risk Level	Mitigation
1	Technical Failure (server downtime)	High	Low	Medium	Implement server backups, 24/7 monitoring, and disaster recovery plans.
2	Data Security	High	Medium	High	Encrypt data and use firewalls
3	Face Recognition Inaccuracies	High	Medium	High	Use accurate facial recognition models and conduct thorough testing.
4	User Dissatisfaction	Medium	Medium	Medium	Conduct UI/UX testing, gather early user feedback, and make iterative improvements.
5	Issues with lighting or image quality	Medium	High	High	Set up a well-lit environment for image capture and use robust algorithms.

CHAPTER 7

Final Presentation Slide

7.1 Presentation Slide



The slide displays four member profiles in a 2x2 grid. Each profile includes a circular photo, the member's name, and their student ID and major. The background features a network of nodes.

ANDIKA MUHAMMAD AMRI 2602141852 Computer Science	DIANDRA NATHANIA AUWLIA 2602104806 Computer Science
RATU FARADIBA ADIAZAHRA 2602152515 Computer Science	VIOLA 2602108760 Computer Science

INTRODUCTION

Absensi merupakan bagian penting dalam kegiatan perkuliahan untuk memastikan kehadiran mahasiswa dan memantau keterlibatan mereka dalam proses belajar mengajar. Penggunaan metode tradisional seperti tanda tangan atau kartu identitas sering kali memakan waktu dan rawan terhadap kecurangan. Bahkan, metode absensi dengan Wifi Attendance juga masih sering terjadi kecurangan. Oleh karena itu, pemanfaatan teknologi Face Recognition dapat menjadi solusi untuk mempermudah dan mempercepat proses absensi, serta menghindari terjadinya kecurangan.

Keunggulan dari project ini antara lain:

- Efisiensi Waktu : Proses absensi yang cepat dan tidak memakan banyak waktu.
- Akurasi Tinggi : Mengurangi kemungkinan kesalahan dan kecurangan dalam absensi.
- Kenyamanan : Mahasiswa tidak perlu mengantre atau melakukan tanda tangan manual.
- Integrasi Mudah : Dapat diintegrasikan dengan sistem akademik yang sudah ada.

FIGMA
UI DESIGN

Login

Home Screen

LINK FIGMA

FIGMA
UI DESIGN

Data User Profile

Daftar Data User

No	NP	Nama	Email	Username	Role	Aktif
1	1993020211951001	Ratu Faradiba	ratu.faradiba@unis.ac.id	ratu.faradiba	Pegawai	
2	1993020211951001	Liman Andrianto	perguru1@gmail.com	perguru1	Pegawai	
3	1993020211951001	Maryam Hidayah	perguru2@gmail.com	perguru2	Pegawai	
4	1993020211951001	Bapak Ricza	perguru3@gmail.com	perguru3	Pegawai	
5	1993020211951001	Ira Wulandari	perguru4@gmail.com	perguru4	Pegawai	

LINK FIGMA

FIGMA
UI DESIGN

Daftar Pegawai

No	NP	Nama Lengkap	No. Handphone	Jabatan	Keterangan	Aktif
1	02932	Dr. ZUJAWI, B.Sc, MM.	081234567890	Dosen		
2	06990	EDO RYTO, S.N. M.Kom.	082345678901	Dosen		
3	06669	EDO, S.T., M.Kom.	082345678902	Dosen		
4	01832	Dr. RADIK SOKO, M.A.	081234567893	Dosen		
5	01194	Drs. HERINA TANTY, M.Si	081234567894	Dosen		
6	05944	WAHYAN, S.Kom., MT	081234567895	Dosen		

Data User Pegawai

LINK FIGMA

FIGMA
UI DESIGN

[LINK FIGMA](#)

Database Mahasiswa

Halo, Ratu Faradiba! 6 Monday 2024 13:20

Daftar Siswa

Tambah Data Export Data

Search:

No	NIS	NIM	Nama Lengkap	Kelas	Alamat	Nama Orang Tua	No. Handphone	Wali Kelas	Aksi	
1	0001 28020	Viola	SE	A senangse	Jennie	08298765432	Dr. ZUFA MMK	✓	✗	
2	0002 28021	Diantriha	SE	A	Nathania	08308795456	Dr. ZUFA MMK	✓	✗	
3	0003 28022	Ratu	SE	A	Syahdan	08534594556	Dr. ZUFA MMK	✓	✗	
4	0004 28023	Andika Muhammad	SE	A	Kijang	Javao	0898765779	Dr. ZUFA MMK	✓	✗

Showing 1 to 4 of 4 entries

Previous Next

Daftar Jabatan

Halo, Ratu Faradiba! 6 Monday 2024 13:20

Daftar Jabatan

Tambah Data Export Data

Search:

No.	Nama Jabatan	Aksi	
1.	Staff	✓	✗
2.	Dosen	✓	✗
3.	Dosen Pengajar	✓	✗
4.	Bawas	✓	✗
5.	Dekan	✓	✗
6.	Ketua Jurusan	✓	✗

Showing 1 to 7 of 7 entries

FIGMA
UI DESIGN

[LINK FIGMA](#)

Data Presensi

Halo, Ratu Faradiba! 6 Monday 2024 13:20

Daftar Laporan

Import Data

MTB Tanggal: 08/01/2024

Rilis Tanggal: 08/01/2024

Reset Tanggal

Search:

No	NIS	NIM	Nama	Kelas	Wali	Tanggal	Waktu	Status	Keterangan	Aksi
1	0001 28020	Viola	SE	A senangse	Dr. ZUFA MMK	08298765432	14:00	✓		✗
2	0002 28021	Diantriha	SE	A	Dr. ZUFA MMK	08308795456	14:00	✓		✗
3	0003 28022	Ratu	SE	A	Dr. ZUFA MMK	08534594556	14:00	✓		✗
4	0004 28023	Andika Muhammad	SE	A	Dr. ZUFA MMK	0898765779	14:00	✓		✗

Data Presensi

Halo, Ratu Faradiba! 6 Monday 2024 13:20

Daftar Laporan

Import Data

MTB Tanggal: 08/01/2024

Rilis Tanggal: 08/01/2024

Reset Tanggal

Search:

No	NIS	NIM	Nama	Kelas	Wali	Tanggal	Waktu	Status	Keterangan	Aksi
1	0001 28020	Viola	SE	A senangse	Dr. ZUFA MMK	08298765432	14:00	✓		✗
2	0002 28021	Diantriha	SE	A	Dr. ZUFA MMK	08308795456	14:00	✓		✗
3	0003 28022	Ratu	SE	A	Dr. ZUFA MMK	08534594556	14:00	✓		✗
4	0004 28023	Andika Muhammad	SE	A	Dr. ZUFA MMK	0898765779	14:00	✓		✗

CODE PROGRESS

[LINK CODE](#)

Folder presensi

Search

- applications.html
- bitnami.css
- dashboard
- favicon.ico
- img
- index.php
- Presensi SE Kel 5**
- webalizer

Presensi SE Kel 5 -- zsh -- 80x24

Last login: Mon May 27 04:21:21 on ttys000
ratufaradiba@Ratu-MacBook-Pro-2: Presensi SE Kel 5 ~

Location : Device Documents [XAMPP], agar code bisa dijalankan pada device tersebut

```

PRESENSI SE Kel 5
> application
> assets
> data
> ngrok
> system
> .editorconfig
> .gitignore
> .htaccess
> api.py
> composer.json
> index.php
> license.txt
> readme.rst

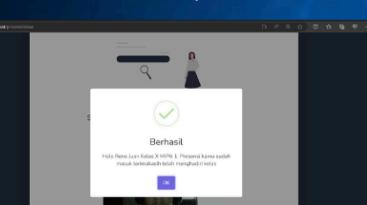
```

PROGRAM PROGRESS

[LINK CODE](localhost/presensi/siswa)

localhost/presensi/siswa

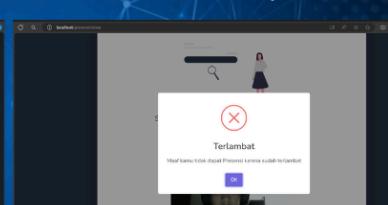
Berhasil Absensi/Presensi



Berhasil

Halo Renzo, Luas Kalem X HTML. Presensi kamu berhasil membuat temanmu tidak menghadiri kelas.

Terlambat Absensi/Presensi

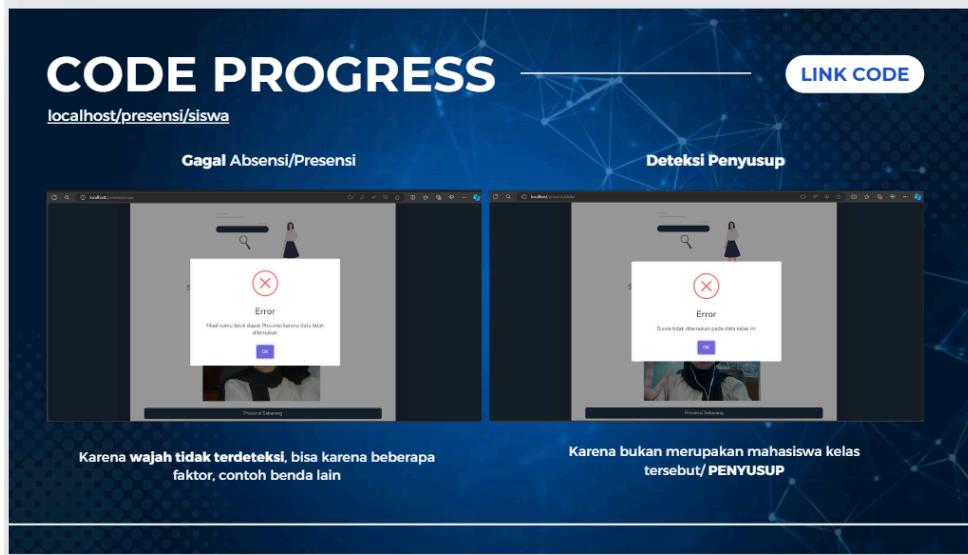


Terlambat

Halo Renzo, Luas Kalem X HTML. Presensi kamu belum berhasil membuat temanmu tidak menghadiri kelas.

Mahasiswa melakukan presensi sesuai dengan kriteria yaitu **tingkat kemiripan yang sesuai**, dan **waktu yang sesuai** [tidak terlambat]

Karena mahasiswa melakukan absensi **melebihi batas waktu maksimal presensi**



CHAPTER 8

Test Case

8.1 Test Case

Test Case for Student Attendance System Using Face Recognition					
No	Test Case	Pre-Conditions	Steps Description	Expected Result	Actual Result
1	Verify system login	User account exists	1. Navigate to the login page. 2. Enter valid username and password. 3. Click Login.	User is successfully logged in and redirected to the dashboard.	User is logged in and redirected to the dashboard.
2	Verify login with invalid credentials	User account exists	1. Navigate to the login page. 2. Enter invalid username or password. 3. Click Login.	Error message is displayed indicating invalid credentials.	Error message is displayed for invalid credentials.
3	Verify facial recognition for attendance marking	User is registered with facial data	1. Navigate to the attendance page. 2. Allow camera access. 3. System captures the face.	User's attendance is successfully marked.	User's attendance is marked after facial recognition.
4	Verify facial recognition with unregistered face	User is not registered	1. Navigate to the attendance page. 2. Allow camera access. 3. System captures the face.	Error message is displayed indicating unrecognized face.	Error message is displayed for unrecognized face.
5	Verify user logout	User is logged in	Click on the logout button.	User is successfully logged out and redirected to the login page.	User is logged out and redirected.
6	Verify user registration process	New user registration form available	1. Navigate to the registration page. 2. Enter required data. 3. Submit the form.	New user is successfully registered and added to the system.	New user is registered and added to the system.
7	Verify face recognition accuracy under different conditions (e.g., expressions)	User is registered with facial data	1. Navigate to the attendance page. 2. Capture face under various expressions.	System accurately recognizes the face.	System accurately recognizes faces in various conditions.

CHAPTER 9

Conclusion

9.1 Conclusion

The Face Recognition Absence System represents a significant advancement in attendance tracking technology, offering a reliable, efficient, and secure solution for both educational institutions and corporate environments. By utilizing advanced facial recognition, the system ensures accurate and tamper-proof attendance records, eliminating common issues such as manual errors and buddy punching. The innovative feature of detecting unauthorized users adds an essential layer of security, ensuring that only authorized individuals can mark their presence.

Administrators benefit from a comprehensive suite of tools for managing user data, job roles, and detailed attendance information, all accessible through a user-friendly interface. The ability to generate customizable attendance reports provides valuable insights for improving organizational efficiency and compliance. Overall, this software not only enhances the accuracy and security of attendance tracking but also streamlines administrative processes, making it an indispensable tool for modern institutions and businesses.

CHAPTER 10

Peer Review

10.1 Peer Review

NIM	Name	(%) of Contribution	Reason	Review
2602152515	Ratu Faradiba Adiazahra	32%	Ratu contributed in the project such as code making, prototyping and the making of proposal	- Diandra: Ratu contributed greatly to the project, showing initiative by asking questions and completing her tasks efficiently - Viola: Ratu contributed very well to the project, demonstrating excellent teamwork skills within the group, ensuring the project is completed successfully. - Andika:
2602104806	Diandra Nathania Auwlia	32%	Diandra contributed in the project such as prototyping, testing, and the making of proposal	- Ratu: Diandra contributed really well in the project and has the initiative to ask and do her job desc - Viola: Diandra contributed very well to the project,

				demonstrating excellent teamwork skills within the group, ensuring the project is completed successfully. - Andika:
2602108760	Viola	32%	Viola contributed in the project such as prototyping, complexity analysis and the making of proposal	- Diandra: Viola contributed greatly to the project, showing initiative by asking questions and completing her tasks efficiently - Ratu: Viola contributed really well in the project and has the initiative to ask and do her job desc - Andika:
2602141852	Andika Muhammad	4%	Andika is lack of contribution in the project (only for 1 diagram)	- Diandra: Andika is less active in working on this project, has minimal contribution and is difficult to contact - Viola: Andika has been less participative in the project, showing poor teamwork, and

				<p>lacking self-awareness.</p> <p>- Ratu: Andika rarely active in the group and lack of contribution causing delays in project work</p>
TOTAL	100% (PROJECT DONE)			

ATTACHMENT

- **Link Trello Board:** <https://trello.com/c/ThPsu6c1/15-scheduling>
- **Link Code:**
https://drive.google.com/file/d/1tTWIm-WmHAfKWNBC4wHzor_pNEXEpUyj/view?usp=sharing
- **Link Figma:**
<https://www.figma.com/design/GxKC9LI5umG6oWhGUhXqtT/Project-Software-Engineering?node-id=0-1&t=RGrCDDymwjx30I6N-1>