

DESIGN PRACTICE

PLANNING & DESIGN DOCUMENT

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INTRODUCTION

ParkIt is a cutting-edge online platform that aims to encourage safer cycling and sustainable transportation for Dublin residents, with a particular emphasis on college students. In order to encourage more individuals to choose cycling as their major means of transportation, ParkIt was created to make riding more accessible and secure. It does this by providing real-time information about safe bicycle parking places throughout Dublin. ParkIt aims to lessen reliance on cars and promote a healthier, greener city in line with **Technological University Dublin's (TU Dublin) strategic intent** to support sustainable urban life and enhance environmentally friendly transportation. ParkIt actively supports the Sustainable Development Goals of the UN, particularly **Goal 11 (Sustainable Cities and Communities)** and **Goal 13 (Climate Action)**, by enabling safer parking options. By providing crucial information on safe parking alternatives, such as CCTV coverage, illumination, and accessibility to important locations, the platform empowers users and promotes a cycling culture that supports Dublin's climate action objectives. We're encouraging a generation to embrace sustainable mobility in Dublin and creating a safer cycling environment with ParkIt. This is the Design & Planning Document for the project, which includes the Discover, Define and Develop phase of the **Design Council's Double Diamond Design Process**. The document is structured in a way that the entire idea of the mobile first web app is illustrated in great detail. The work was completed with the help of various online and offline sources, which are mentioned in the bibliography of this document.

SECONDARY RESEARCH

OVERVIEW

The secondary research was conducted using a specific research methodology. Research being on of the most important part of User Experience Design, it was meticulously conducted in various steps like surveys, literature review and interviews.

The resources referenced in this specific project are:

- United Nations Sustainable Development Goals
- TFI Smarter Travel Initiative
- NTA Household Travel Survey
- TU Dublin Student and Staff Travel Survey
- TU Dublin's Commitment to Environmental Responsibility
- Double Diamond Design Process of the Design Council

The above conducted research was synthesized into data for development through various methods like:

- Literature review from various sources
- Discussion among peers
- Class work adding up to 7 weeks
- Guest Speakers
- Personal research from various sources
- Interviews in campus
- Benchmarking
- Stakeholder mapping

BEHAVIORAL ANALYSIS

In the NTA Household Survey, five main types of information were captured which allow for the interpretation of the data across different demographics (e.g. age, gender, principal economic status and geographical regions).

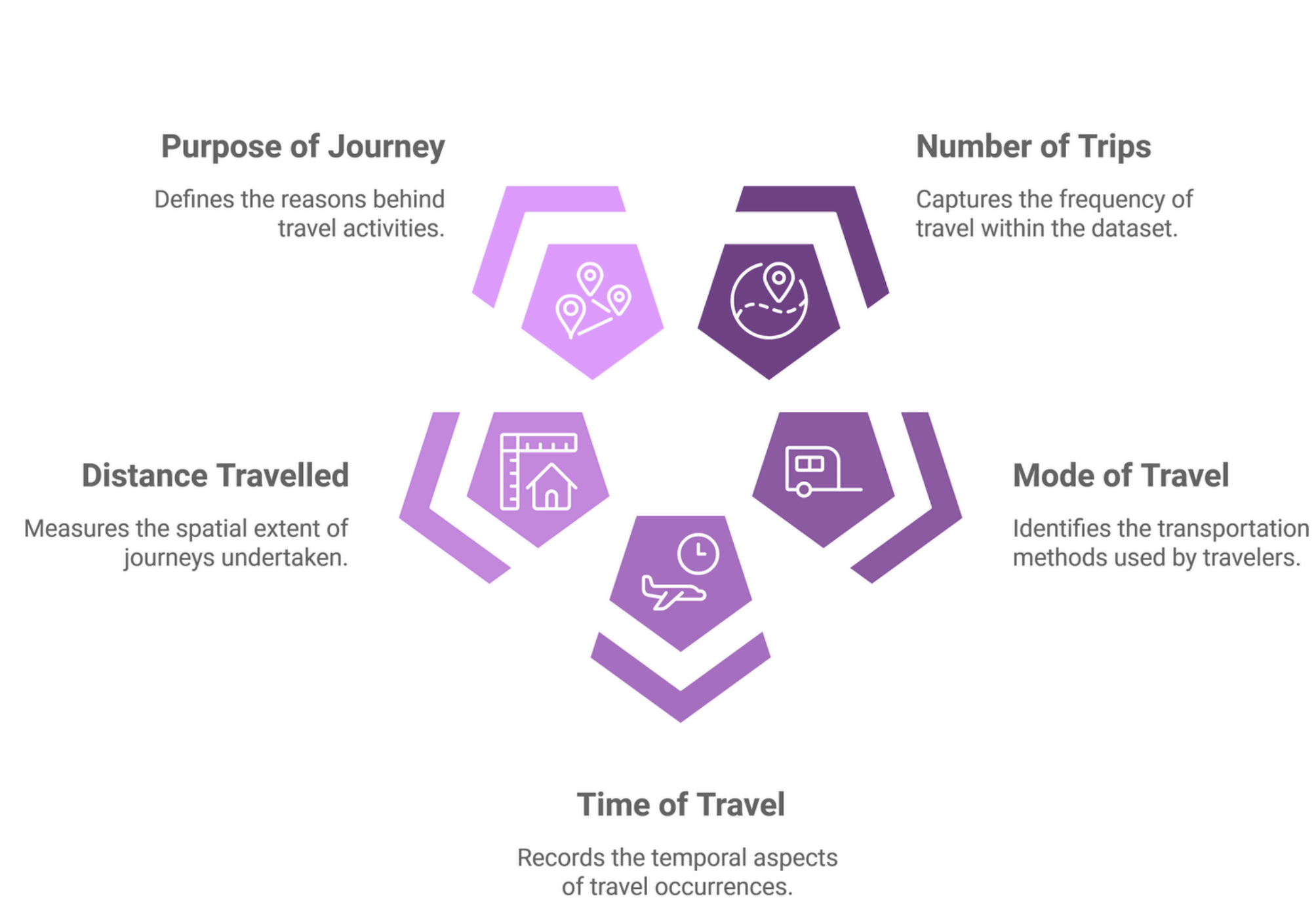


fig 1.1: factor- 1

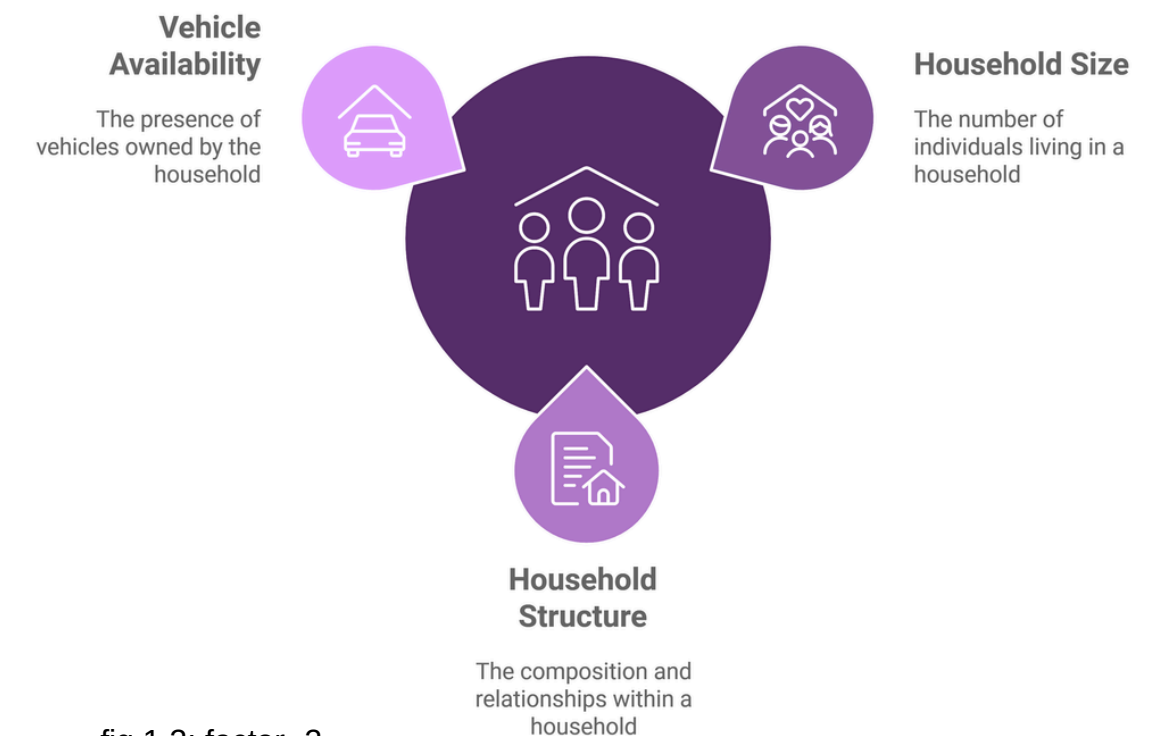


fig 1.2: factor- 2

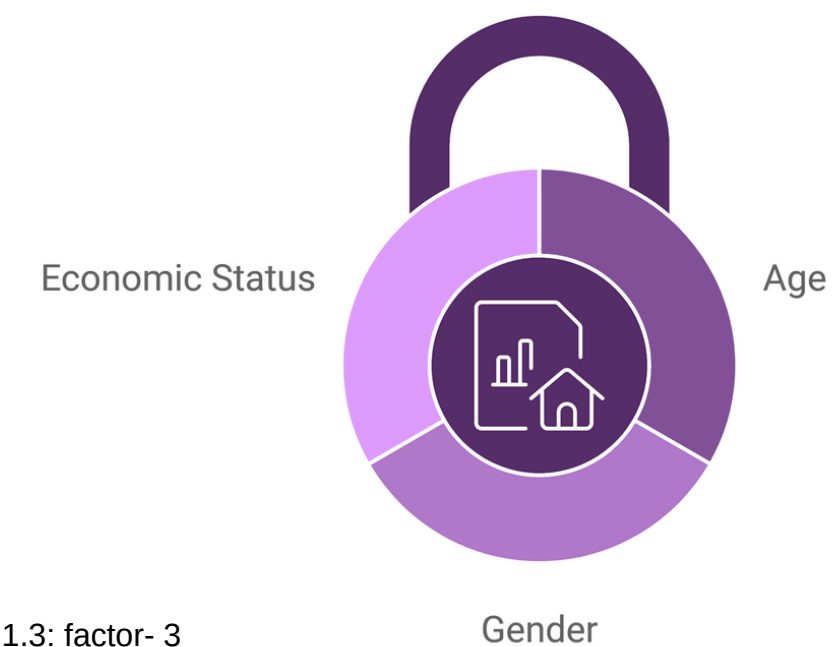


fig 1.3: factor- 3

KEY FINDINGS

MODE OF TRANSPORT

- The national picture is one of frequent car usage. Almost 7 in 10 (69%) of trips taken nationally are by car.
- Walking is the next most popular mode of transport, accounting for 19% of trips.
- Trips taken by bus/coach are at 4% overall. Cycling registers at 2%.
- Trips taken by train/DART/Luas are at 1%.

TIME OF DAY

- Nationally, there is a clear peak in travel during the 'morning rush', which happens between 8 – 8.59am with 12% of all trips taking place during this period.
- In the following hour, travel volumes halve to 6%. For each hour between 10am and 12.59pm volumes remain relatively steady at 5% to 6%.
- Volumes begin to increase at 1pm and range from 7% to 9% hourly until 7pm when volumes decline again.
- The period between 1pm and 6.59pm accounts for 46% of trips

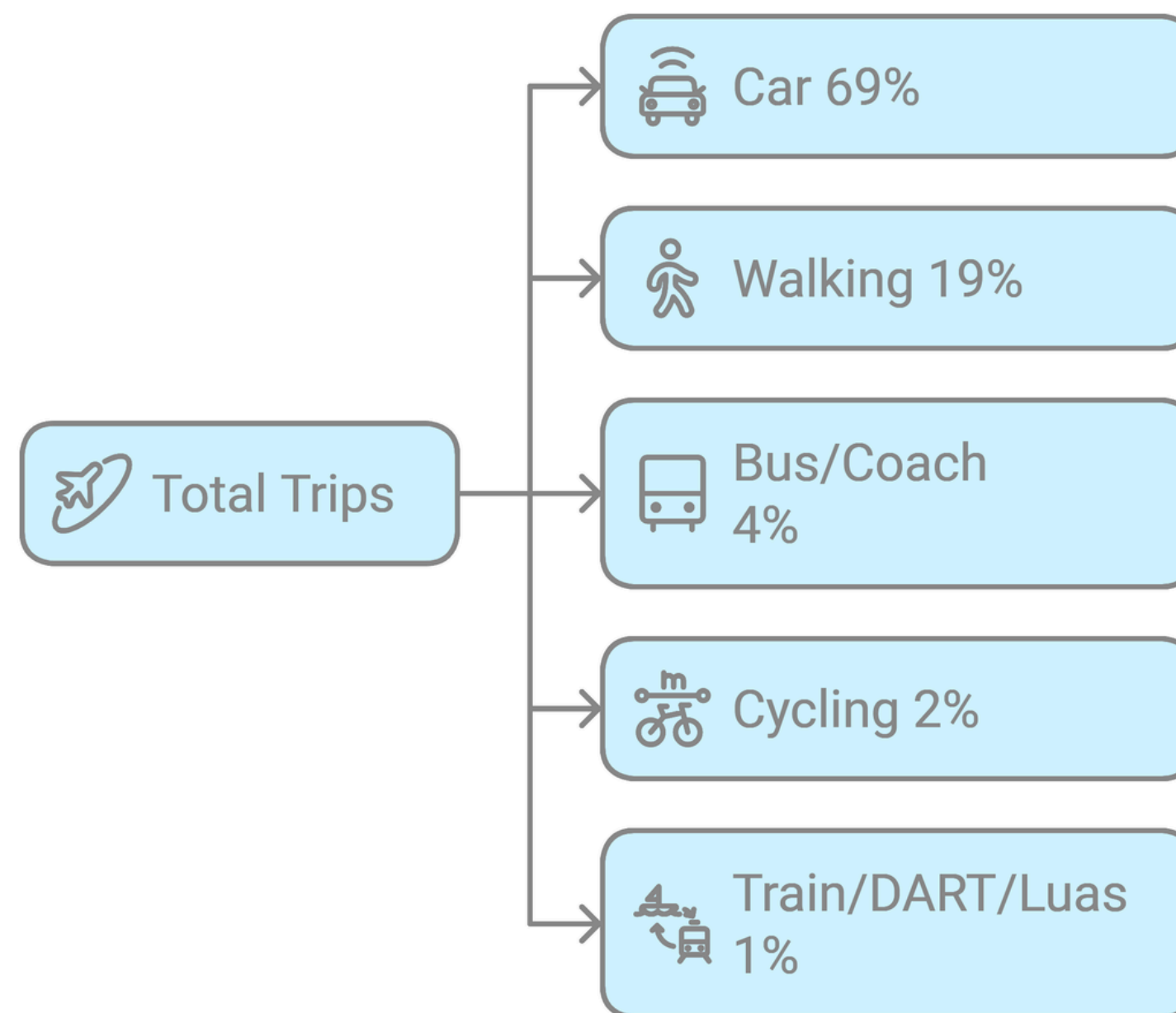


fig 1.4: Mode of transport

KEY FINDINGS

- Nationally cars are the go-to mode of transport, 7 in 10 (69%) of all trips were by car.
- Walking is used as a mode of transport for almost one in five trips. Comparatively low rates of public transport usage are recorded at the national level – 4% for bus/coach and 1% for train/DART/ Luas reflecting the fact that these services are not universally available and are dependent on location.
- Cycling accounts for 2% of all trips taken.
- When it comes to time of day of travel, hourly trip volumes peak at 12% between 8am and 8.59am and the period between 1pm and 6.59pm accounts for 46% of trips.
- Work/business (20%) and education (19%) are the top two reasons for travel, closely followed by social reasons (18%) and shopping (17%).
- Nationally, 76% of trips taken took less than 30 minutes, with those taking one hour or more accounting for 7% of all trips.
- Car is the most common mode of transport used across all age groups.
- Those aged 15-34 are most likely to walk at 25%.
- Bus/coach usage is highest among 15-24 year olds at 12%

Distribution of Travel Reasons

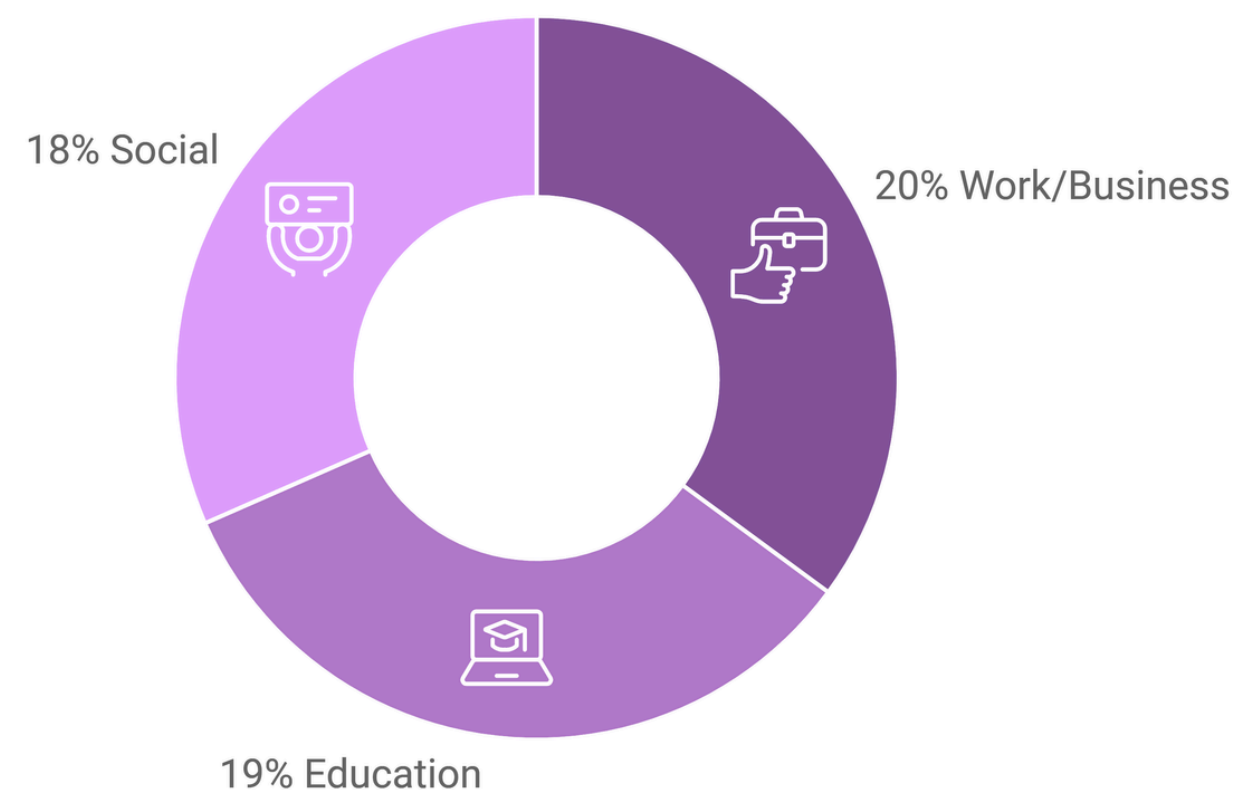


fig 1.5: Major travel reasons

KEY FINDINGS

In the TU Dublin student and staff survey of 2022, the data on the percentage of cyclists in all the campuses were taken. This is shown in the chart below.



fig 1.6: TU Cyclists

BENCHMARKING

The process of comparing a product or service's relative performance to a meaningful standard using measurements is known as benchmarking. Typically, surveys, analytics, or quantitative usability testing are used to gather these metrics. I have used 2 types of this process, a summary table and a dedicated page. The summary table is to compare and contrast while the dedicated page gives a closer look into a selected few choices which feels valuable to our research. In this case, anything related to bikes. So I first did an overall study on the existing sustainable measures all around the world and created a benchmark based on that, and then made one based in Dublin.

Sustainable travel and tourism initiatives on a global scale (Summary Table)

Category	Metrics	Examples
Energy Efficiency	Renewable energy use (%), CO2 emissions reduction	Soneva Fushi, LEED-certified hotels
Waste Reduction	Plastic-free options, waste diverted from landfills (%)	Hurtigruten Cruises, Marriott water stations
Local Economic Impact	Local revenue retention (%), community training programs	G Adventures Ripple Score, CBT in Thailand
Transportation Emissions	CO2 emissions per passenger-kilometer, SAF adoption rates	Eurostar, Lufthansa, KLM
Certification Standards	Compliance with standards (e.g., B Corp, LEED, Green Key)	Intrepid Travel, Green Key hotels

table 1.1: Sustainable initiatives Global

BENCHMARKING

Sustainable travel and tourism initiatives, Dublin based(Summary Table)

Initiative	Description	Impact Focus	Notable Features	Partners/ Operators
dublinbikes*	A shared bike scheme enabling easy, low-cost bike rentals across the city.	Emission reduction	Three-day pass with free trips under 30 minutes	City of Dublin
Phoenix Park Bikes*	Bike rental within Phoenix Park to explore extensive cycle paths.	Conservation, local tourism	14km of trails, compostable packaging at Phoenix Café	Phoenix Park Bikes, Phoenix Café
Howth Market & Hiking	Sustainable local market and scenic hiking trail at Howth Head, accessible by public transport.	Support for local producers	6km hiking loop, artisan food stalls	DART (Irish Rail), Howth Market
Green Hospitality Programme	Certification program for hospitality businesses committed to reducing carbon, waste, and water usage.	Resource efficiency, waste reduction	Comprehensive green guidelines for hotels	Green Hospitality Ireland
Airfield Estate	Urban farm and gardens focused on organic produce and farm-to-fork dining experiences.	Biodiversity, local food	Guided walks, organic garden, local food workshops	Airfield Estate
Smart Tourism Programme	A model integrating data and digital tools for sustainable tourism management, promoting local culture and eco-friendly initiatives.	Digital innovation, local culture	Mobile apps for discovery trails and smart navigation	Smart Dublin, Dublin City Council

table 1.2: Sustainable initiatives Dublin

*Will have a dedicated page

Dublinbikes - A dedicated page taking a closer look into dublinbikes.ie



img 1.1: dublinbikes.ie

Overview

- Launch Year: 2009
- Managed by: Dublin City Council with JCDecaux
- Primary Goal: Reduce traffic congestion and carbon emissions in the city

Infrastructure and Accessibility

- Bike Stations: Over 100 docking stations throughout central Dublin, accessible to residents tourists.
- Bike Fleet: Approximately 1,600 bicycles.
- Key Locations: Popular landmarks, public transport hubs, and busy.

Environmental and Urban Benefits

- Emission Reduction: Promotes cycling, which helps reduce the city's carbon footprint.
- Traffic Reduction: Reduced traffic in Dublin, decreasing congestion in key areas of the city.
- Promotion of Healthy Lifestyle: Providing a means of exercise that is integrated into daily commuting for residents and tourists.

Challenges and Solutions

- Overuse at Popular Stations: Stations experience high demand during peak hours. Regular redistribution is necessary.
- Maintenance: Routine maintenance is necessary, and the app has a feedback system for reviews and complaints.

Recognition and Impact

- Success Rate: Regular users with high user satisfaction and steady growth.
- Benchmark for Sustainable Travel: Serves as a model for other cities trying to implement sustainable transit options and makes a strong case to Dublin's reputation as an eco-friendly city

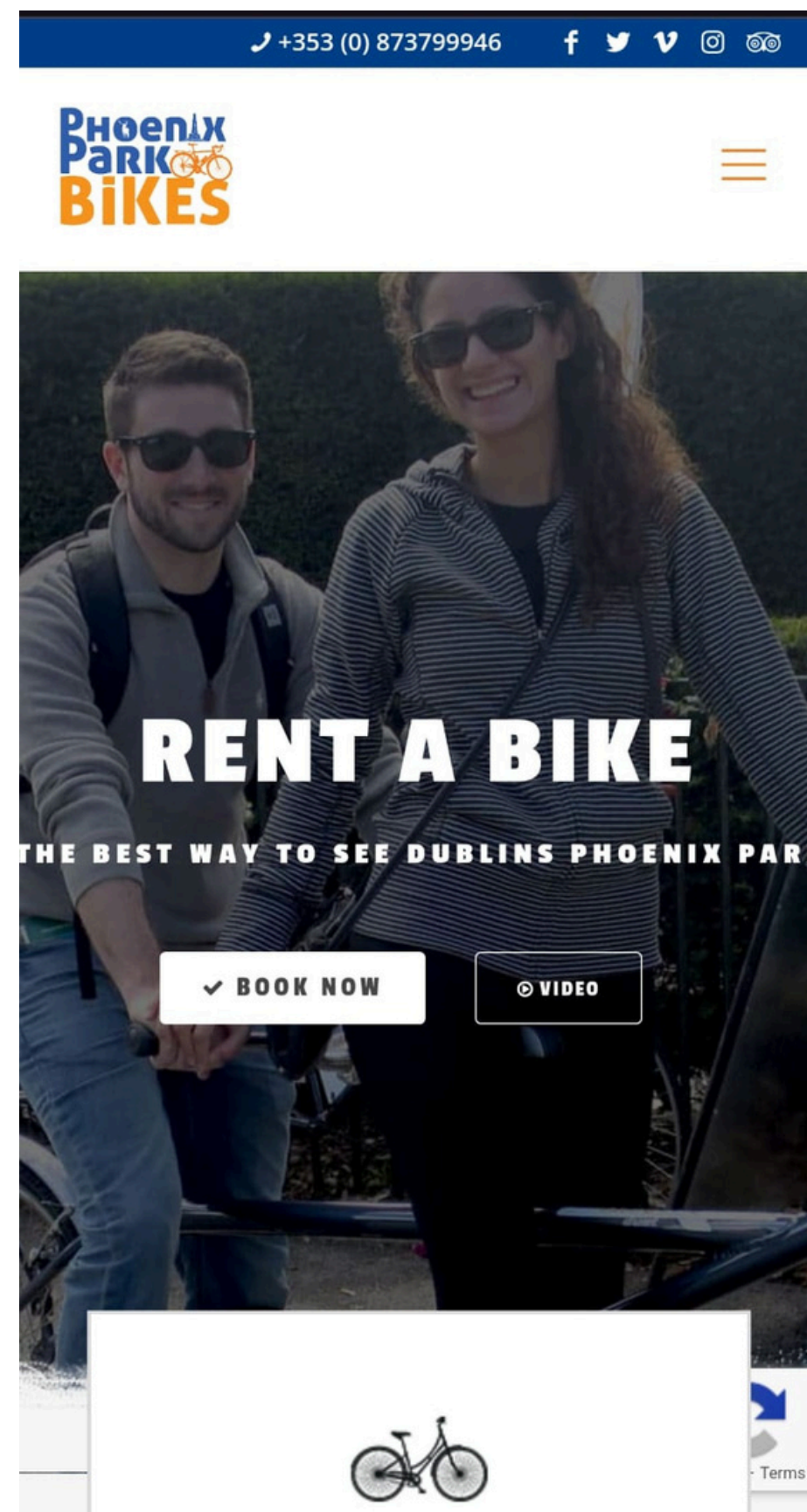
Expansion and Enhancements

- System Upgrades: Larger fleet, addition of new stations around newly developed urban areas.

Website

<https://www.dublinbikes.ie/en/home>

Phoenix Park Bikes - A dedicated page taking a closer look into phoenixparkbikes.com



img 1.2: phoenixparkbikes.com

Overview

- Launch year: 2015
- Phoenix Park Bikes is a bike rental service in Phoenix Park, Dublin.
- Encourages eco-friendly tourism by providing a sustainable medium of transit through the park.
- Fleet includes standard bikes, tandems, electric bikes, and kids' bikes.

Accessibility

- Available at convenient locations within Phoenix Park.
- Affordable price, with hourly and daily rates.
- Both drop-in's and reservations are possible.

Park Exploration

- Promotes active tourism and healthy lifestyle, access to 14 kilometers of cycle paths.
- Paths runs through Dublin Zoo, Presidential Residence, and historical sites within the park.

Environmental Impact

- Reduces vehicle emissions inside park, helping Dublin's sustainable tourism goals.
- Encourages minimal-impact tourism, reducing footpath wear and preservation natural habitats.

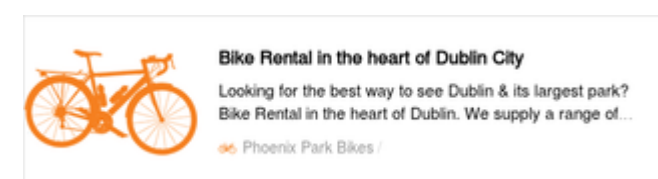
Collaboration and Promotion

- Works with Dublin's city tourism boards to promote eco-friendly transit.
- Health benefits of cycling and the park's cultural significance is the highlight of the marketing campaign.

Visitor Experience

- Additional services: Guided tours.
- Dublin Cycling Buddy app provides route information, safety tips, and paths for cyclists inside the park.

Website



STAKEHOLDER MAPPING

A stakeholder map is a tangible or visual depiction of the different people and organizations that are associated with a certain problem or system—the stakeholders of your design process. We have used the circles of influence method here to show the impact these stakeholders can have on our user according to our research. The circles of influence method shows the user in the centre and circles surrounding that showing the effect of the impact decreasing as it moves further away from the user.

Circles of Influence

This stakeholder map shows the circles of influence each of these groups have on a cyclist in the city of Dublin.

- The first circle show the primary stakeholder, the Cyclist or in this case 'The User'.
- The one around it shows the groups with the most influence on the said 'User', this includes drivers, pedestrians, security etc..
- The next circle shows the groups with direct influence on the cyclist, like the TFI, or the other authorities and service providers.
- The last circle shows the groups with least influence on the cyclists in terms of daily travel. In this case the City Council, even though the decisions taken by them impact the user, it doesn't have a direct influence on the user behavior, in a way it changes the course of action.

LEGEND

- Primary
- Core
- Direct
- Indirect

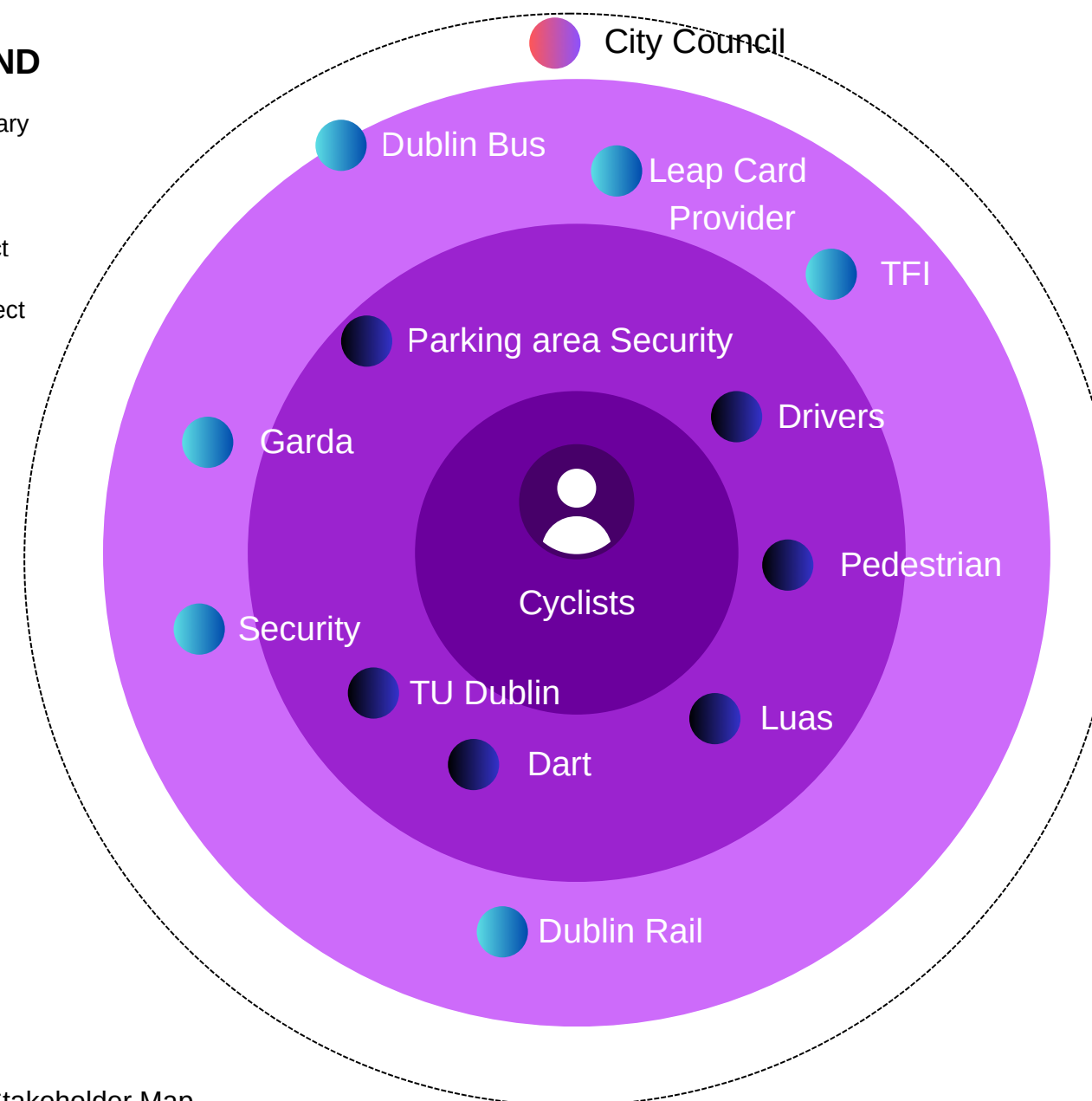


fig 1.7: Stakeholder Map

CAUSAL MODEL

A broad range of formal techniques for illustrating and supporting conclusions on causal links are collectively referred to as "causal modeling." This helps us understand the relationship between each factor in the said design and shows us a simple diagram that eliminates a huge hassle in terms of explaining the said factors.

The goal of this web based app is to improve cyclists' access to safe parking spots.

- **Primary Outcome:** Safe and secure parking spots for cyclists.
- **Secondary Outcome:** Increased cyclist satisfaction and app adoption.

To Achieve these outcomes, we have certain factors that we need to consider, they are:

- Availability of Parking spaces
- Location
- Safety Factors
- User Demand
- Time of Day and Season

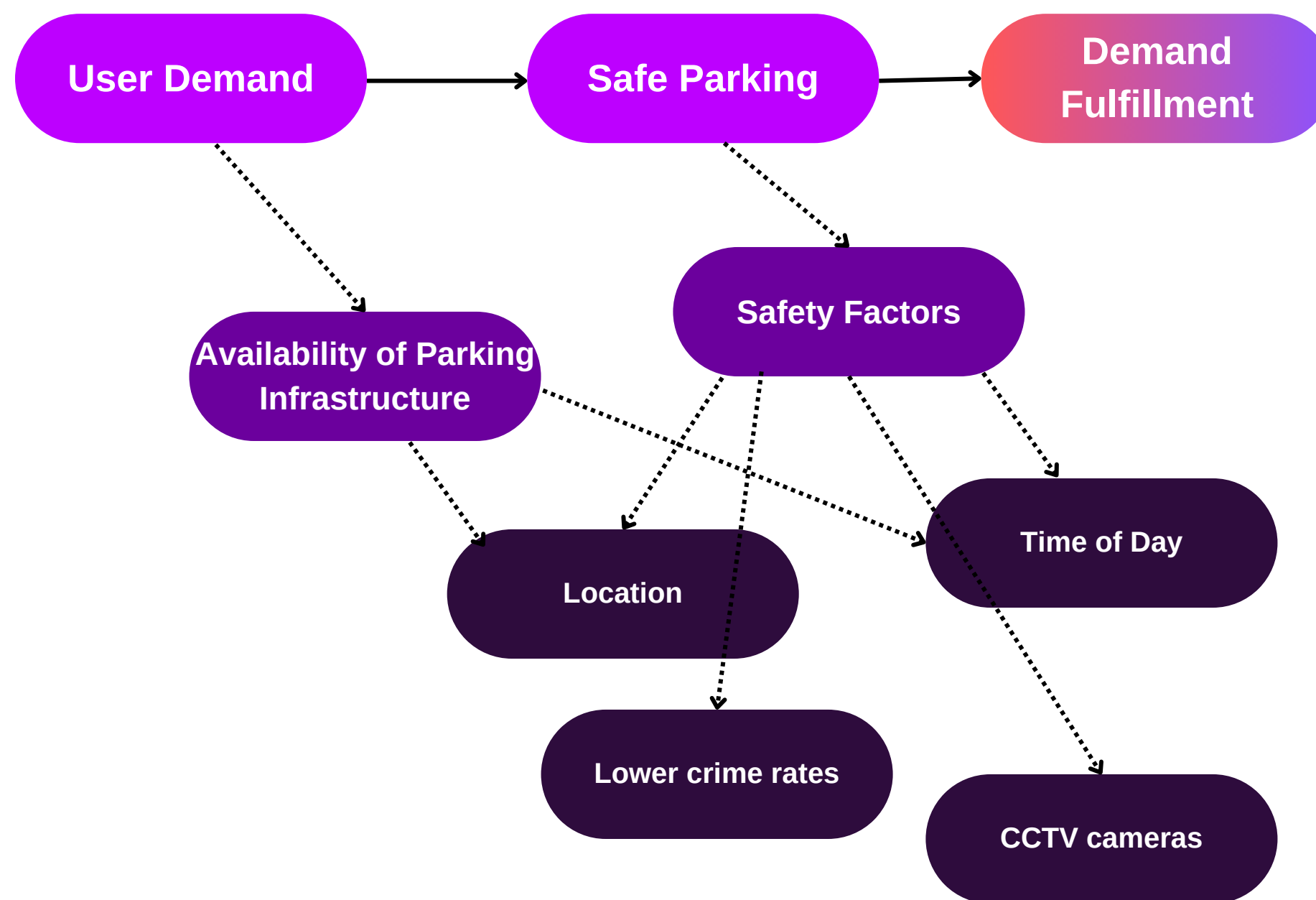


fig 1.8: Causal Model

JOURNEY MAP: THE CYCLIST

A journey map is a type of UX visualization document that shows the steps a user takes to achieve a goal. Information from stakeholder and user interviews is used to construct personas. We are using the journey mapping technique to map out “the cyclist’s” transit from home to TU Dublin, Grangegorman Campus.

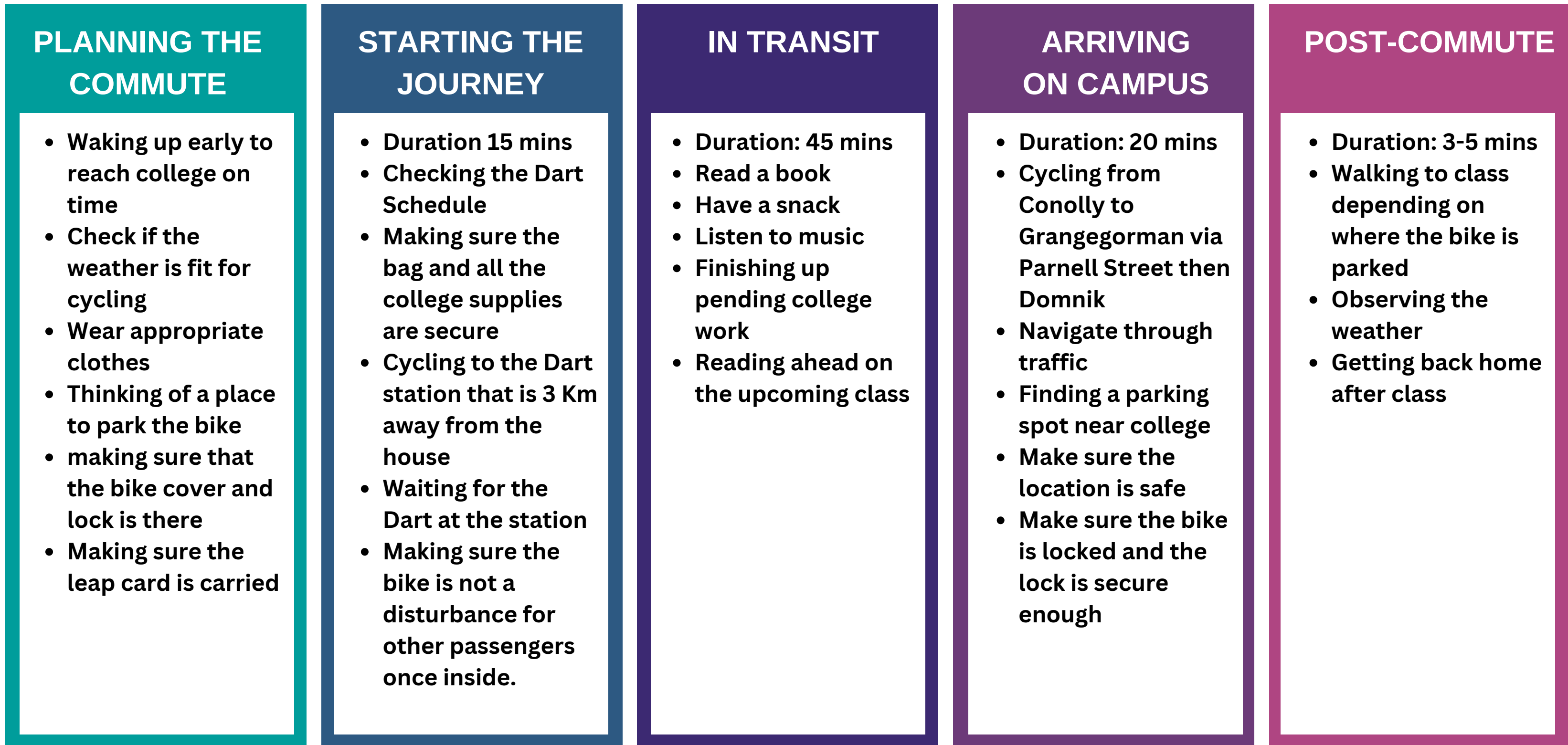


fig 2.1: Journey Map

DESIGN BRIEF

Problem Statement : How might we encourage and make it easier for students and staff to choose cycling as mode of transport to campus and other parts of the city?

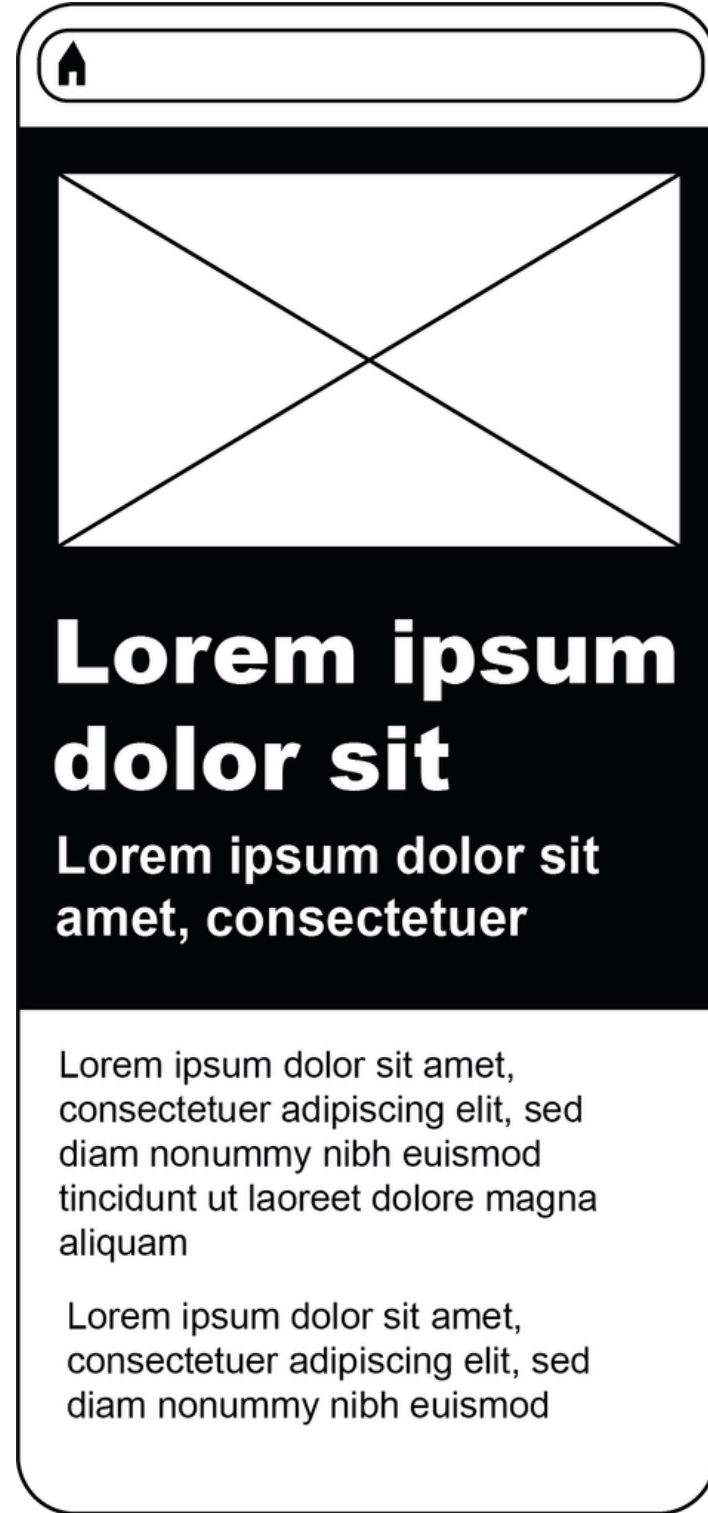
Design Hypothesis : If we design a bike parking service with improved safety and security in convenient locations, then we will lower the environmental impact of transportation and encourage students, staff, tourists and residents to take up cycling as a preferred mode of transit, because cycling is a 100 percent eco-friendly mode of transport. This will help reduce emissions and promote a healthier population.

REFERENCE SAMPLES

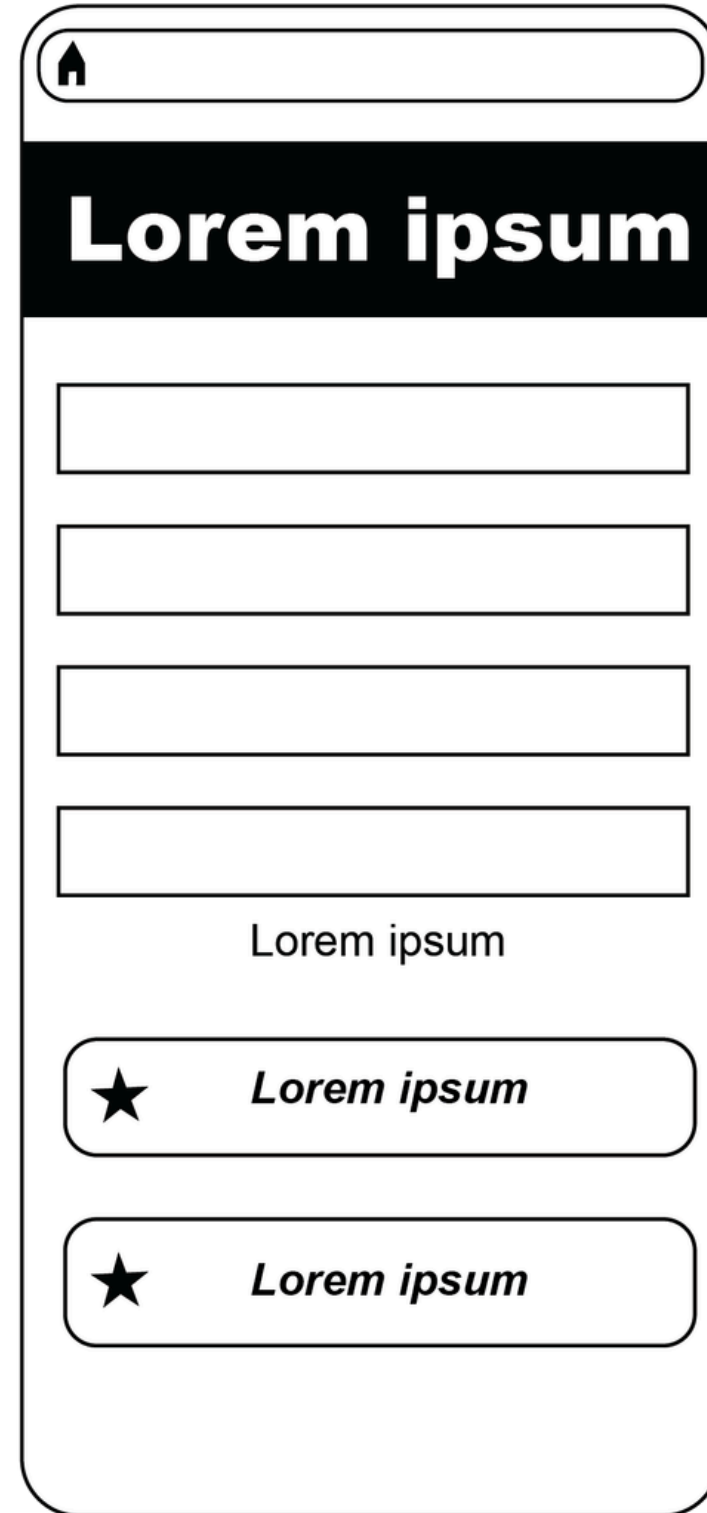


img 3.1: Reference samples

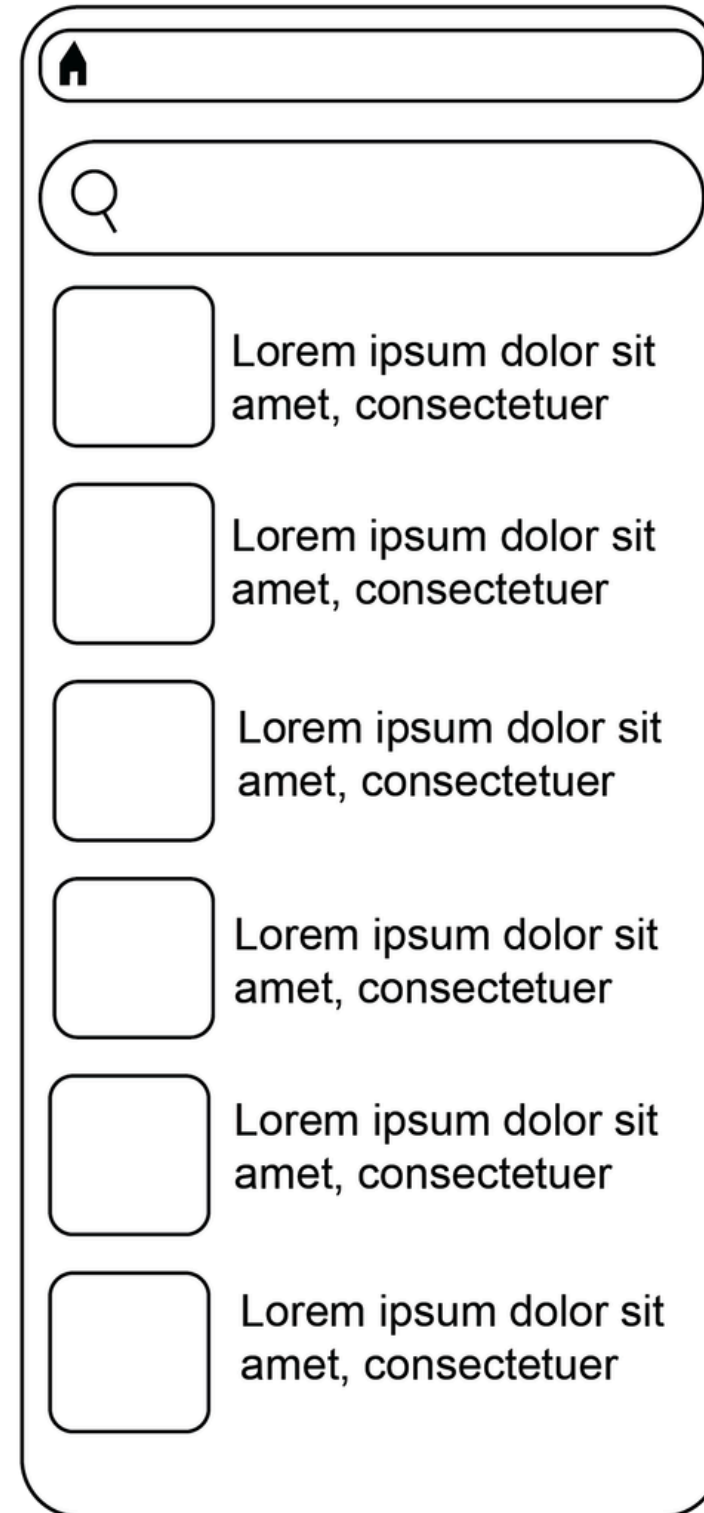
SKETCHES



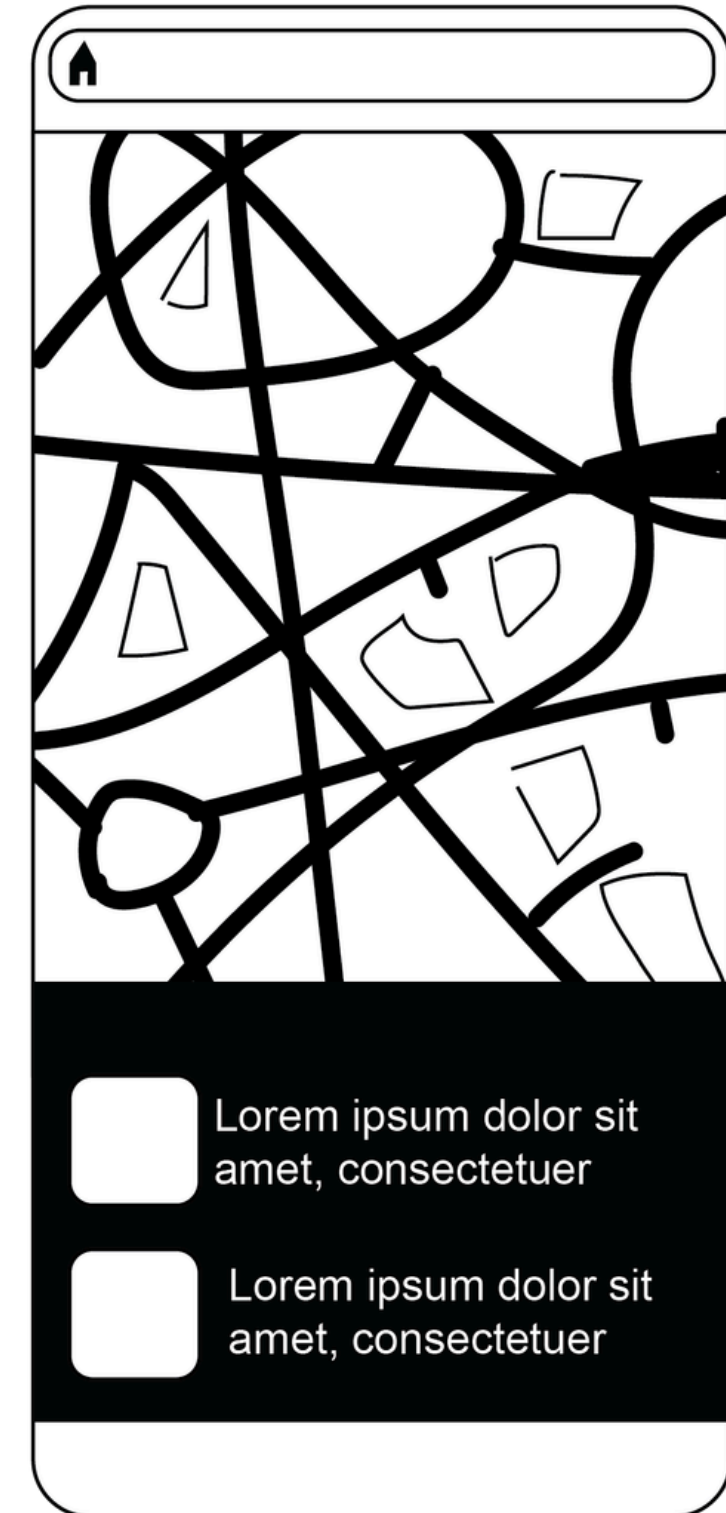
HOME SCREEN



SIGNUP



COLLEGE SEARCH



MAP

img 3.2: Sketches

Logo

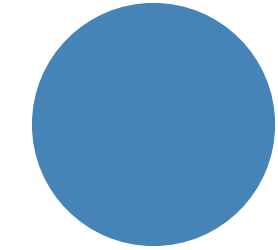
PRIMARY LOGO



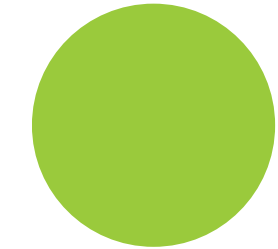
img 3.3: Logo-Main

COLOUR BOARD

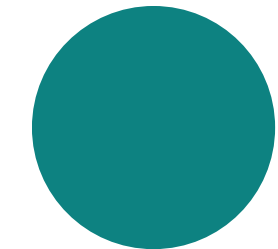
#4783B5



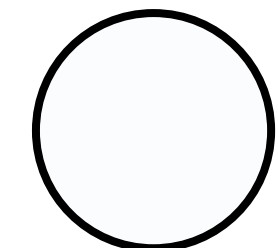
#9ACA3C



#008080



#FAFAFA

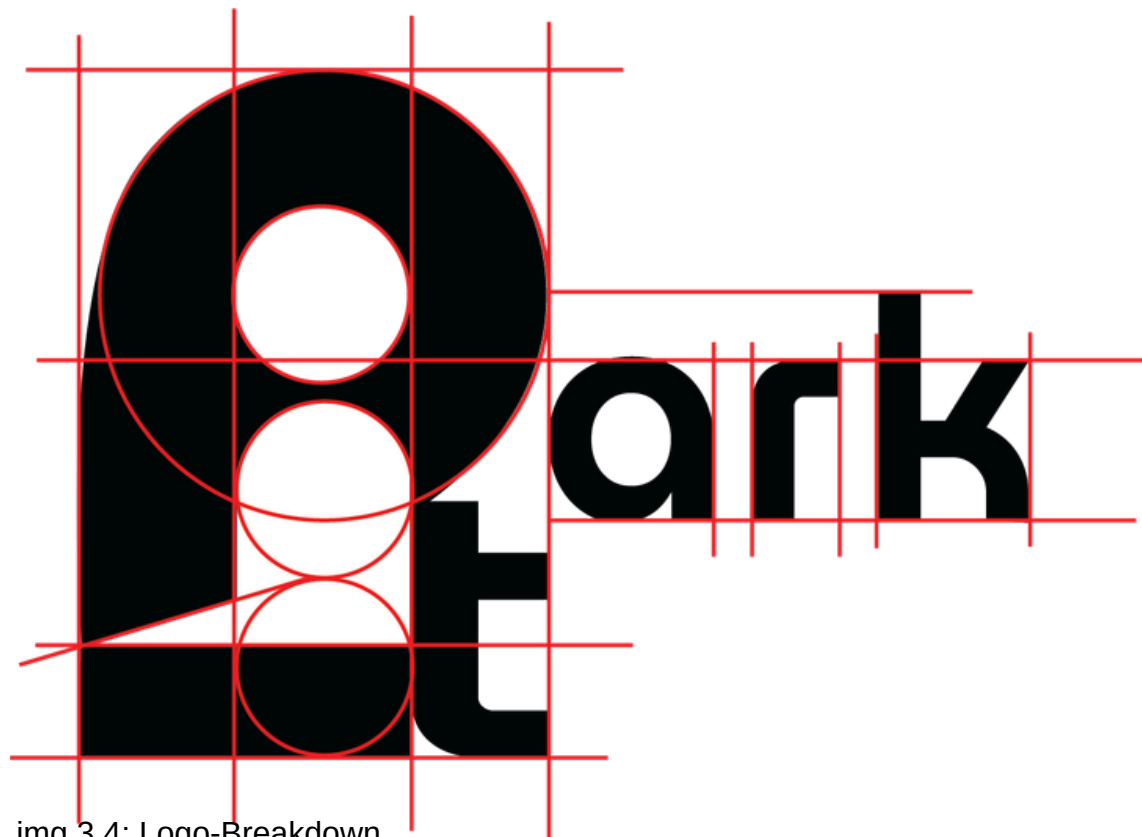


TYPE FACE

Museo Moderno Semi bold

LOGO BREAKDOWN

The logo is designed by taking into consideration of the principles of design. I did some brainstorming with name of the brand and the idea of having a location icon as the logo. Using negative space I was able create an illiusion of a user icon. I used gestalt for this particular process. The logo incorporates a tilted location icon that a 'P' and the user Icon as an 'i'. The colours chosen depict the brand and ideology of sustainablity and nature. The inspiration for the colour board was the ocean with hues of blue and green. The entire logo is made according to the golden ratio, hence it brings harmony to the design. The images here shows a breakdown and grid, a submark for icons, a black and white logo for black backgrounds, a word mark in the Museo Moderno typeface, and a legibility check for web and phone.



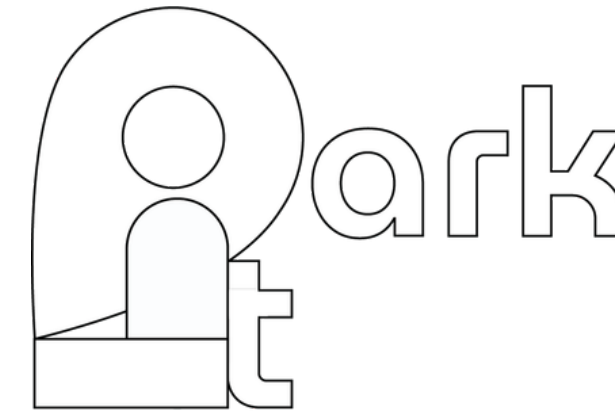
img 3.4: Logo-Breakdown

SUBMARK



img 3.5: Logo-Submark

B&W



img 3.6: Logo-B&W

WORDMARK



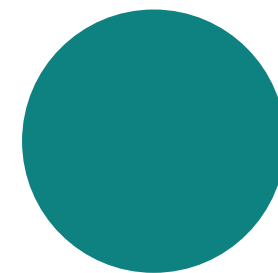
img 3.7: Logo-Wordmark

LEGIBILITY

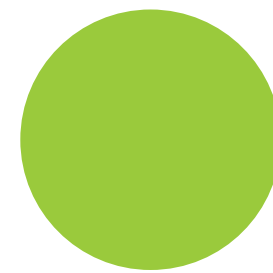


img 3.8: Logo-Legibility

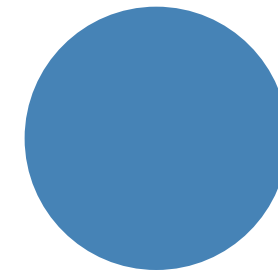
BRAND BOARD



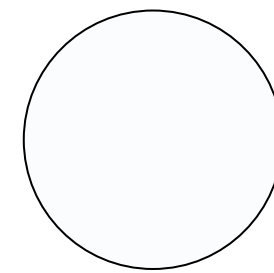
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#9ACA3C



#4783B5



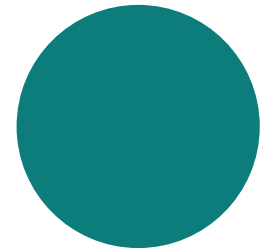
#FAFAFA



img 3.9: Branding Kit

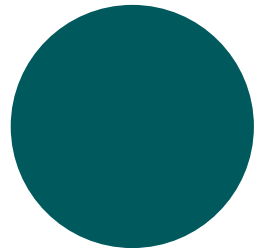
COLOUR

PRIMARY TEAL (Coelia Greenshade)



#0D7D7C

DEFAULT



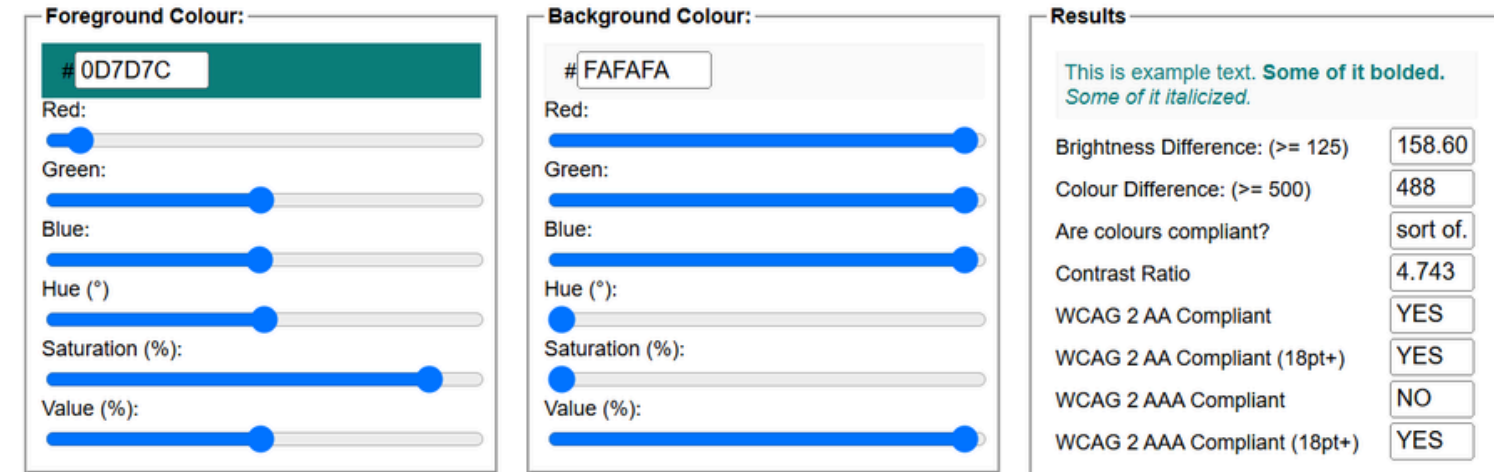
#00595C

HOVER

- Primary Buttons
- Hyperlinks

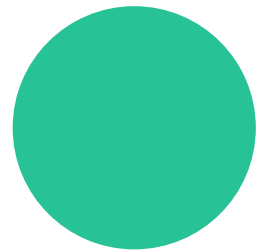
RGB: 5.1% red | 49% green | 48.6% blue

CMYK: 90% cyan | 0% magenta | 1% yellow | 51% black



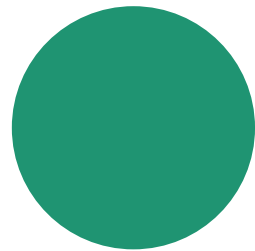
img 3.10: Primary colour contrast check

SECONDARY GREEN (Vegan)



#27C396

DEFAULT



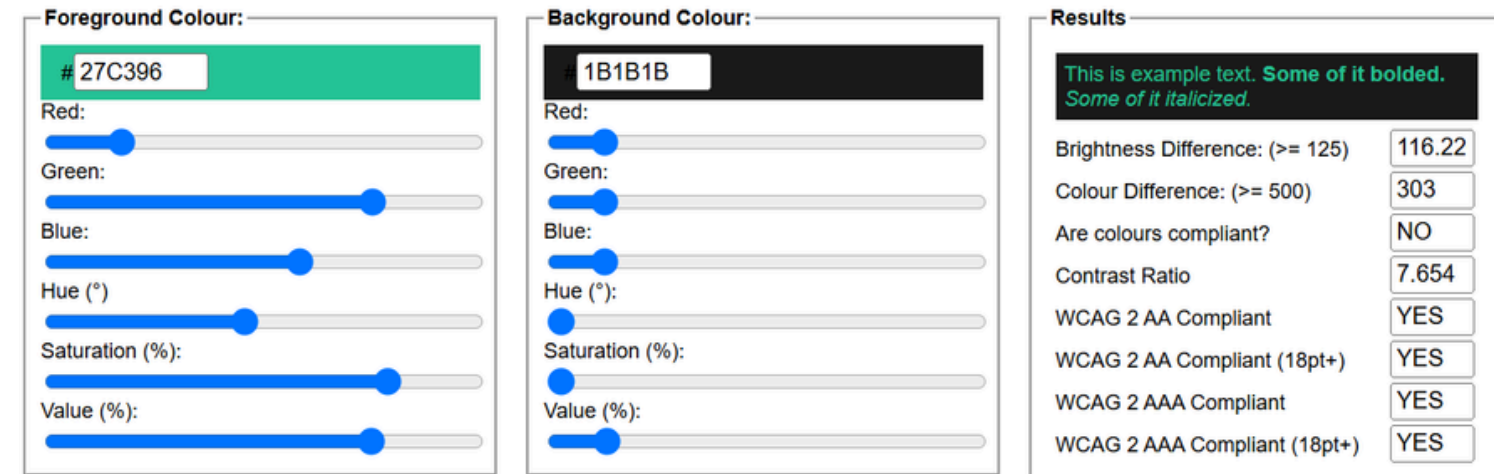
#1F9472

HOVER

- Highlights
- Secondary Buttons

RGB: 15.3% red | 76.5% green | 58.8% blue

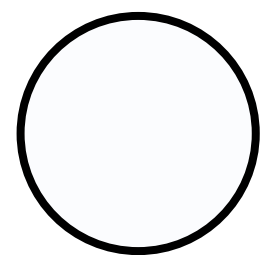
CMYK: 80% cyan | 0% magenta | 23% yellow | 24% black



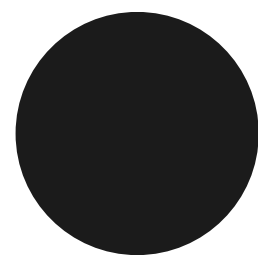
img 3.11: Secondary colour contrast check

COLOUR

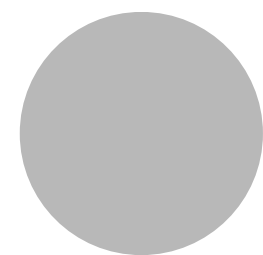
NEUTRALS



#FAFAFA



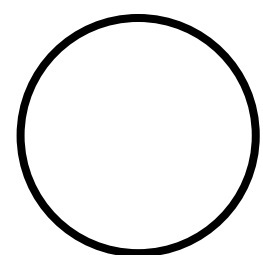
#1B1B1B



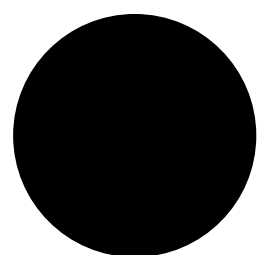
#B8B8B8

- Background
- Dividers

TEXT COLOURS



#FFFFFF



#000000

PROCESS

- The harmony of colours was achieved through the analogous style. The selected colours have an analogous relationship on the colour wheel. This selection was based on the minimalistic design principle which is an attractive style for a website.
- The chosen colours are in the green to blue spectrum, this is to bring about an emotion of an ocean reef, which in turn matches with the theme of sustainability.

TYPOGRAPHY

- The typefaces chosen for the website has a modern feel, the fonts are sans-serif.
- The brand and headings are in Museo Moderno typeface which has a sleek modern look and it has rounded corners. This reflects brand as it is the theme all around.
- The body text is in Roboto. This was chosen as it a native font for android and as an avid android user, this will be easier for me in my testing phase.

BRAND Museo Moderno Bold 36 px

BRAND

HEADING 1 Museo Moderno Bold 36 px

Heading 1

HEADING 2 Museo Moderno Regular 30 px

Heading 2

BODY TEXT 1 Roboto 16 px

Body text 1

BODY TEXT 2 Roboto 21 px

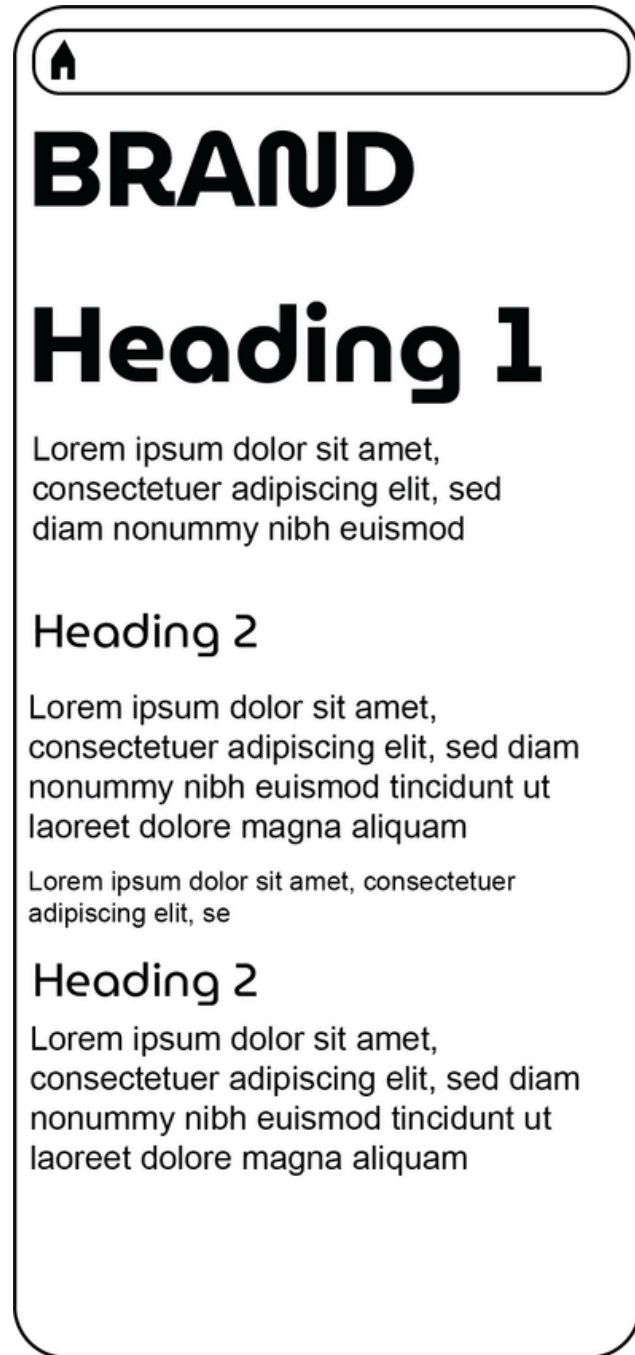
Body text 2

BODY TEXT 3 Roboto 12 px

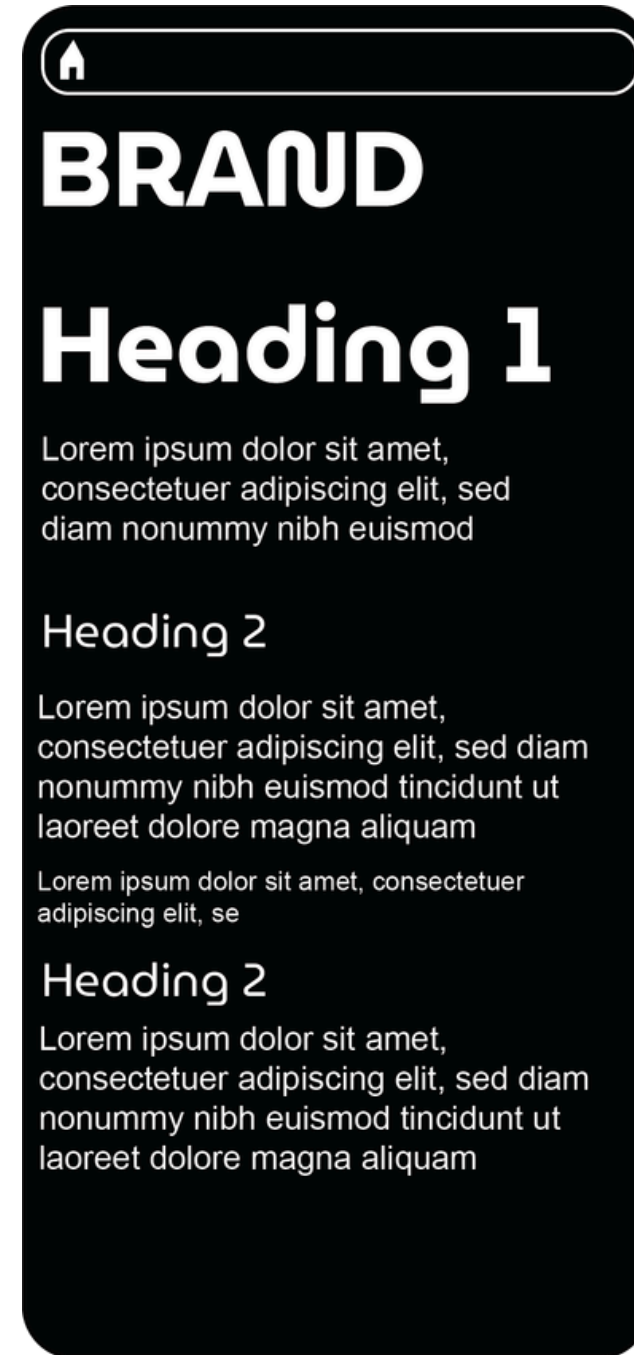
Body text 3

TYPOGRAPHY

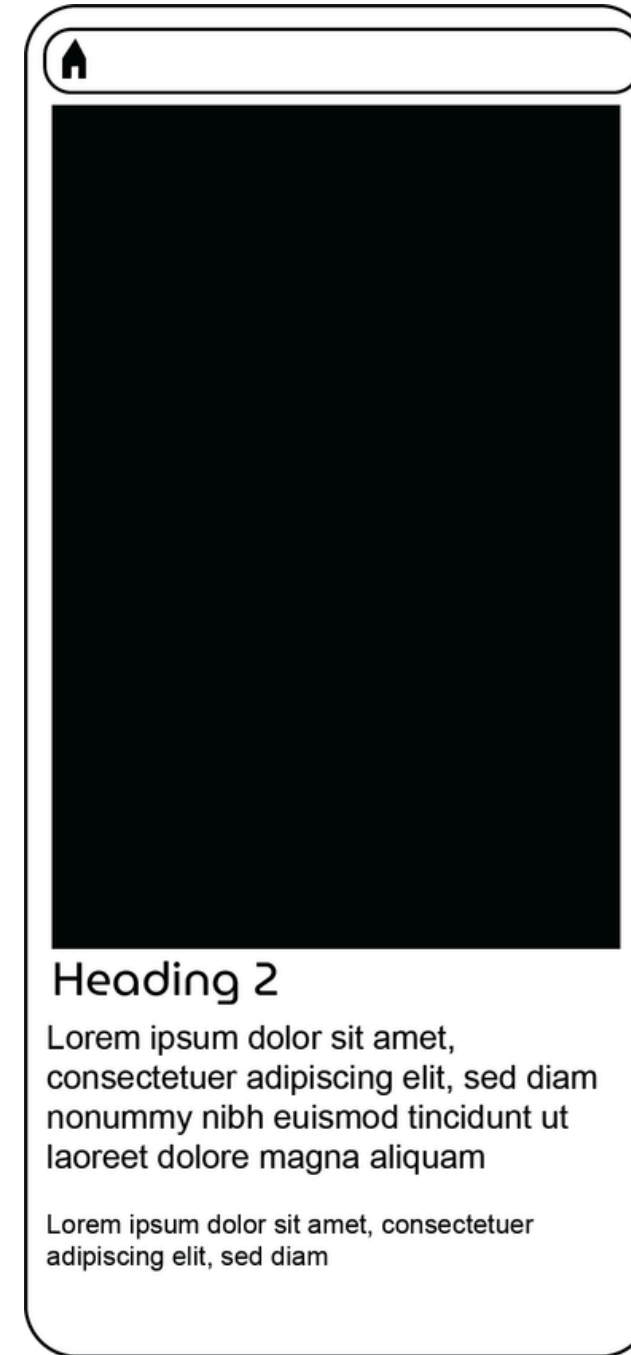
Legibility



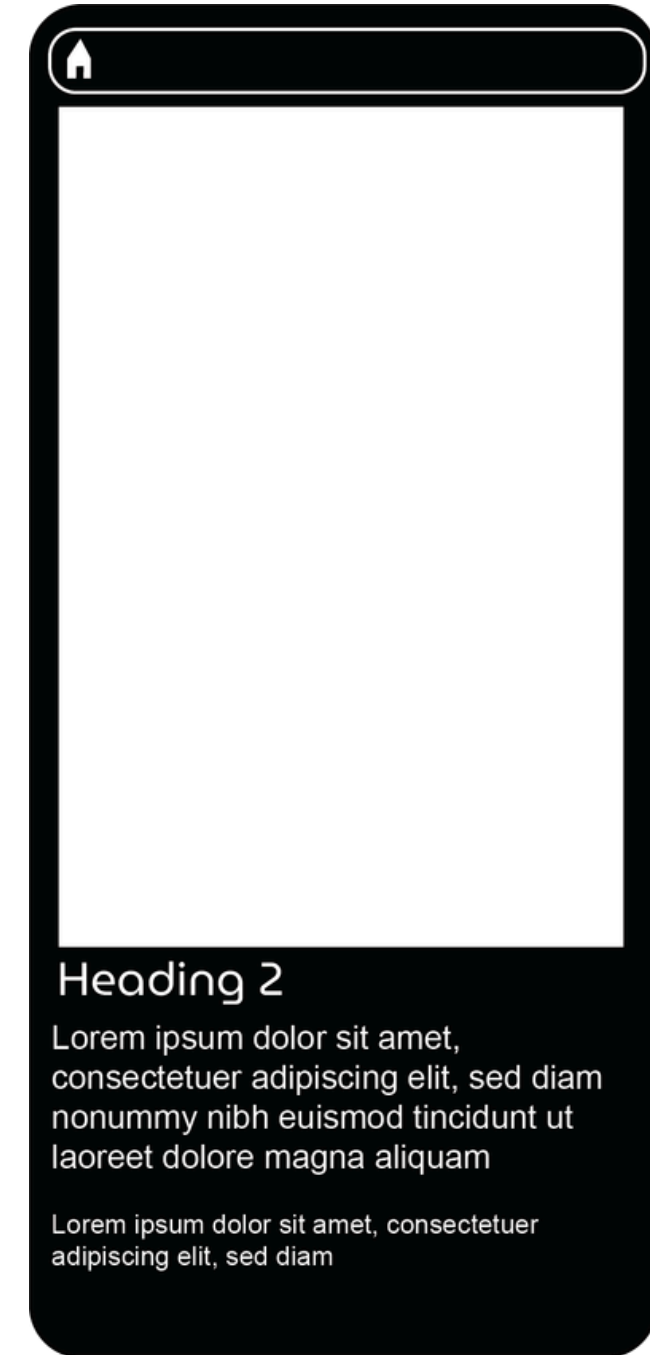
Light Mode



Dark Mode



Light Mode
with image

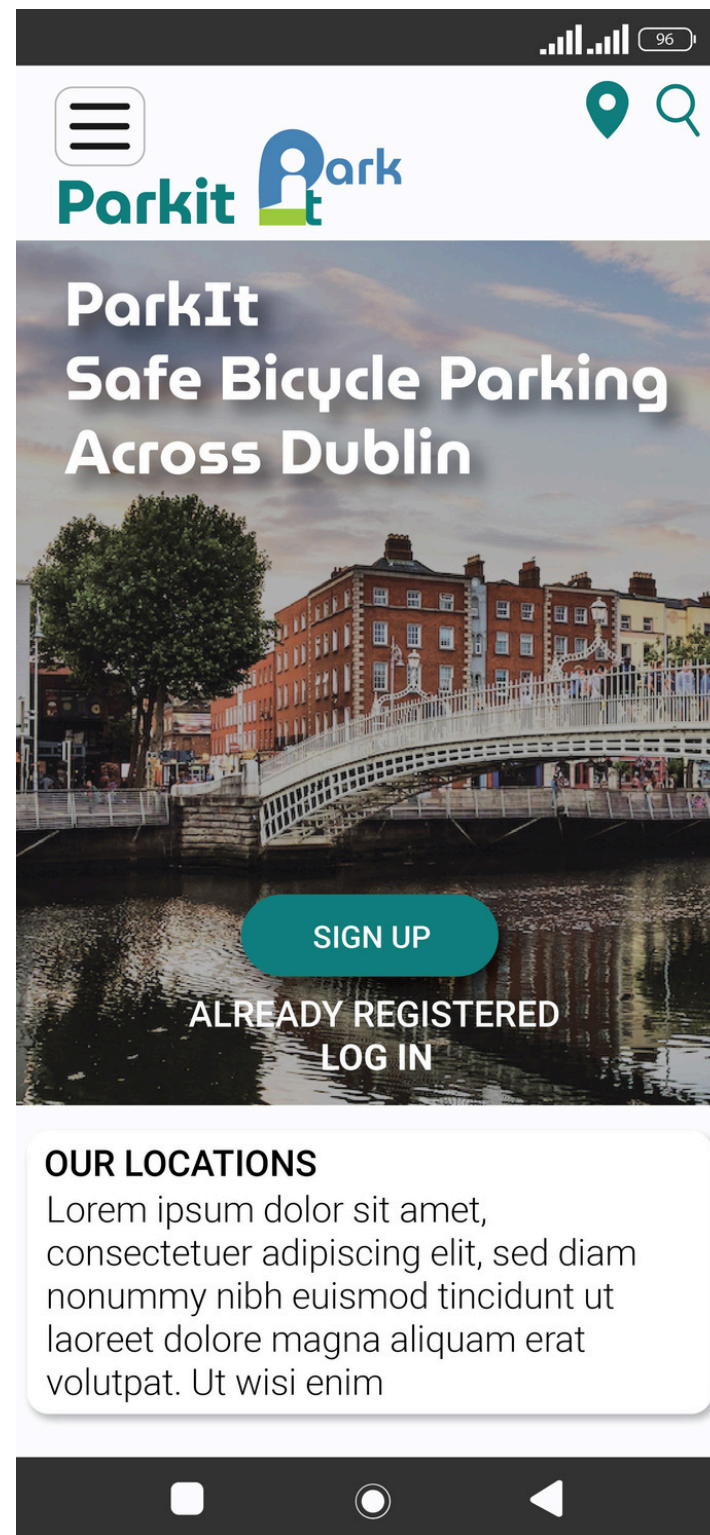


Dark Mode
with image

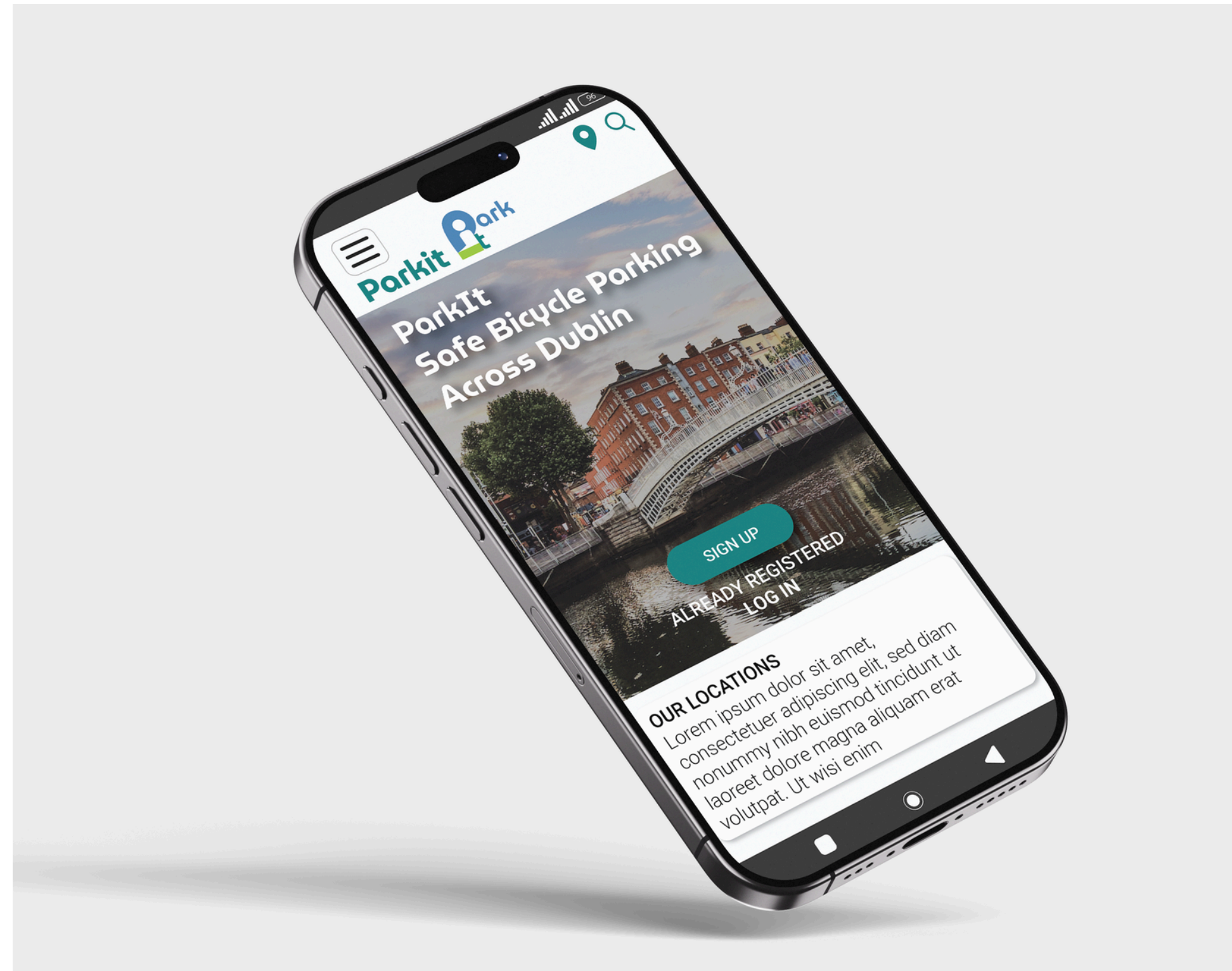
img 3.12: Legibility check

MOCKUP

Screen 1- Landing Page



img 3.13: Landing page - Screen



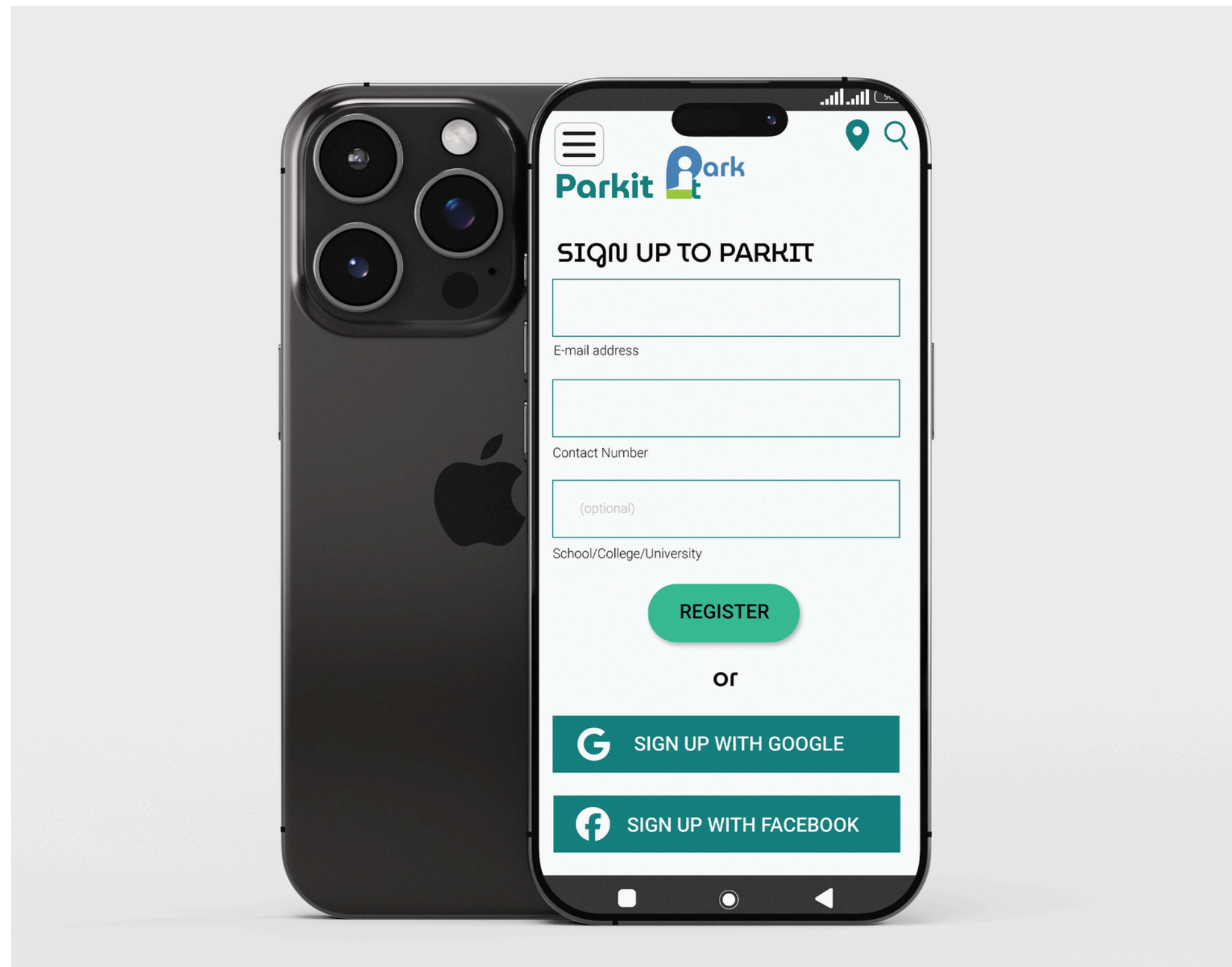
img 3.14: Landing page - Mockup

MOCKUP

Screen 2- Sign-up Page

A flat design mockup of the sign-up page. At the top left is a hamburger menu icon, followed by the 'Parkit' logo. To the right are location and search icons. The main heading is 'SIGN UP TO PARKIT'. Below it are three input fields: 'E-mail address', 'Contact Number', and an optional field for 'School/College/University'. A green 'REGISTER' button is centered below the fields. Below the button is the word 'or'. At the bottom are two buttons: 'SIGN UP WITH GOOGLE' and 'SIGN UP WITH FACEBOOK'. The bottom of the screen shows a standard Android navigation bar.

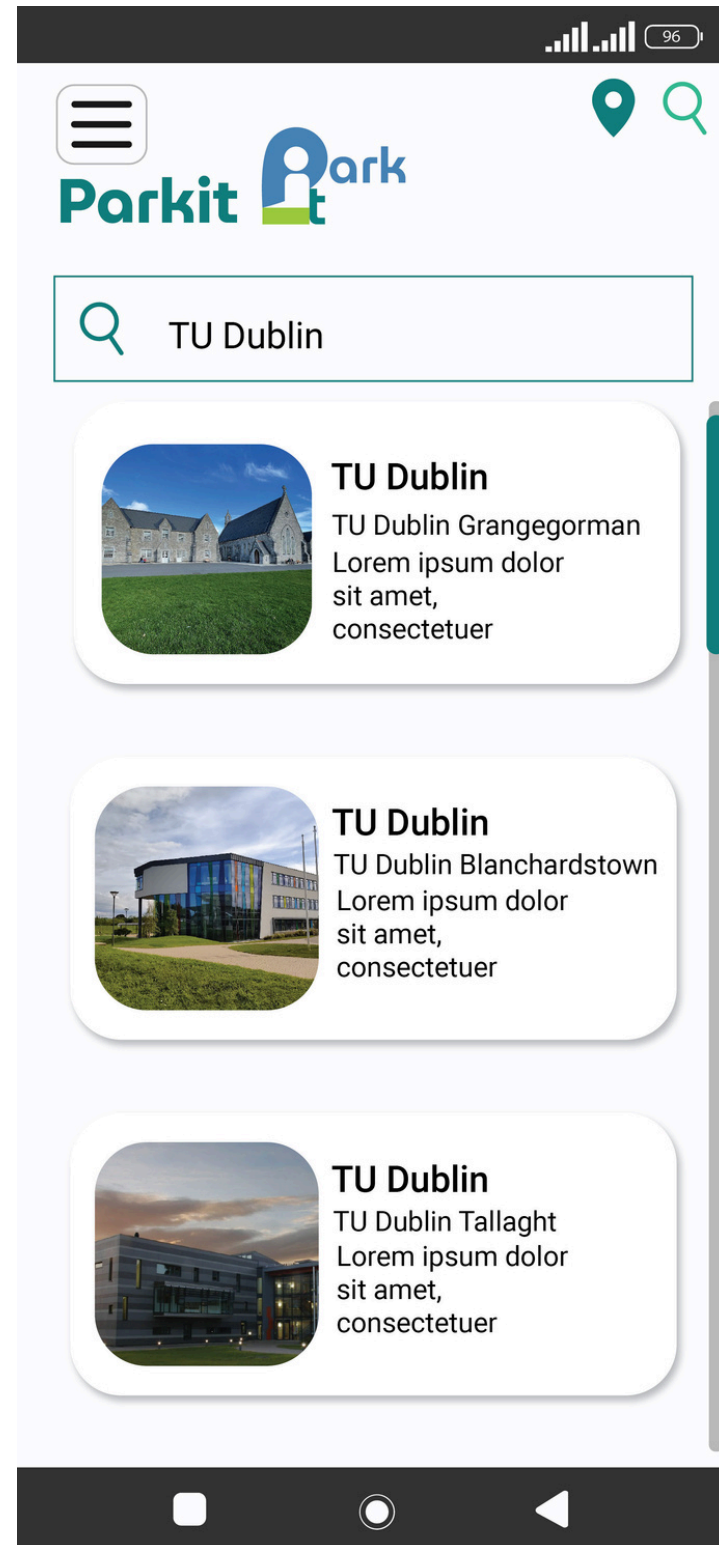
img 3.15: Sign-up page - Screen



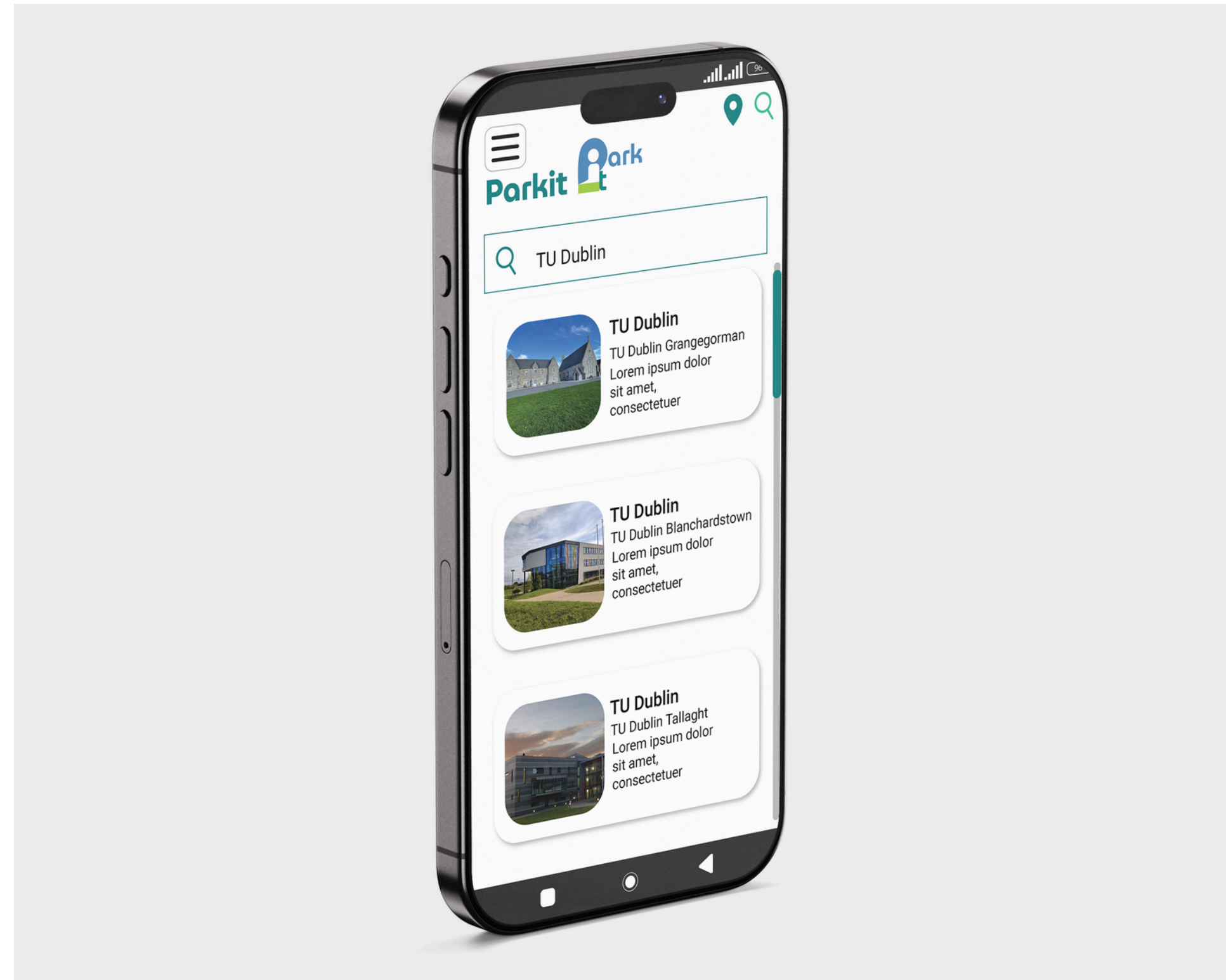
img 3.16: Sign-up page - Mockup

MOCKUP

Screen 3- Search Page



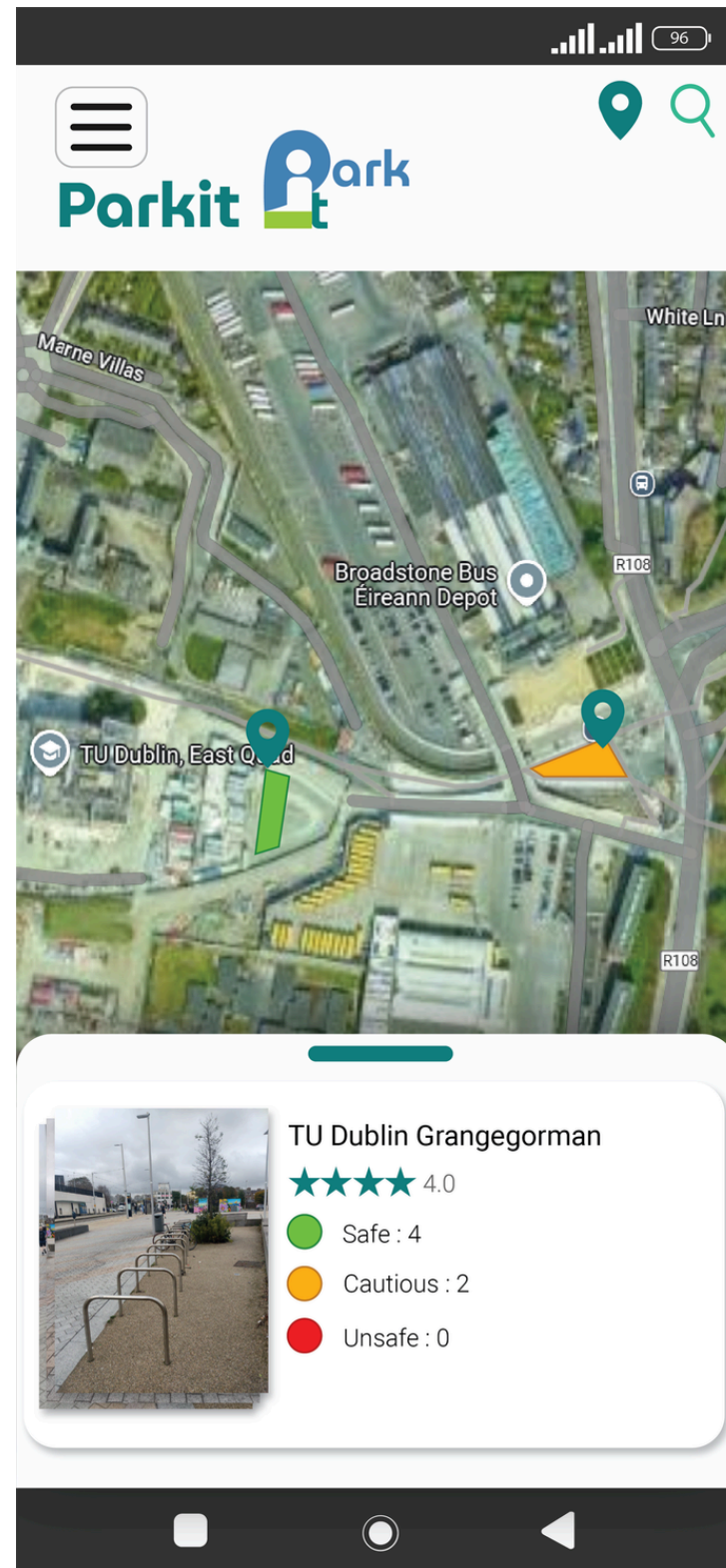
img 3.17: Search page - Screen



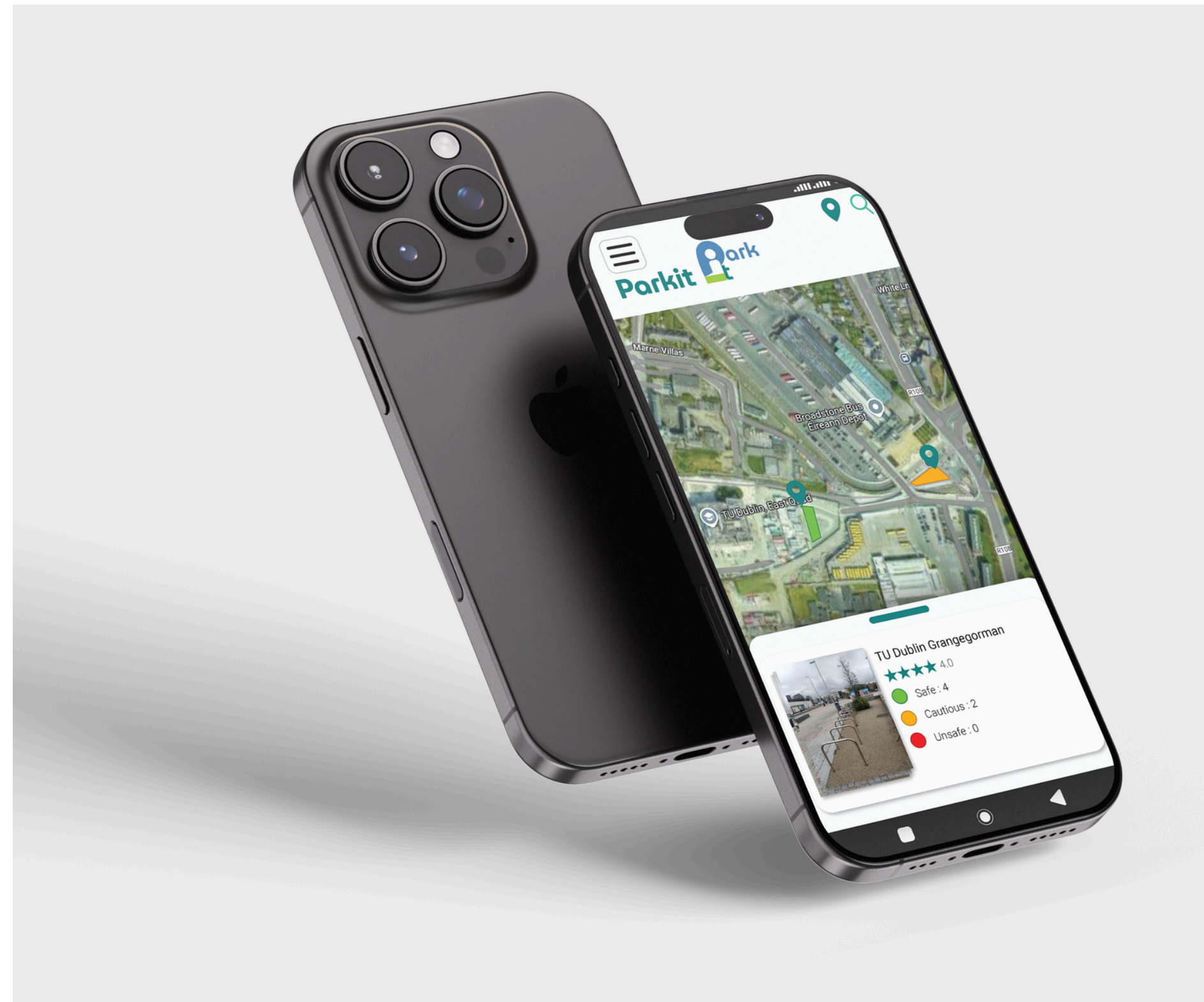
img 3.18: Search page - Mockup

MOCKUP

Screen 4- Map Page



img 3.19: Map page - Screen



img 3.20: Map page - Mockup

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