CHAPTER IV. SYSTEM ANALYSIS AND DESIGN

4.1. System Description

In accordance with the background previously explained, the use of face recognition technology for attendance systems can be concluded to be very useful for the development of manual attendance systems in Indonesia.

Table 4.1 Application Concept Description

Title	Face Recognition Attendance System
Application Type	Application to develop attendance system
User	Application users are event organizers to manage some events that already registered in the application or register new event in application and registering participant without participant logged in in application using csv file
Content	This application contains about events information that available in application and attendance system at the available events
Application	Mobile application
Technology	Face Recognition

Based on table 4.1 regarding the application description, the application requirements to be made are categorized into software requirements and hardware requirements.

- Software Requirements

All types of software or tools used to assist the Attendance System development process are as follows.

- Windows Operating System
- Microsoft Office, as a tools for writing report and proposal during the system development.
- Android Studio and Visual Studio Code, as a tools for Mobile Emulator and mobile application development.
- Google Colab, as a tools for python programming code editor and training for face recognition system.
- PyCharm, as a tools for python programming code editor for backend development

- Docker, for creating program images so that they can be easily distributed to other machines or OS.
- Google Cloud Platform, for the use of Google Cloud Platform in this thesis will be using:
- Virtual Machines / AI Platform in developing models for face recognition,
- GCP Bucket (Cloud Storage) for storing photos and physical data needed, GCP Vision for more accurate face detection in application use (will try to developed more with the latest detection method),
- Firestore for storing databases from users, cloud run / app engine for developing/hosting mobile apps.
- Cloud Run, for hosting the mobile application in the Google Cloud Platform.
- Artifact Registry/Container Registry for CI/CD connected with GitHub.
- Google Maps API, for getting the maps data when user attending or choose event venue.
- Gmail API, for send the information of event with google email provider.
- Firestore, for saving all the databases needed in this application. firestore is good for mobile database storage because it is efficient and low latency for mobile applications that require synchronization for all users in real-time.

- Hardware Requirements

All types of hardware used to assist the Attendance System development process are as follows:

- Mobile testing device: Android Smartphone (Android 7.0 Nougat or higher)
- Development device: 2nd generation Intel Core or newer, or AMD CPU with support of Windows Hypervisor; 8GB RAM or more; minimum 12GB available disk space (IDE + Android SDK + Android Emulator + Flutter SDK); 1280x800 minimum screen resolution (Flutter, n.d.; Google, n.d.).

The minimum requirements needed to use the application are:

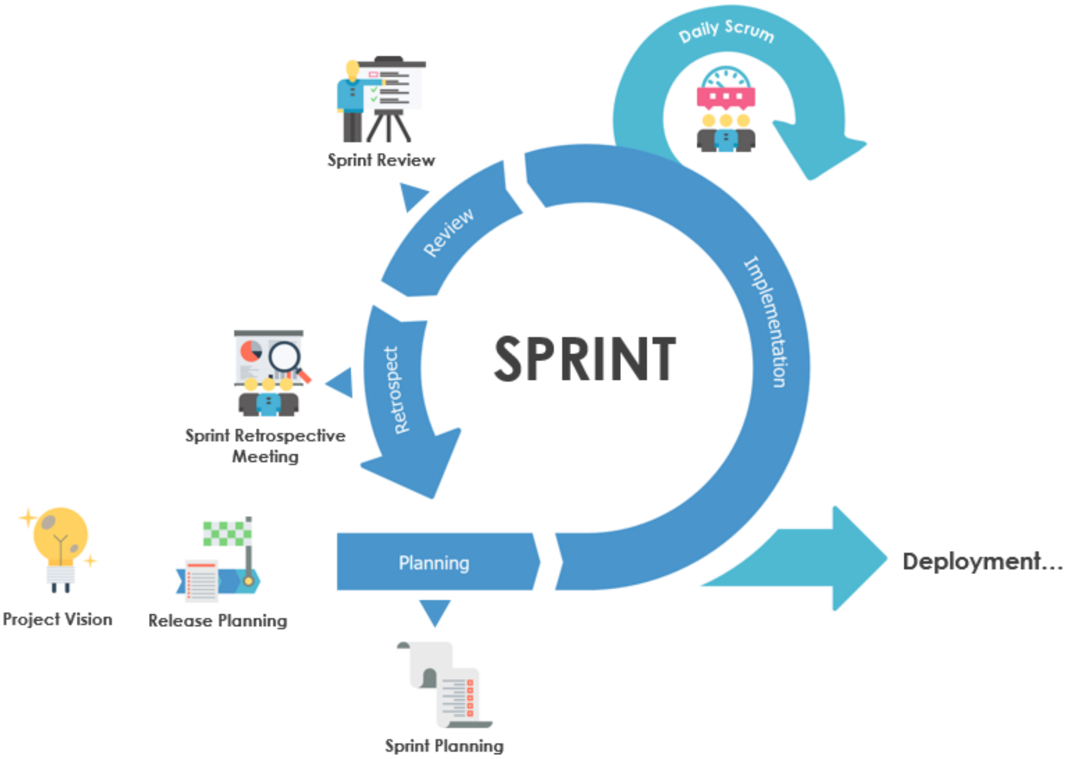
- Mobile device: Android Smartphones with the minimum Android version of 5.0 (Lollipop) with minimum RAM of 2 GB.

4.2. Problem Analysis

The problem that occurs in this research and development is that the image quality of different smartphone cameras greatly affects, face recognition will easily recognize faces if the image quality produced by the smartphone camera is sharp enough, if the smartphone camera has low quality, it can affect the quality. of facial recognition itself.

4.3. Development Method

In designing the implementation of a Attendance System with Face Recognition, using the Agile Software Development Life Cycle (SDLC) – Scrum Model. Agile SDLC has the following flow.



Figures 4.1 Agile SLDC

Source: (Visual Paradigm, n.d.)

4.3.1. Planning

Based on figures 4.1, system development start with planning / sprint planning for determine sprint plan and set the sprint goal. Sprint planning will discuss and agreeing the sprint backlog for development of application itself. Meetings are also held to carry out priorities in system development and then discuss how the team or development will be done in the entire sprint progress.

Planning in every sprint can be different, based on priority scale during the system development itself. For example, sprint has goal to create the models of the face recognition with high accuracy point, and sprint will be done in 2 weeks after the meeting attended. This sprint planning only valid as long as the sprint planning agreement has been determined.

4.3.2. Implementation

The results of the sprint planning will be implemented in the development required for each sprint (each sprint has 1-2 weeks long). The development carried out will depend on the plan that has been approved in the previous plan.

4.3.3. Review

After implementation, a review is needed to inspect the results that have been carried out during the sprint and assist in determining what is needed for the next sprint. This review can be done in the form of testing or explanation during the implementation of the existing sprint.

4.3.4. Retrospective

After doing a review, of course development needs to inspect the work during the sprint and make a plan needed for the development or improvement of the next sprint.

4.3.5. Deployment

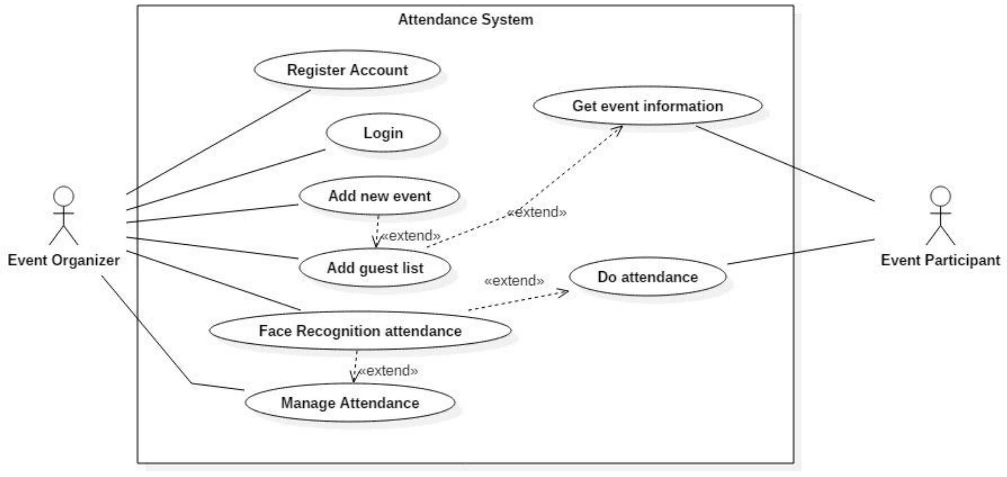
After every sprint that needed is done or the product / application is meet the requirements or MVP (Most Viable Product), developers can deploy the finished application and can be used by users.

4.4. Development System Planning

This section describes an overview of the system design that will be carried out.

4.4.1 Attendance System Use Case

The attendance application does not really require much interaction, as shown in the figures 3.4 Actors only consist of event participants and event organizers. Each has the following activities.



Figures 4.2 Use Case of Attendance System

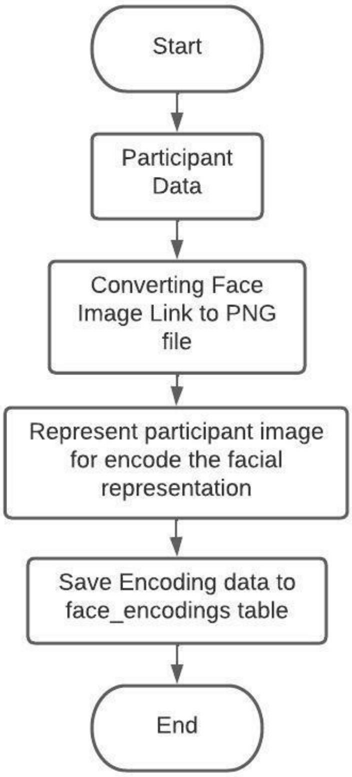
To get started, registration is needed for event organizer. For event organizers it does not require facial recognition because event organizers can only create an event and analyze, add guest list or participant, do and manage attendance at registered events.

After registration, event organizer can create a new event in application which will be used as attendance media, after creating new event with detailed information, event organizer can add a new guest list or participant list with uploading csv files in selected event.

After that, event organizer can take attendance from present guest or participant using face recognition at specified location. Event organizer can manage attendance from events with some statistics that application provided.

For participant or guest, they only need to come to event venue and do attendance with help of event organizer, before that participant will be informed via email or WhatsApp to get information where and when the event will be held.

4.4.2 Face Dataset Encoding Flowchart

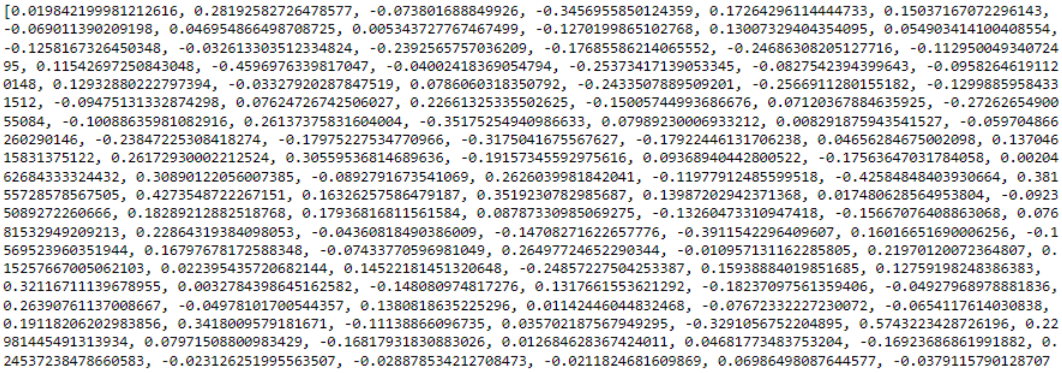

Start
Participant Data
Converting Face Image Link to PNG file
Represent participant image for encode the facial representation
Save Encoding data to face_encodings table
End

Figures 4.3 Face Dataset Encoding Flowchart

In face dataset encoding, is a flow where the computer performs training for a given dataset, encoding intends to perform feature embedding which is carried out by the CNN method to obtain face classifications and provide results in the form of embeddings in feature extraction process, this embedding feature will be assisted by Retina Face in terms of performing face detection to take facial characteristics. These results are in the form of an array that is only understood by the computer, in the flowchart above the representation face is a feature embedding done in CNN method, The results of the facial representation will be compared with the latest facial data that will be sent at the time of attendance.

This face encoding also aims to reduce the storage of photo files into a storage database or Google cloud platform storage so that it can reduce storage costs or use cloud storage. indeed, the process of encoding and storing the results of the representation takes quite a long time but it can speed up the face recognition process when the recognition is done later.

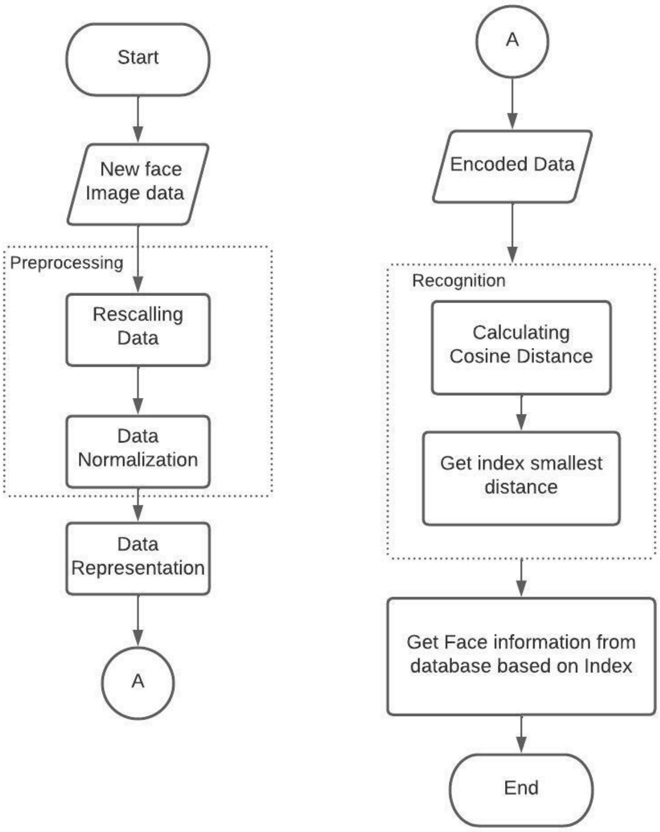
The following is the result of the encoding that has been done:



```
[0.019842199981212616, 0.28192582726478577, -0.073801688849926, -0.3456955850124359, 0.17264296114444733, 0.15037167072296143,
-0.069011390209198, 0.046954866498708725, 0.005343727767467499, -0.1270199865102768, 0.13007329404354095, 0.054903414100408554,
-0.1258167326450348, -0.032613303512334824, -0.2392565757036209, -0.17685586214065552, -0.24686308205127716, -0.112950049340724
95, 0.11542697250843048, -0.4596976339817047, -0.04002418369054794, -0.25373417139053345, -0.0827542394399643, -0.0958264619112
0148, 0.12932880222797394, -0.03327920287847519, 0.0786060318350792, -0.2433507889509201, -0.2566911280155182, -0.1299885958433
1512, -0.09475131332874298, 0.07624726742506027, 0.22661325335502625, -0.15005744993686676, 0.07120367884635925, -0.27262654900
55084, -0.10088635981082916, 0.26137375831604004, -0.35175254940986633, 0.07989230006933212, 0.008291875943541527, -0.059704866
260290146, -0.23847225308418274, -0.17975227534770966, -0.3175041675567627, -0.17922446131706238, 0.04656284675002098, 0.137046
15831375122, 0.2617293000212524, 0.30559536814689636, -0.19157345592975616, 0.09368940442800522, -0.17563647031784058, 0.00204
62684333324432, 0.30890122056007385, -0.0892791673541069, 0.2626039981842041, -0.11977912485599518, -0.42584848403930664, 0.381
55728578567505, 0.4273548722267151, 0.16326257586479187, 0.3519230782985687, 0.13987202942371368, 0.017480628564953804, -0.0923
5089272260666, 0.18289212882518768, 0.17936816811561584, 0.08787330985069275, -0.13260473310947418, -0.15667076408863068, 0.076
81532949209213, 0.22864319384098053, -0.04360818490386009, -0.14708271622657776, -0.3911542296409607, 0.16016651690006256, -0.1
569523960351944, 0.16797678172588348, -0.07433770596981049, 0.26497724652290344, -0.010957131162285805, 0.21970120072364807, 0.
15257667005062103, 0.022395435720682144, 0.14522181451320648, -0.24857227504253387, 0.15938884019851685, 0.12759198248386383,
0.32116711139678955, 0.0032784398645162582, -0.148080974817276, 0.1317661553621292, -0.18237097561359406, -0.04927968978881836,
0.26390761137008667, -0.04978101700544357, 0.1380818635225296, 0.01142446044832468, -0.07672332227230072, -0.0654117614030838,
0.19118206202983856, 0.3418009579181671, -0.11138866096735, 0.035702187567949295, -0.3291056752204895, 0.574322342872619 6, 0.22
981445491313934, 0.07971508800983429, -0.16817931830883026, 0.012684628367424011, 0.04681773483753204, -0.16923686861991882, 0.
24537238478660583, -0.023126251995563507, -0.028878534212708473, -0.0211824681609869, 0.06986498087644577, -0.037911579012870 7
```

Figures 4.4 Encoding Results

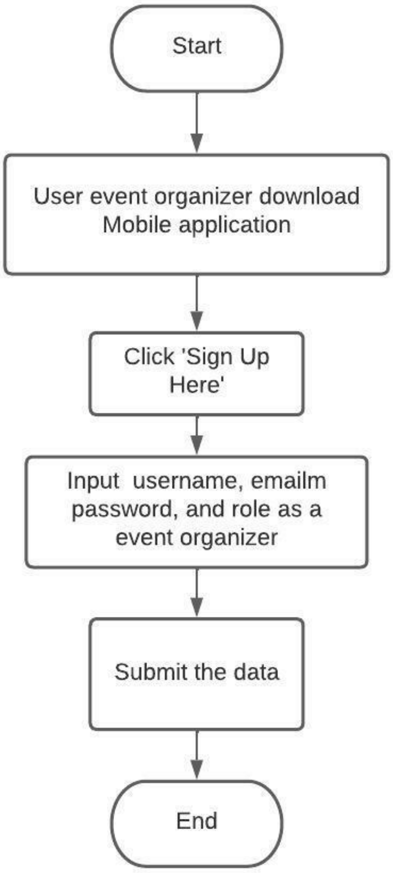
4.4.3 Recognizing Face Flowchart



Figures 4.5 Recognizing Face Flowchart

In the Face Recognition, system will be used deepface library, deepface library is a face recognition using CNN method that will help system to recognizing face. Face recognition process start from getting the new uploaded attending image which will then be preprocessed by scaling the data and performing data normalization where this data normalization aims to normalize the light intensity in the image obtained, after preprocessing the system will perform data representation using the deepface library, this representation data will produce data that already in the encoding and can only be understood by the computer only. after the representation has been carried out, the data encoding will be calculated or compared with the encoding data from the previous dataset, the comparison will determine the cosine distance by performing calculations performed by the system, after doing a comparison with all the required encoding data, the system will find the smallest cosine distance and get the index of the smallest cosine distance, and after that the system will send information from the recognition with the information contained in the database based on a predetermine index.

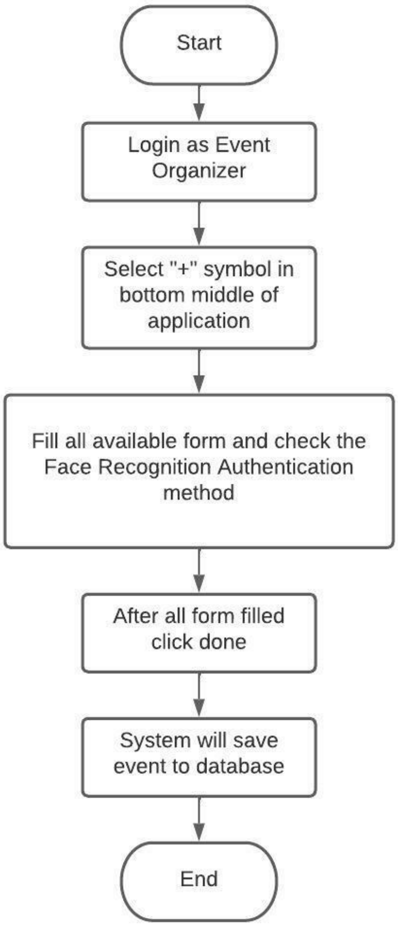
4.4.4 Event Organizer Registration Flowchart


Start
User event organizer download Mobile application
Click 'Sign Up Here'
Input username, emailm password, and role as a event organizer
Submit the data
End

Figures 4.6 Event Organizer Registration Flowchart

To register Event organizers are asked to download the application first, after the download is complete, the user can press "Sign Up Here" to register, when registering the user is asked to fill in the username, email, password and role as an event organizer for registration as event organizer, when all the data has been filled in, the user can submit data and the user has registered.

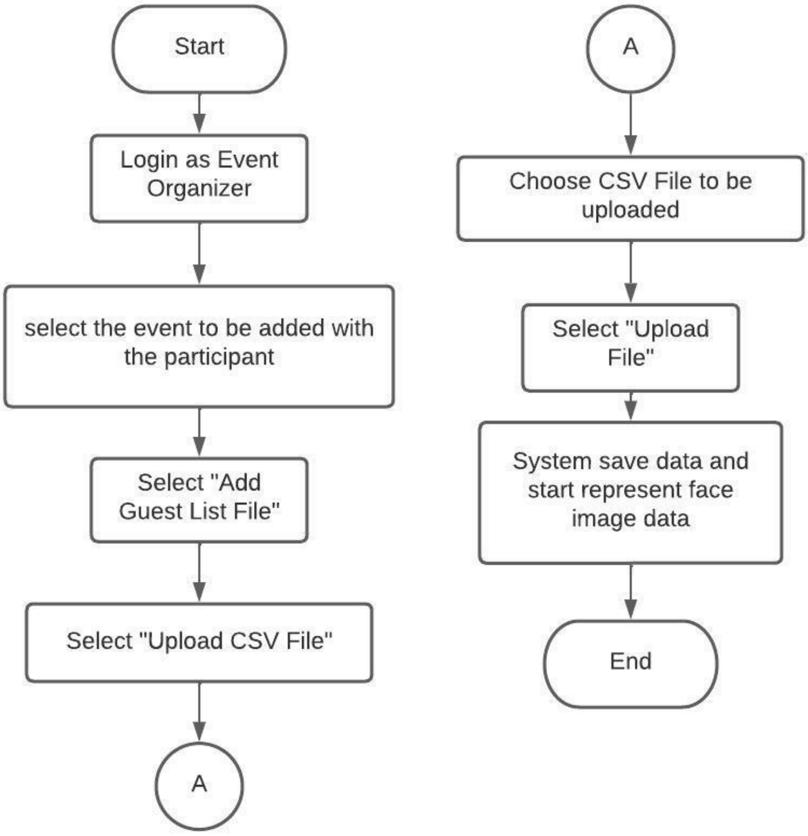
4.4.5 Add New Event Flowchart


Start
Login as Event Organizer
Select "+" symbol in bottom middle of application
Fill all available form and check the Face Recognition Authentication method
After all form filled click done
System will save event to database
End

Figures 4.7 Ad New Event Flowchart

To add new event, event organizer must login first in order to add new event, after login event organizer can select the “+” symbol to add new event, in the add new event form there are upload event image, event title, event description, date, time start, time end, authentication method, venue location, category name and category values with comma separated. After fill required form, event organizer can select done and event will be added to system or database.

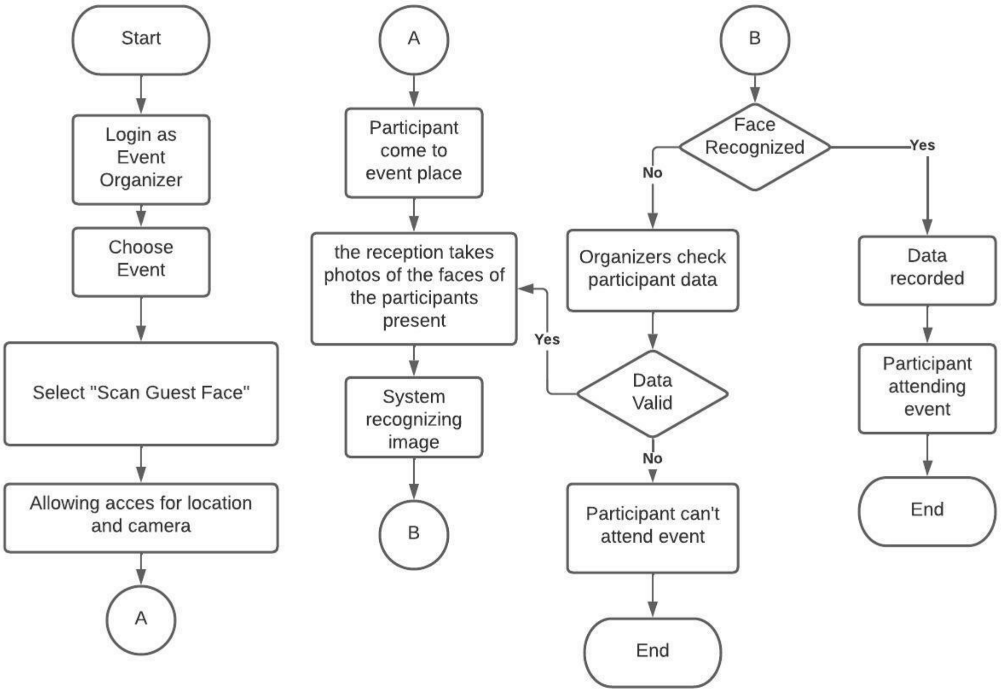
4.4.6 Add participant data and participant face register using CSV Flowchart


Start
Login as Event Organizer
select the event to be added with the participant
Select "Add Guest List File"
Select "Upload CSV File"
A
A
Choose CSV File to be uploaded
Select "Upload File"
System save data and start represent face image data
End

Figures 4.8 Add participant data and participant face register using CSV Flowchart

To add participant or guest to an event, event organizers are asked to select an event to which participant data will be added, after that the user is asked to select "Add Guest List File" to add participants using a csv file, after that the user is asked to press "Upload CSV File" to open smartphone storage and select CSV file to be uploaded or used, after selecting the file, the user is asked to press "Upload File" to upload the file, and the system will store the data into the database and perform data representation for the face image.

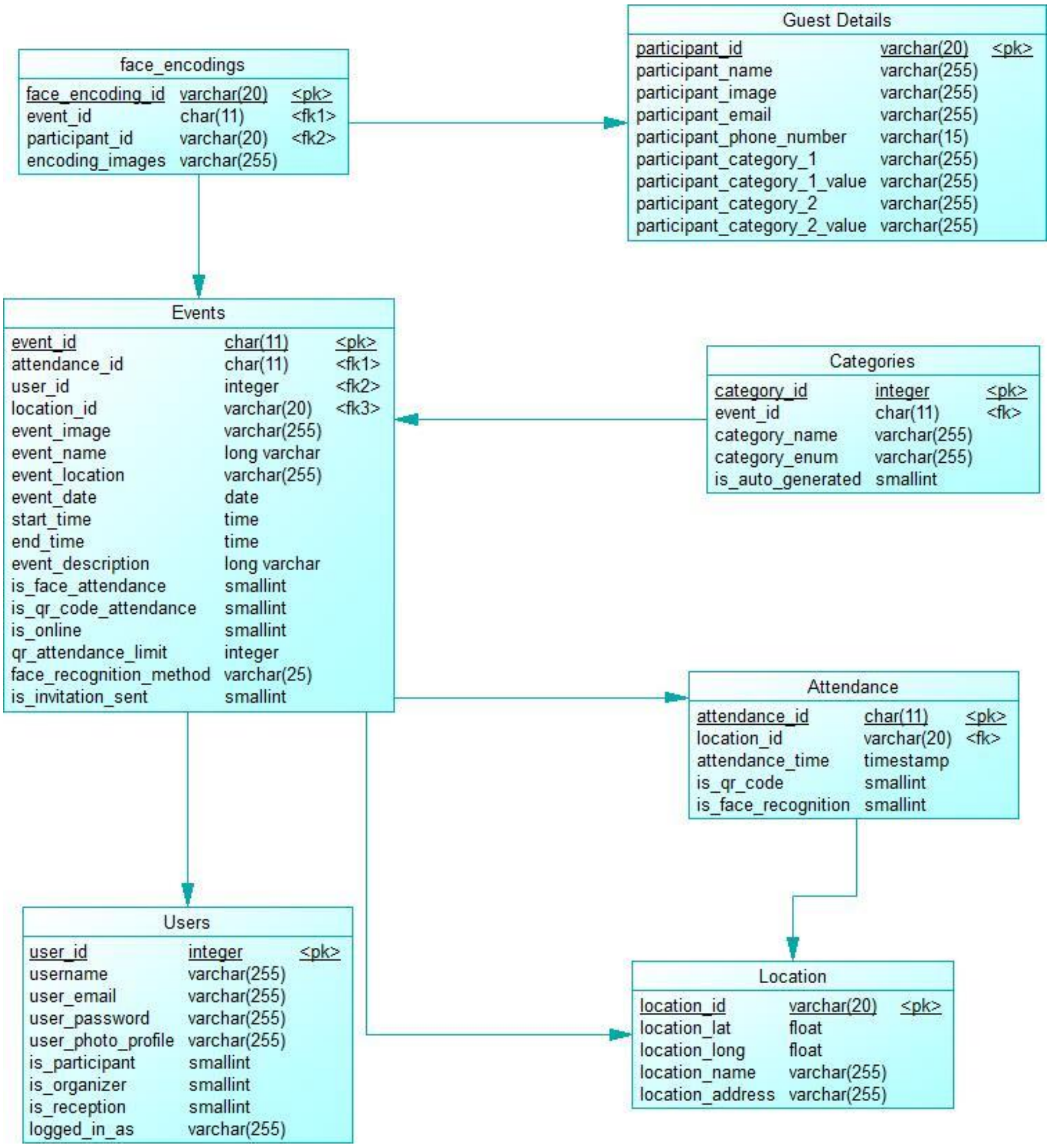
4.4.7 Offline Attendance System Flowchart


Start
Login as Event Organizer
Choose Event
Select "Scan Guest Face"
Allowing acces for location and camera
A
A
Participant come to event place
the reception takes photos of the faces of the participants present
System recognizing image
B
B
Face Recognized
No
Yes
Organizers check participant data
Data Valid
Yes
No
Participant can't attend event
End
Data recorded
Participant attending event
End

Figures 4.9 Offline Attendance System Flowchart

For offline attendance systems, event organizers are asked to log into the system to open previously created events, event organizers are asked to open the event to be held later on, then organizer asked to select the "Scan Guest Face" to perform attendance with facial recognition and allowing access to location and camera to get the latest location when do attendance and accessing camera for recognizing face, event organizer will wait for participants to attend the event which has been organized, after the participants are present, the organizer will take attendance to the participants by taking photo of participants face, the system will perform facial recognition, if the face is recognized then the attendance data (time, place and participant) will be recorded and participants can attend the existing event, but if the participant's face is not recognized, then the organizer is expected to validate the data in the attendance system, if the data is valid or the participant is registered, then the participant is expected to re-recognize the face until it can be recognized, if the data is invalid then the participant is not allowed even follow the event.

4.4.8 Database Schema



face_encodings

face_encoding_id	varchar(20)	<pk>
event_id	char(11)	<fk1>
participant_id	varchar(20)	<fk2>
encoding_images	varchar(255)	

Guest Details

participant_id	varchar(20)	<pk>
participant_name	varchar(255)	
participant_image	varchar(255)	
participant_email	varchar(255)	
participant_phone_number	varchar(15)	
participant_category_1	varchar(255)	
participant_category_1_value	varchar(255)	
participant_category_2	varchar(255)	
participant_category_2_value	varchar(255)	

Events

event_id	char(11)	<pk>
attendance_id	char(11)	<fk1>
user_id	integer	<fk2>
location_id	varchar(20)	<fk3>
event_image	varchar(255)	
event_name	long varchar	
event_location	varchar(255)	
event_date	date	
start_time	time	
end_time	time	
event_description	long varchar	
is_face_attendance	smallint	
is_qr_code_attendance	smallint	
is_online	smallint	
qr_attendance_limit	integer	
face_recognition_method	varchar(25)	
is_invitation_sent	smallint	

Categories

category_id	integer	<pk>
event_id	char(11)	<fk>
category_name	varchar(255)	
category_enum	varchar(255)	
is_auto_generated	smallint	

Attendance

attendance_id	char(11)	<pk>
location_id	varchar(20)	<fk>
attendance_time	timestamp	
is_qr_code	smallint	
is_face_recognition	smallint	

Users

user_id	integer	<pk>
username	varchar(255)	
user_email	varchar(255)	
user_password	varchar(255)	
user_photo_profile	varchar(255)	
is_participant	smallint	
is_organizer	smallint	
is_reception	smallint	
logged_in_as	varchar(255)	

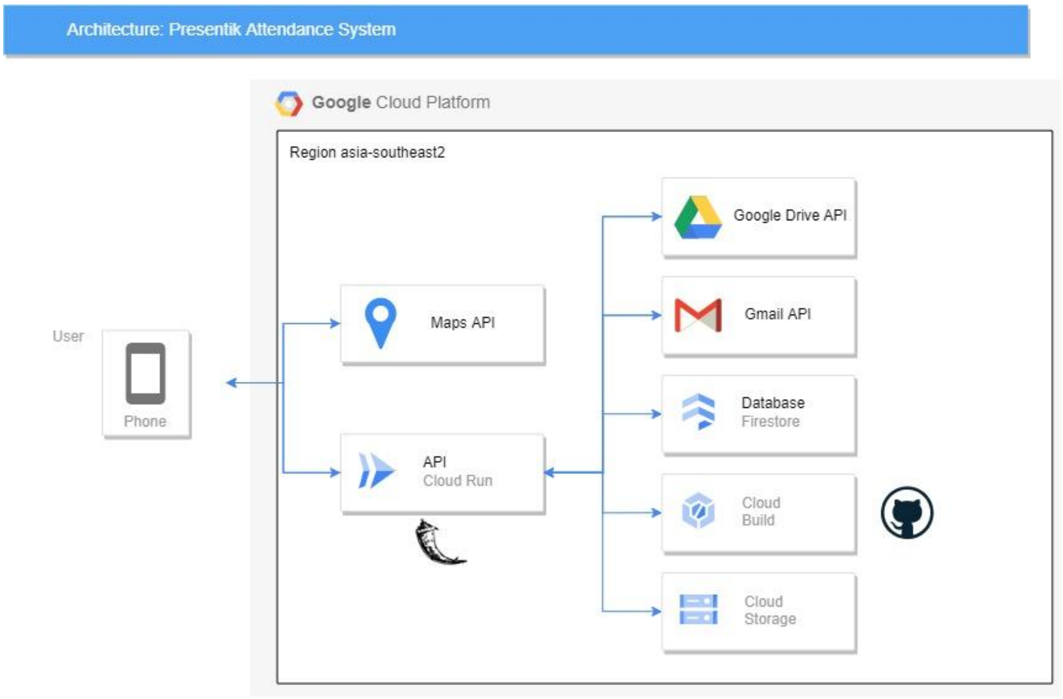
Location

location_id	varchar(20)	<pk>
location_lat	float	
location_long	float	
location_name	varchar(255)	
location_address	varchar(255)	

Figures 4.10 Database Schema of Attendance System

In the database schema of attendance system, there are 5 main collection or table in database. First there are Users collection that contains all user information of attendance system application, but with firebase firestore we don’t need to save the password in database because our application will used firebase authentication system. Second there will be Events collection, in this collection will contains all information about all events that created by event organizer, third there will be Guest Details collection, in this collection will store all participants or guest data with detailed information that provided event organizer in CSV data, fourth there will be Face Encodings collection, in this collection will store all encodings face data or face data representation on every event available. Last there will be Attendance collection, in this collection will save all attendance data when participant or users start attending. And for Categories collection and Location collection is a sub collection. All of sub collection will support providing information for Events collection or Attendance collection, this collection is sub collection because there will be inside the main collection as a map data.

4.4.9 System Architecture



Figures 4.11 System Architecture of Attendance System

The attendance system will use the google cloud platform for serverless application hosting or deployment, with the GCP (Google Cloud Platform) applications can be deployed easily and used by many clients/users with minimal latency.

Application frontend deployment will be use flutter and backend deployment will be use Flask and deployed to Cloud Run with Docker to deploy the backend programs as an API Integration or serverless API deployment, cloud run will be built with Cloud Build that has been integrated with the container registry that has been connected to the GitHub repository. Backend deployment is done with the help of docker with type python:3.10-slim which helps cloud build to deploy by installing the requirements that have been provided and running containers continuously with Gunicorn. This application uses Cloud Firestore as a database and uses Cloud Storage to store uploaded event images.

There are several additional APIs in the form of Maps API, Gmail API and Google Drive API. Maps API is used to get location information where users attend, Gmail API is used to send information or event invitations with existing Gmail, Goole Drive API is used to get data from Google Drive that has been provided by the event organizer so that there are no automated query errors when running encoding or calling data related to Google Drive.

For all ways to do face recognition and face representation, it has been combined with an API that has been deployed manually on the backend (deployment using Flask).

4.4.10 Database Table Planning

The following are the table settings in the database that will be used in the firebase firestore database. the database structure will be created according to the database schema that has been created. The following is the SQL relation database structure of the attendance application with face recognition (presentik):

4.3.10.1. Users Table

Table 4.2 Users Table

Attribute Name	Data Type	Description
id	varchar (20)	NOT NULL, PRIMARY, AUTO GENERATED
username	VARCHAR(255)	NOT NULL
email	VARCHAR(255)	NOT NULL
password	VARCHAR(255)	NOT NULL
photo_profile	VARCHAR(255)	NULLABLE
is_organizer	BOOLEAN	NOT_NULL
is_participant	BOOLEAN	NOT NULL
is_reception	BOOLEAN	NOT NULL
logged_in_as	VARCHAR(255)	NULLABLE

4.3.10.2. Events Table

Table 4.3 Events Table

Attribute Name	Data Type	Description
id	VARCHAR (20)	NOT NULL, PRIMARY, AUTO GENERATED
attendance_id	VARCHAR(20)	NOT NULL, FOREIGN KEY
user_id	VARCHAR(20)	NOT NULL, FOREIGN KEY
location_id	VARCHAR(20)	NOT NULL, FOREIGN KEY
image	VARCHAR(255)	NULLABLE
name	VARCHAR(255)	NOT_NULL
date	DATE	NOT NULL
start_time	TIMESTAMP	NOT NULL
end_time	TIMESTAMP	NULLABLE
description	VARCHAR(255)	NULLABLE
is_face_attendance	BOOLEAN	NOT_NULL
is_qr_code_attendance	BOOLEAN	NOT_NULL
is_online	BOOLEAN	NOT_NULL
qr_attendance_limit	INT	NULLABLE
face_recogntion_method	VARCHAR(255)	NULLABLE
Is_invitation_sent	BOOLEAN	NOT_NULL

4.3.10.3. Guest Details Table

Table 4.4 Guest Details Table

Attribute Name	Data Type	Description
id	VARCHAR (20)	NOT NULL, PRIMARY, AUTO GENERATED
name	VARCHAR(255)	NOT_NULL
image	VARCHAR(255)	NOT_NULL
email	VARCHAR(255)	NOT_NULL
phone number	VARCHAR(15)	NULLABLE
Category 1	VARCHAR(255)	NOT_NULL
Category 1 value	VARCHAR(255)	NOT NULL
Category 2	VARCHAR(255)	NOT NULL
Category 2 value	VARCHAR(255)	NULLABLE

4.3.10.4. Attendance Table

Table 4.5 Attendance Table

Attribute Name	Data Type	Description
id	VARCHAR (20)	NOT NULL, PRIMARY, AUTO GENERATED
location_id	VARCHAR(20)	NOT NULL, FOREIGN KEY
time	TIMESTAMP	NOT_NULL
is_qr_code	BOOLEAN	NOT_NULL
is_face_recognition	BOOLEAN	NOT_NULL

4.3.10.5. Categories Table

Table 4.6 Categories Table

Attribute Name	Data Type	Description
id	VARCHAR (20)	NOT NULL, PRIMARY, AUTO GENERATED
event_id	VARCHAR(20)	NOT NULL, FOREIGN KEY
name	VARCHAR(255)	NOT_NULL
enum	VARCHAR(255)	NOT_NULL
is_auto_generated	BOOLEAN	NOT_NULL

4.3.10.6. Location Table

Table 4.7 Location Table

Attribute Name	Data Type	Description
id	VARCHAR (20)	NOT NULL, PRIMARY, AUTO GENERATED
latitude	FLOAT	NOT NULL
longitude	FLOAT	NOT_NULL
name	VARCHAR(255)	NOT_NULL
address	VARCHAR(255)	NOT_NULL

4.3.10.7. Face Encodings Table

Table 4.8 Face Encodings Table

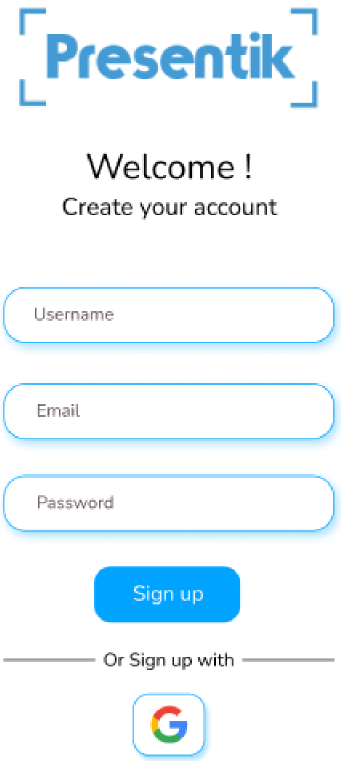
Attribute Name	Data Type	Description
id	VARCHAR (20)	NOT NULL, PRIMARY, AUTO GENERATED
event_id	VARCHAR(20)	NOT NULL, FOREIGN KEY
participant_id	VARCHAR(20)	NOT NULL, FOREIGN KEY
encoding_images	VARCHAR(255)	NOT_NULL

4.4.11 UI Design Planning

UI Design Planning is a design of the application display structure on a system that will be made. This design aims to make it easier for users and devices to create a system. The following is an interface design for a mobile attendance system application using face recognition (Presentik), which consists of:

4.3.11.1. Registration Page

In Figures 4.12 is the design of the Registration page display which is used as the main page of the system.



Figures 4.12 Registration Page Planning

Information:

a. Form input username used for inputting username that will be registered

b. Form input email used for inputting email that will be registered

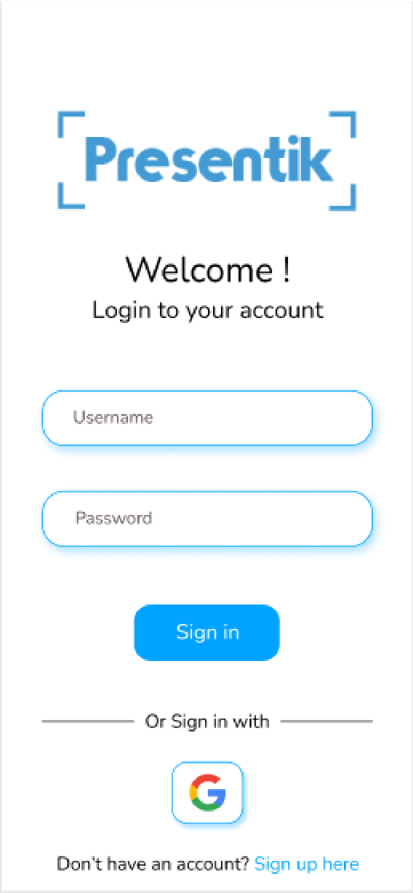
c. Form input password used for inputting password that will be registered

d. Button Signup used for register or signing up information when all form already filled

e. Button Google used for register account using google account

4.3.11.2. Login Page

In Figures 4.13 is the design of the Registration page display which is used as the main page of the system.



Welcome !

Login to your account

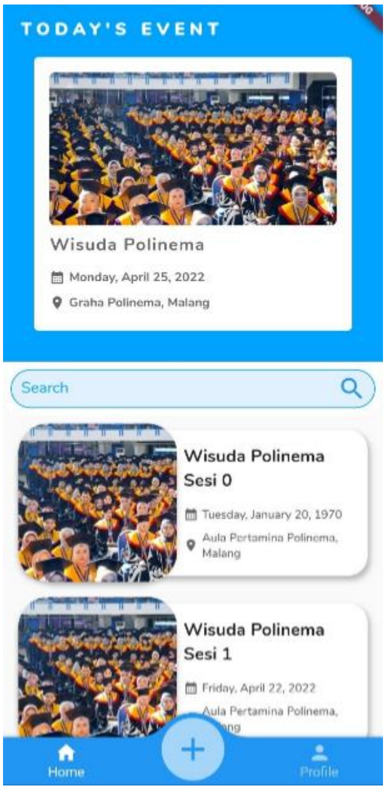
Don't have an account? Sign up here

Figures 4.13 Login Page Planning

Information:

a. Form input username/email used for inputting username/email that already registered
b. Form input password used for inputting password of email/username that already registered
c. Button Sign in used for login when all required forms already filled
d. Button Google used for login using registered google account
e. Button Sign up here used for open register page when the user does not have a registered account

4.3.11.3. Home Page



TODAY'S EVENT

Wisuda Polinema

Monday, April 25, 2022

Graha Polinema, Malang

Search

Wisuda Polinema Sesi 0

Tuesday, January 20, 1970

Aula Pertamina Polinema, Malang

Wisuda Polinema Sesi 1

Friday, April 22, 2022

Aula Pertamina Polinema, ...ng

Figures 4.14 Homepage Planning

Information:

a. Today’s event is a display when there is an event that will take place today

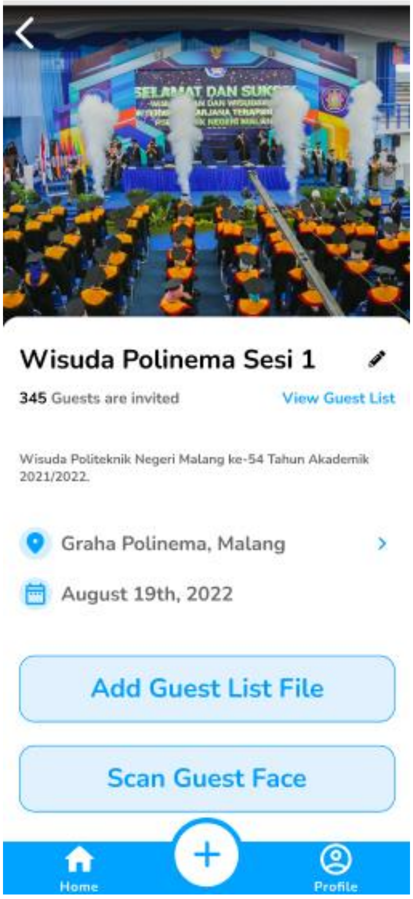
b. List of events is a display for all events owned by the event organizer

c. Button Home is used to go to the homepage

d. Button plus “+” is used to go to the add new event page

e. Button profile is used to go to Event organizer profile

4.3.11.4. Event Detail Page



Wisuda Polinema Sesi 1

345 Guests are invited

Wisuda Politeknik Negeri Malang ke-54 Tahun Akademik 2021/2022.

Graha Polinema, Malang

August 19th, 2022

Figures 4.15 Events Detail Planning

Information:

a. Button View Guest List used to go to Guest Attendance Detail Page

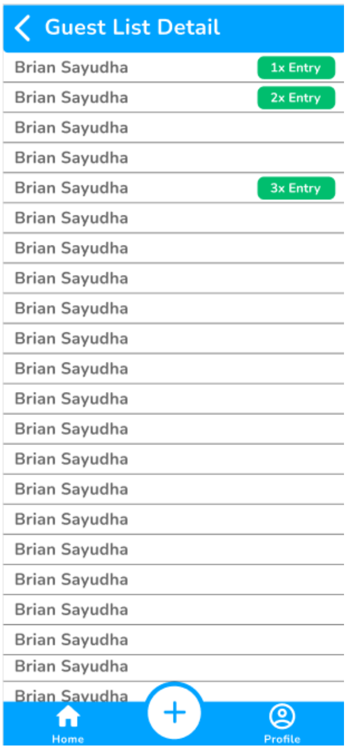
b. Button pencil used to go to edit event page

c. Button maps used to see the location of event

d. Button Add Guest list File used to go to add new participant/guest in event

e. Button Scan Guest Face used to start taking attendance with face Recognition

4.3.11.5. Guest Attendance Detail Page



Guest List Detail

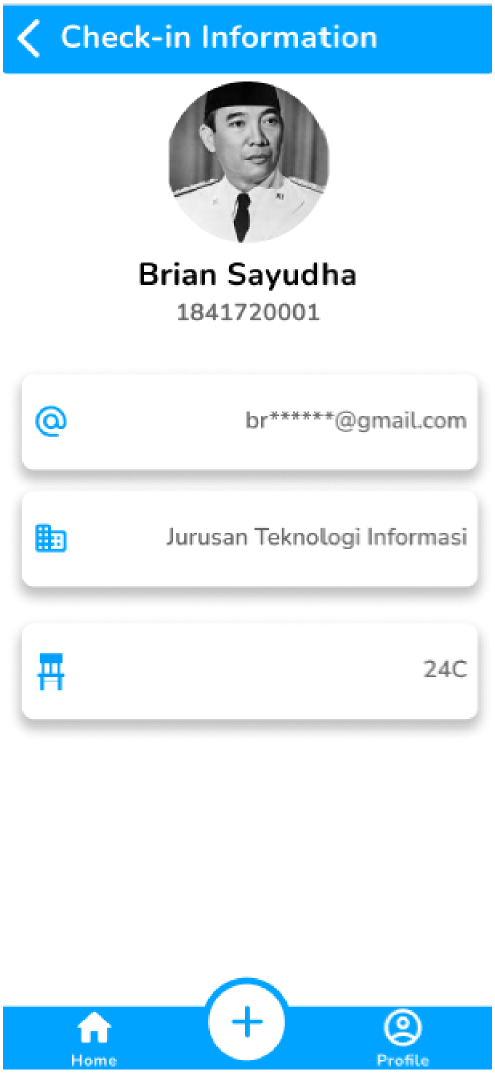
Brian Sayudha	1x Entry
Brian Sayudha	2x Entry
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	3x Entry
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	
Brian Sayudha	

Figures 4.16 Guest Attendance Detail Page

Information:

a. Guest Name it can be clicked to go to Guest Details

4.3.11.6. Face Recognition Result Page



Brian Sayudha

1841720001

br******@gmail.com

Jurusan Teknologi Informasi

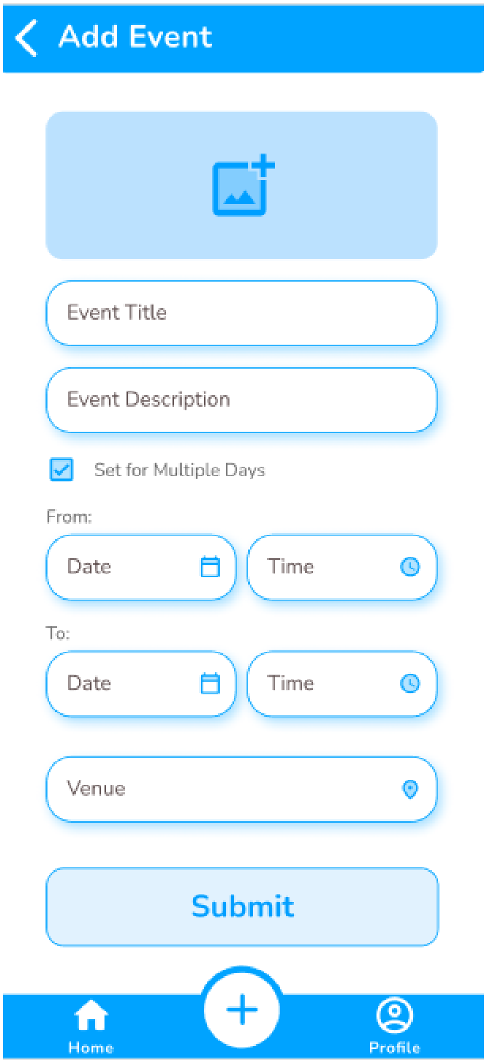
24C

Figures 4.17 Face Recognition Result Page Planning

Information:

a. Table Information used to display participant email data

4.3.11.7. Add New Event Page



Figures 4.18 Add New Event Page Planning

Information:

a. Image button used to add new event picture.

b. Form Event Title used to fill the title of the event to be added.

c. Form Event Description used to fill the description of the event to be added.

d. Set multiple Days checkbox used to check if event held more than 1 day.

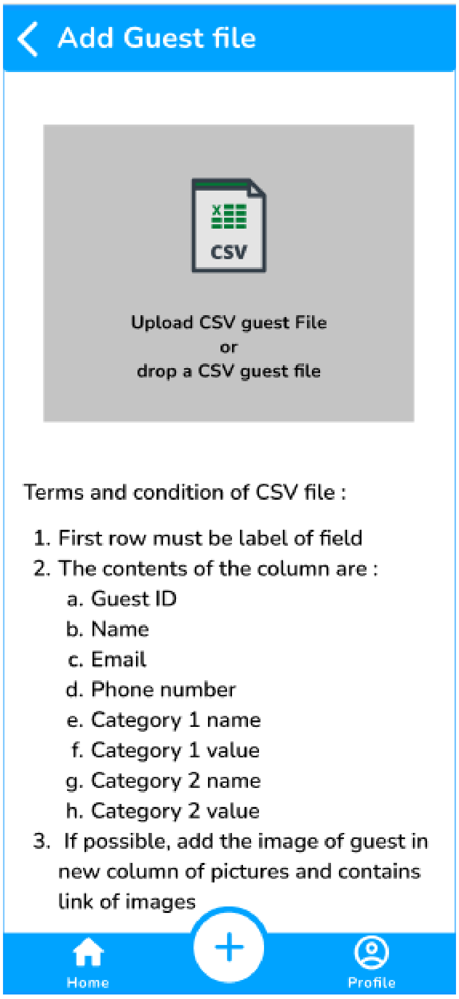
e. Form Date used to fill the date of the event to be added

f. Form Time used to fill the time of the event to be added

g. Form Venue used to fill the Location of the event to be added

h. Button Submit used to save all information in application

4.3.11.8. Add Guest List File Page



Terms and condition of CSV file :

1. First row must be label of field
2. The contents of the column are :
   a. Guest ID
   b. Name
   c. Email
   d. Phone number
   e. Category 1 name
   f. Category 1 value
   g. Category 2 name
   h. Category 2 value
3. If possible, add the image of guest in new column of pictures and contains link of images

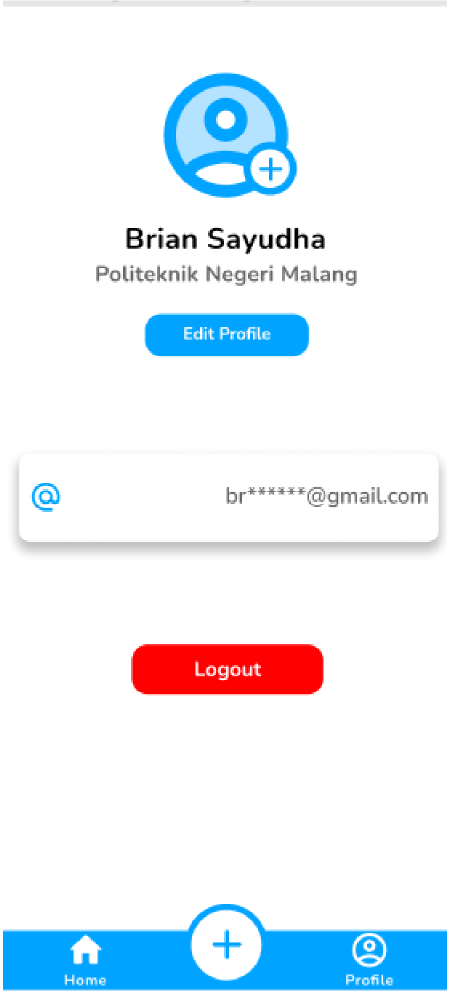
Figures 4.19 Add Guest List File Page

Information:

a. Upload CSV button used to add CSV file of guest list that want to be added.

b. Terms and Condition of CSV to display all rules of filling or uploading Guest CSV File

4.3.11.9. Event Organizer Profile Page


Brian Sayudha

Politeknik Negeri Malang

br******@gmail.com

Figures 4.20 Event Organizer Profile Page

Information:

a. Profile Image used to add profile picture.

b. Edit Profile Button used to go to edit profile.

c. User table information used to display all information about user

d. Logout Button used to log out from application.