RIGHTWAY

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RIGHTWAY

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ABSTRACT

THIS PROJECT STARTED FROM THE DIFFICULTY OF USING A REAL-LIFE COMPASS BECAUSE IT IS IMPOSSIBLE TO ATTACH IT TO SOMETHING ON YOUR BODY. MANY PEOPLE NOWADAYS GO TO THE MOUNTAIN TO SEE THE DAWN OR SUNSET, BUT THEY HAVE NO IDEA THE DIRECTION THE SUN WILL RISE OR SET IN. THEY WILL BE ABLE TO EASILY DOWNLOAD THE APPLICATION ONTO THEIR DEVICE AND OBSERVE THE CURRENT DIRECTION WITH THIS APPLICATION.

KEYWORDS : <KEYWORDS (USE ' / ' AS SEPERATOR) E.G. KEY1 / KEY2>
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CHAPTER 1
INTRODUCTION

This project will be doing about the thing that we call “Compass”. This is an application that can remind users to find the best route with the right direction no metter where the user is.

1.1 Motivation

For our motivation, we would like to help the traverler to facilitating tourism and save the travel time. In worst-case scenario, some of traverler may lost in the jungles and they need to find out the exit direction. We would like to help them to find out the exit direction too. And we believe that nowadays, people more convenient to carry their telephone than a compass. Would it be better if traveler just carry the telephone and can have the compass at the same time?

1.2 Problem Statement

When people lost in somewhere, it would be a normal thing that people need to find the right direction to go to the destination that they want. Compass will be the one of your choices and come along with the precise direction to find out the solution to the destination.

1.3 Objectives of the Project

For the objectives as what we mentioned before, it will help people to find the direction when they lost in somewhere eventually can go to the destination.

- Help traveler to facilitating tourism
- Save the travel time
- Help traveler can go to the destination that they want whenever they lost.

1.4 Scope of the Project

Our application will be a mobile application and have a scope of the project including:

- Flutter
- Android Studio
- Sensor detection

1.5 Expected Benefits

The “RightWay” application will make traveler facilitating tourism and save the travel time together with can go to the destination easily when they get lost.

1.6 Organization of the Document

This document consists of 6 chapters including:

1. Introduction – "<Brief Description Click to Insert>"
2. Background – "<Brief Description Click to Insert>"
3. Analysis and Design – "<Brief Description Click to Insert>"
4. Implementation – "<Brief Description Click to Insert>"
5. Testing and Evaluation – "<Brief Description Click to Insert>"
6. Conclusion – "<Brief Description Click to Insert>"

CHAPTER 2
BACKGROUND

The Rightway app, the application that aims to provide users with directions where users are standing. Moreover, our project intends to provide users with a simple, uncomplicated software that can be accessed and used in an emergency circumstance.

2.1 Literature Review

As we are learning flutter framework to write the Android application, we mainly focus on using Android Studio to simulate the program and running the program. With Android Studio, we can add features, edit, modify the output of the program in realtime.

CHAPTER 3
ANALYSIS AND DESIGN

For the analysis and design, the process will describe and analysis of the application to develop the performance of the application. Furthermore, we will illustrate each diagram to arrange the workflow of the application.

3.1 System Architecture Overview

For the architecture of "RightWay" applications, the three features that we design are "Share coordinates", "Change the structure of compass" and "Change the element of Compass". However, we don't forget to mention the GPS that require to use on our Application.

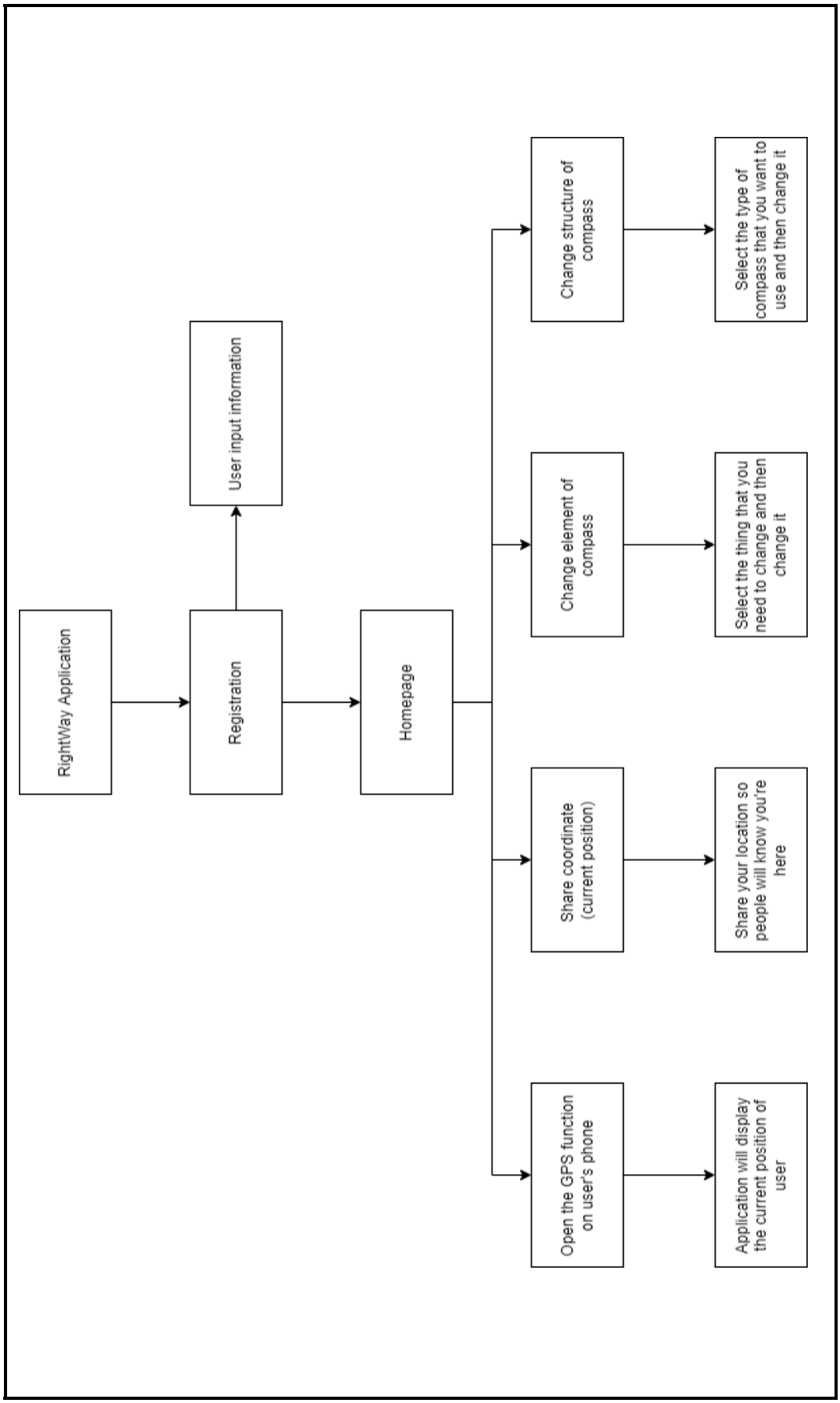
- ***GPS***: we are required to open the GPS function because the compass needs to update the position of users that stays in real-time and then the compass will change the direction and find out the exit ways to the users.

3.2 System Structure Chart

The structure of RightWay applications is nothing much. Firstly, users need to have their own accounts to access our compass features. After the users register to create their own account then, the user can access the homepage which contains the 3 main features that we mentioned in the architecture overview.

RightWay application will have 3 main features include

- Share coordinate (current location)
- Change the structure of compass
- Change the element of the compass (ex. size of the needle, font size, etc)


RightWay Application
Registration
User input information
Homepage
Change structure of compass
Select the type of compass that you want to use and then change it
Change element of compass
Select the thing that you need to change and then change it
Share coordinate (current position)
Share your location so people will know you're here
Open the GPS function on user's phone
Application will display the current position of user

Project: RightWay Application. **System:** Compass that uses the ***GPS function*** to detect the current location of users.	**Major Advisor :** Aj. Snit Sanghlao
Description : For our structure chart will show the flow work of the RightWay application, So the user needs to log in with their own account, and then the application will require the user to open the GPS function on the smartphone device. Eventually, the user can access the homepage and select the feature to adjust the compass and select the one that the user wants to use.	

Figure 3.1: Structure Chart of RightWay application

The detailed description of each subsystem is shown below:

1. ***Open GPS function on user's phone device***

   1.1. Users are required to open the GPS function on their phone device, to provide the precise current location of users.

2. ***Share coordinates***

   2.1. Use the GPS to find the location of users and the application will detect the user location and help the users to find out the exit way

   2.2. Users can share the location to other people, and the people from another place will know the location of this user.

3. ***Change element of Compass***

   3.1. Users need to select which element of compass users need to change. For instance, the needle is too small so, the user changes the request to change the size of the needle to be a suitable size that users need to use.

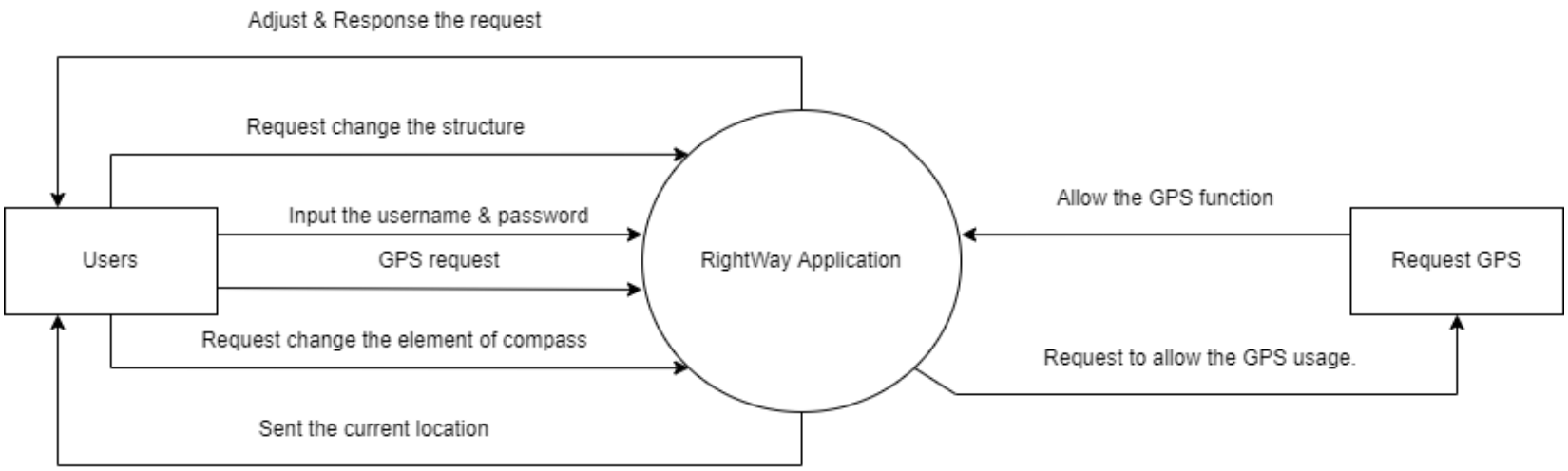
4. ***Change structure of compass***

   4.1. Users need to select each type of compass that the application contains and then users can choose which type of compass that most comfortable and suitable for them.

3.3 Process Analysis and Design

3.3.1 Data Flow Diagram

For the data flow diagram, this diagram will show how the user interacts with the application. Moreover, it will show the data flow between entities which are user and Request GPS.



Project: RightWay Application. **System:** Compass that uses the ***GPS function*** to detect the current location of users.	**Major Advisor:** Aj.Snit Sanghlao
Description : Description: The user needs to request the GPS to the application and the application will continue to send the request to allow the GPS to send the current location. Afterward, the Request GPS will respond to the application request and allow the application to use the GPS function with the RightWay application.	

Figure 3.2: Dataflow diagram of RightWay application.

3.3.2 Data Dictionary

A data dictionary is a way to document and describe Processes, Data Stores, and Data Elements (Data Flow) that occur in a Data Flow Diagram (DFD). It is composed of 3 parts as shown below.

- Process Descriptions
- Data Stores
- Data Elements

3.3.2.1 Process Description

This section will provide the detailed description of each process that exists in this system. It includes Inbound Data, Outbound Data, and Logic Summary.

Table 3.1: List of all Processes

No.	Process	Name	Description
1	P1	Registration	User inputs the personal data.
2	P2	Open GPS function	Open the GPS for display and show up the current location that users stay at.
3	P3	Share coordinate	Share the location to other people
4	P4	Change element	Request to change the element of compass

No.	Process	Name	Description
5	P5	Change structure	Request to change the structure of compass

Table 3.2: Process Description of Registration

Process Name	Registration
Description	Users input their personal information and then the RightWay application will give the user account back to the user to allow the user access to our application features.
Inbound data	• Personal Information • Username • Passwords • Registration request
Outbound Data	• Verification • User account
Logic Summary	-

Table 3.3: Process Description of Open GPS

Process Name	Open GPS function
Description	Users must be required to open the GPS function on the smartphone device to allow the application to break through the current location.
Inbound data	• Request for allowing GPS to open

Outbound Data	• Current location
Logic Summary	1. Users need to open the GPS function 2. The application will request permission to take the data from the GPS function. 3. GPS on smartphone device sent back the data (current location) to the application. 4. Application receives the data from GPS and adjusts the compass to find out the exit ways.

Table 3.4: Process Description of Share coordinate

Process Name	Share coordinate
Description	User can share the current location with the people from another place, to make the other people know where are the user now
Inbound data	• Current location from GPS • Location of people that close to you • Location of specific recipients

Outbound Data	● User's current location ● User's information
Logic Summary	1. Select the share coordinate function 2. The application will be using GPS to find the location of people around the users. 3. GPS will be detecting and sending the request from GPS to share the user's location with other people around you. 4. People around you receive the location data.

Table 3.5: Process Description of Change elements of compass

Process Name	Change elements of compass
Description	User can change all components be changed as needed, In order to have a compass suitable for the users.
Inbound data	● Request changing the element
Outbound Data	● Modified compass
Logic Summary	1. Request the application for changing 2. Application received the request. 3. Application adjust the compass.

Table 3.6: Process Description of Change structure of compass

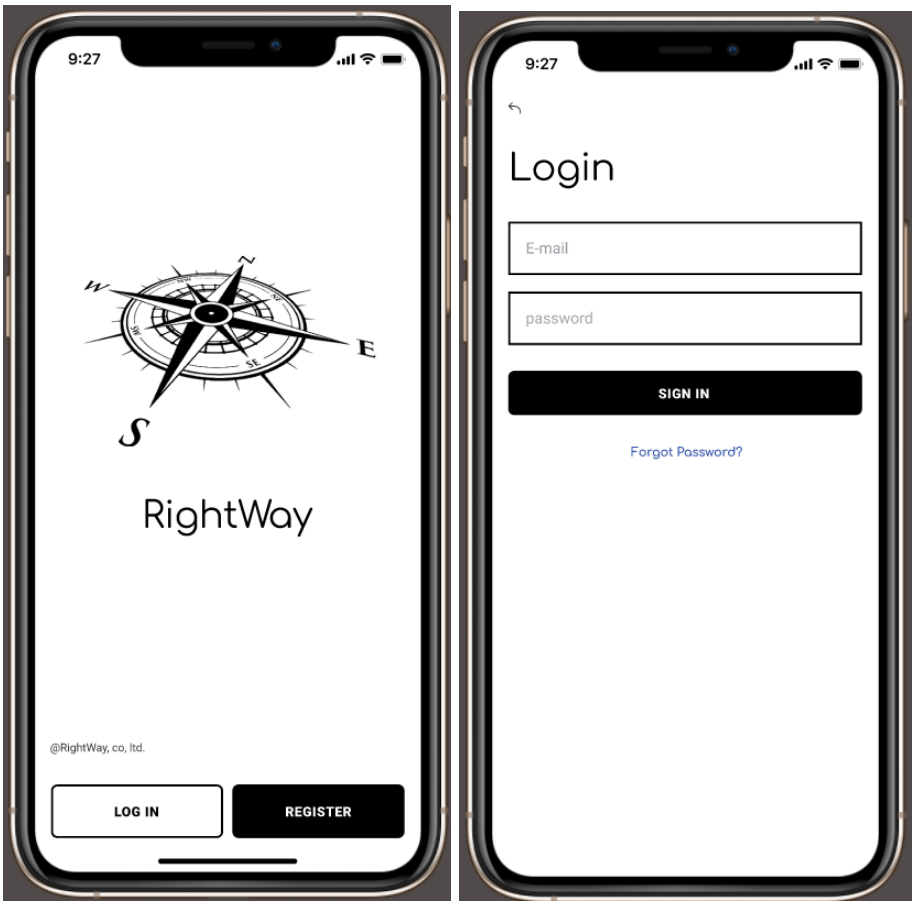
Process Name	Change structure of compass
Description	User can change the structure of the compass.
Inbound data	• Request changing the structure
Outbound Data	• New structure of compass
Logic Summary	4. Request the application for changing 5. Application received the request. 6. Application adjusts the compass.

3.4 I/O Design

This section explains the design of the Input and Output User Interface. The section consists of two parts, the interface design and the transition diagram showing transition through the system.

3.4.1 Interface Design

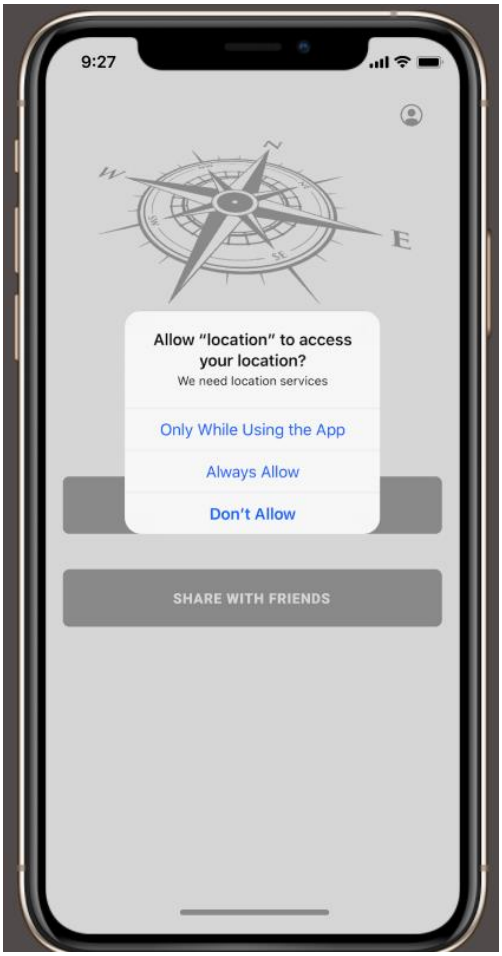
Start Page **Login Page - 1**



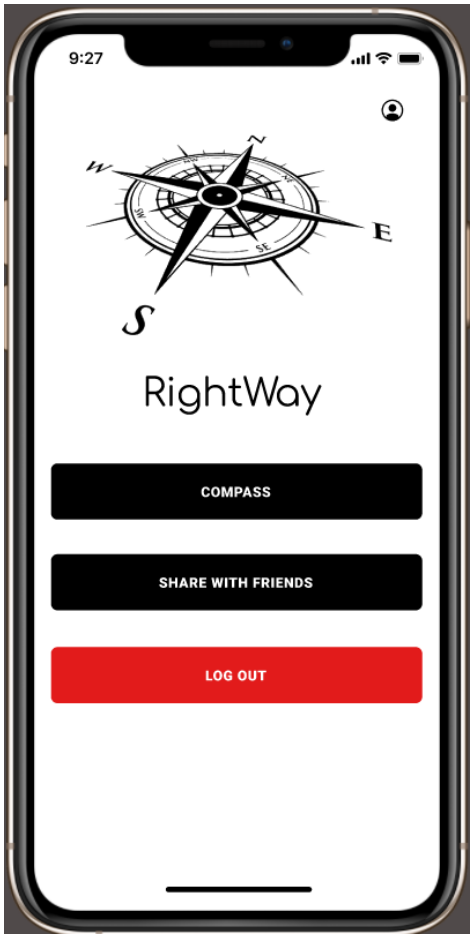
Register Page – 1

Register Page - 2

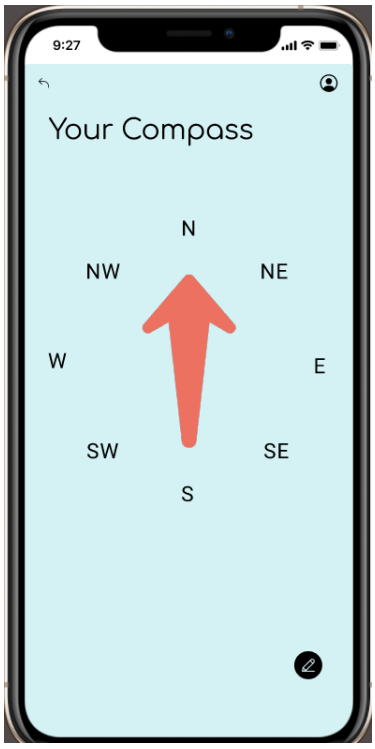
Home Page – 1



Home Page - 2

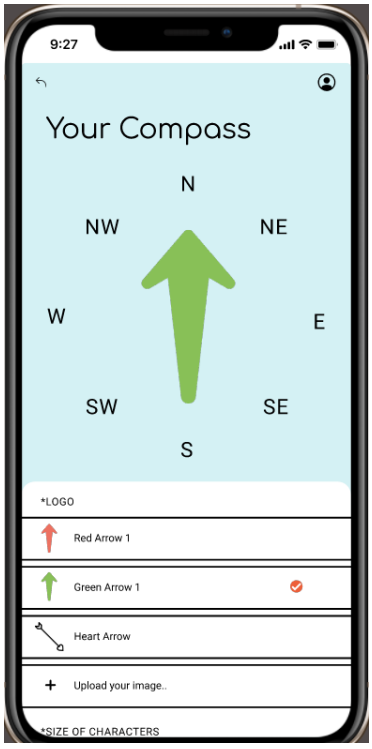


Compass Page

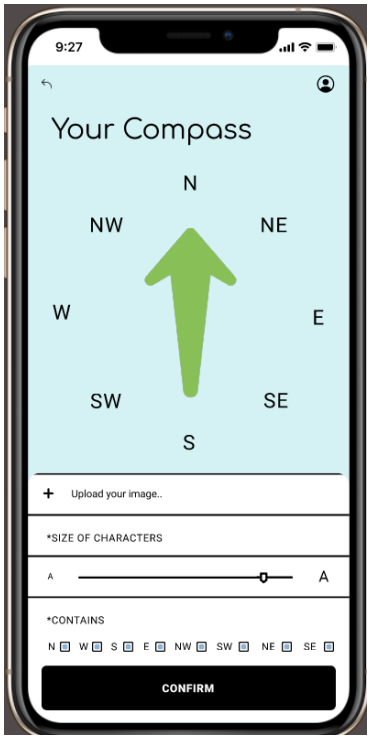


Edit Compass – 1

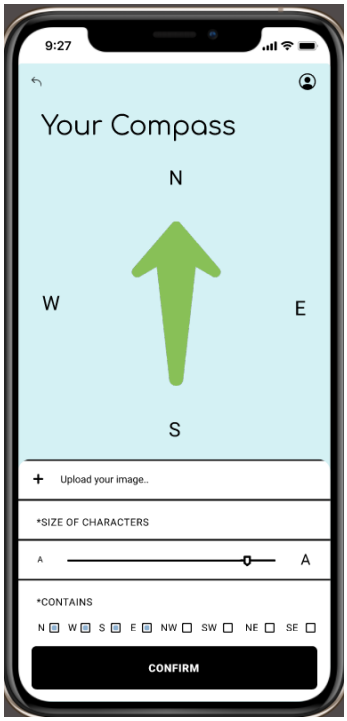
Edit compass - 2



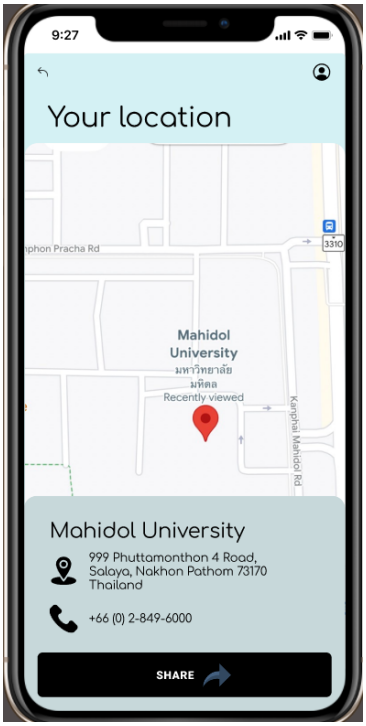
Edit Compass Page – 3



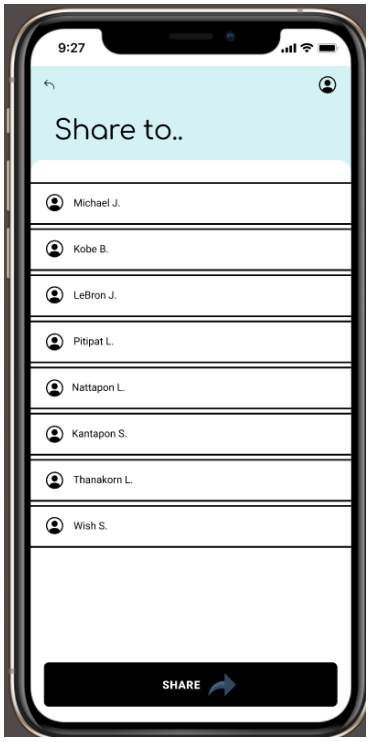
Edit Compass Page – 4



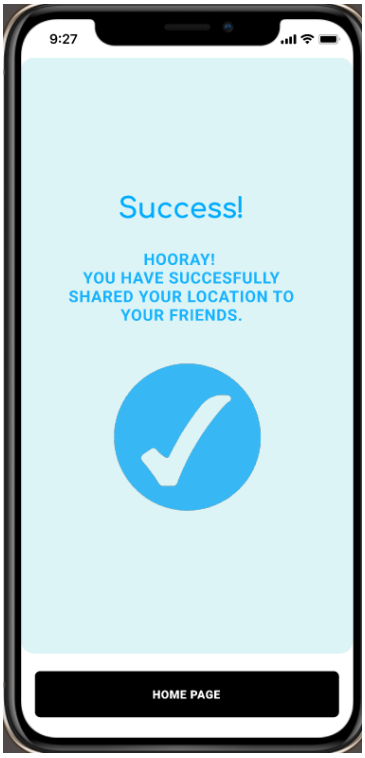
Share with friends Page - 1



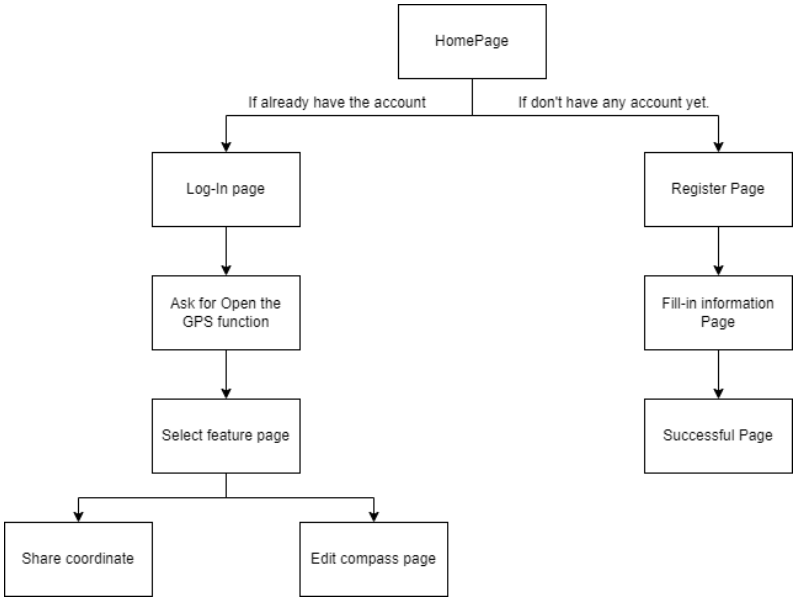
Share with friends Page – 2

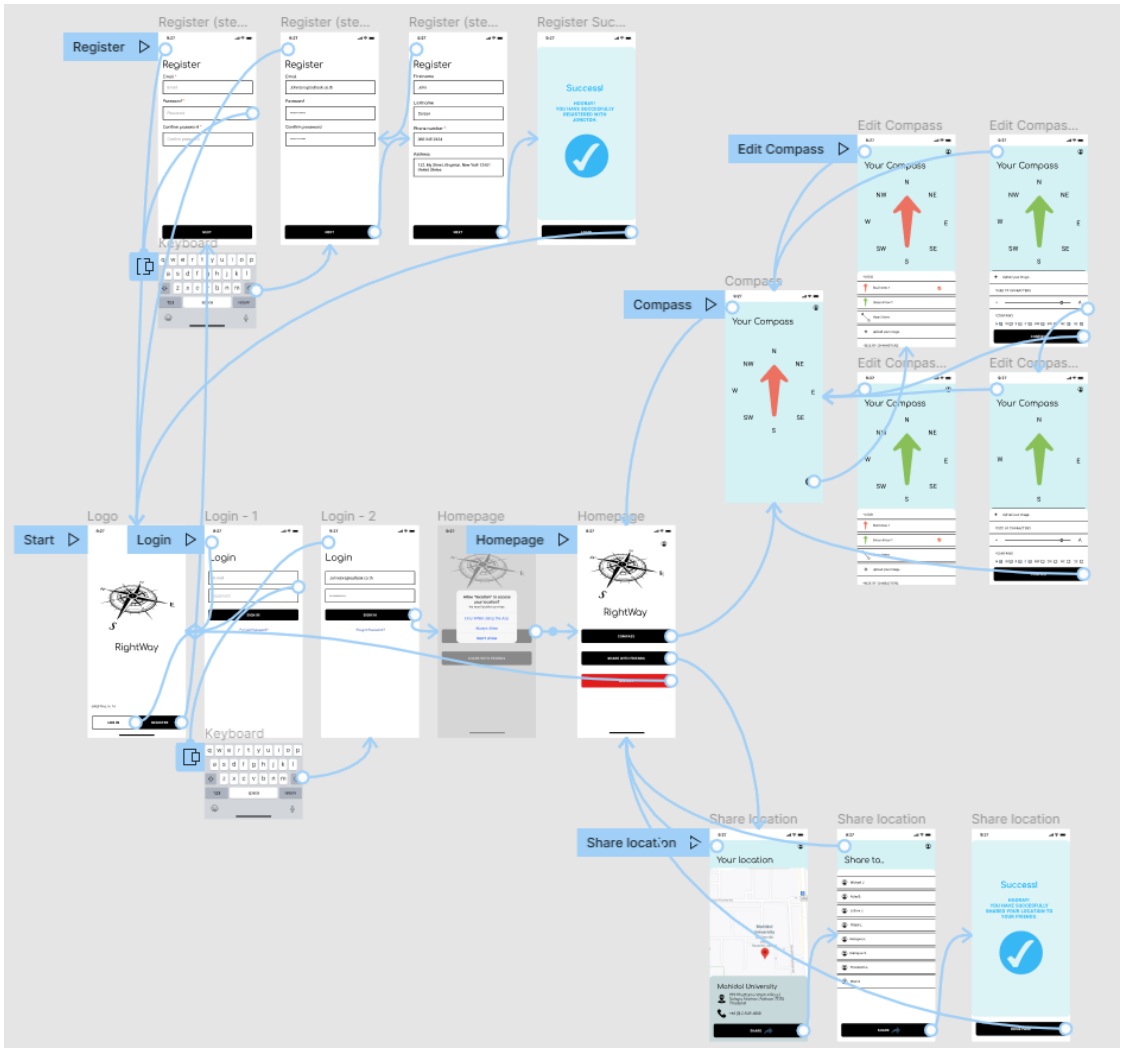


Share with friends Page – 3



3.4.2 **Transition Diagram**





CHAPTER 4
IMPLEMENTATION

4.1 Hardware and System Environment

- Operating System and Utilities Applications
    - Android Operating System – Use the Android studio to simulate the Android smartphone.
- Editor
    - Android Studio – Use for editing the code and running the code
    - Visual Studio Code – Use for editing the code and running the code
- Programming and Scripting Tools
    - Dart language – Use to implement the code to adapt with the android device
- Components
    - Flutter – Use to visualize the program from the dart code and simulate it on the website or Android simulator.

4.2 Implementation Guide and Techniques

4.2.1 Pass Arguments

This method will be able to pass the argument and the context from the first page to the second page when user clicks the button, which means the second page will be able to receive what user clicks.

```
ElevatedButton(
  onPressed: () {
      // When the user taps the button,
      // navigate to a named route and
      // provide the arguments as an optional
      // parameter.
      Navigator.pushNamed(
        context,
        ExtractArgumentsScreen.routeName,
        arguments: ScreenArguments(
                  'RightWays - Compass Application',
                  'The Application that find out the best solution.
                  Choose Right-Way to help you',
        ),
       );
   },
      child: const Text('To our website : Right Way Application'),
),

-------------------------------------------------
MaterialApp(
      routes: {
        ExtractArgumentsScreen.routeName: (context) =>
        const ExtractArgumentsScreen(),
      },
      // Provide a function to handle named routes.
      // Use this function to identify the named
      // route being pushed, and create the correct
      // Screen.
      onGenerateRoute: (settings) {
        // If you push the PassArguments route
        if (settings.name == PassArgumentsScreen.routeName) {
          // Cast the arguments to the correct
          // type: ScreenArguments.
          final args = settings.arguments as ScreenArguments;

          // Then, extract the required data from
          // the arguments and pass the data to the
          // correct screen.
          return MaterialPageRoute(
            builder: (context) {
              return PassArgumentsScreen(
                title: args.title,
                message: args.message,
              );
```

```
            },
          );
        }
        // The code only supports
        // PassArgumentsScreen.routeName right now.
        // Other values need to be implemented if we
        // add them. The assertion here will help remind
        // us of that higher up in the call stack, since
        // this assertion would otherwise fire somewhere
        // in the framework.
        assert(false, 'Need to implement ${settings.name}');
        return null;
      },
      title: 'Right-Way',
      home: const MyStatefulWidget(),
    );
```

4.2.2 **Widget management**

As we want to make our program pleasant to look at, so we add the navigation bar at the bottom, which means user can click to another page by clicking the menu from out navigation bar.

```
bottomNavigationBar: BottomNavigationBar(
        items: const <BottomNavigationBarItem>[
          BottomNavigationBarItem(
            icon: Icon(Icons.home),
            label: 'Home',
            backgroundColor: Color(0xFFAED581),
          ),
          BottomNavigationBarItem(
            icon: Icon(Icons.business),
            label: 'Business',
            backgroundColor: Color(0xFFAED581),
          ),
          BottomNavigationBarItem(
            icon: Icon(Icons.school),
            label: 'School',
            backgroundColor: Color(0xFFAED581),
          ),
          BottomNavigationBarItem(
            icon: Icon(Icons.settings),
            label: 'Settings',
            backgroundColor: Color(0xFFAED581),
          ),
        ],
        currentIndex: _selectedIndex,
        selectedItemColor: Color(0xFF1B5E20),
        onTap: _onItemTapped,
      ),

------------------------------------------------------------
```

```
class _MyStatefulWidgetState extends State<MyStatefulWidget> {
  int _selectedIndex = 0;
  static const TextStyle optionStyle =
  TextStyle(fontSize: 30, fontWeight: FontWeight.bold);
  static List<Widget> _widgetOptions = <Widget>[
    HomeScreen(),
    Text(
      'Index 2: Working on it',
      style: optionStyle,
    ),
    Text(
      'Index 3: Working on it',
      style: optionStyle,
    ),
    Text(
      'Index 4: working on it',
      style: optionStyle,
    ),
  ];

  void _onItemTapped(int index) {
    setState(() {
      _selectedIndex = index;
    });
  }

 …
 …
 …

}
```

GitHub repository link: https://github.com/bigntpl/026_088_flutter.git