DESIGN SPECIFICATION

rider app

DublinBike voice assisted app
with quantified self capabilities

Team Member	Design Specification
David Dodd	1.1, 4.1, 4.3, 4.5
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Rory McAllorum	1.1, 4.1, 4.2, 4.3, 4.4, 4.5
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1. PRODUCT INTRO

1.1 WHAT THE PRODUCT IS

Rider is a voice assisted app, using real time data to locate parking and DublinBike availability.

Rider's design will face many challenges in order to become successful to all users. The issues discovered within our previous assessment shall be explored here in more detail using design methods from personas and scenarios, use cases and diagram to wireframes, task flow and state transition diagrams. By employing these methods our team will explain the Rider product to not only the design team but to all relevant parties including developers and stakeholders.

1.2 PRODUCT NAME INTRO/DESIGN OVERVIEW

The name of our product is Rider. It is a voice assisted app with real time data on the availability of DublinBikes and parking in the city. It also provides route planning, directions and a platform to profile the user's routes, distances, times and fitness, should he wish to.

The concept of Rider is safety and travel efficiency. By using this app, the DublinBikes cyclist is informed by voice assistance, the directions in which to travel along with real time DublinBike/Parking status of stations in his destination area, thus making their journey time effective and efficient.

There were many design challenges uncovered in this document which need to be resolved. One primary challenge is providing an intuitive interface, suitable for all levels of user, which achieves the user's end goal without too many screens or steps involved.

Sheena Iyengar's TEDtalk, 'The Art of Choosing' (Iyengar, 2017), made research into the user and choice which indicated that the user is more likely to be interested in moving through a sequence of choices with fewer choices contained at the start of the process. To offer the user 2 choices upon opening the app makes it easy for the user to go straight to the maps, skipping log in (if already registered) or to register with the app. By cutting options at the beginning of the app, the user will be more likely to engage with the main features, while committing to navigating later screens with an increased number of options/tasks/text to be entered.

Having the map full screen with a menu which swipes across allows for maximum screen space to devote to both the map and to the choices or 'call to actions'. This resolves the size issue of search menus/forms (enter destination etc.) or similar, allowing for larger text fields which accommodate larger and/or less dextrous fingers/thumbs. While a full screen map

"The Thumb Zone" of a mobile phone (based on the image by Oliver McGough in "Designing for Thumbs – The Thumb Zone")

would be also more aesthetically appealing, the permanent navigation needs also to be easily understood. This accounts for the background bars to the top and bottom of the interface. To have swipable navigation bars would prove clumsy when the user wishes to move about the map itself.

Left handed and right handed people navigate slightly differently. Having the calls to action within easy reach of the user's thumb accommodates both groups. (Ingram, 2016)

The buttons or 'calls to action' themselves need to be clear and concise without dominating the screen. The horizontal swipe menu is contained on a semi opaque background, so the user still feels connected to the previous map screen while also giving the buttons enough space. (Appendive, 2016)

Just as with screen elements, the audio assistance script must be translated accurately into the user's language (most notably the tourist persona) and all scripts should be succinct and easily understood. The Rider app, however, relies on the Google Maps Voice API for directional scripts.

The range of Androids provides a design challenge in itself. While testing can be made across a wide range of models, it is nearly impossible to accurately test UI and UX on every single Android model. This challenge is ongoing, but with continued user reviews and feedback, any platform problems may be resolved on a per model basis.

Design challenges, more specific to the Rider app itself pertain to a feature rich UI while keeping UX as intuitive and minimalist as possible. This can be resolved by simple audio on/off buttons relating to DublinBike and parking availability and directions. Another solution is to offer the user preferences whereby he may personalise his UX to suit his needs and achieve his end goal.

The visual hierarchy of the UI presented another design challenge. With so few elements per screen (to maximise screen real estate for maximum map visibility), our team was faced with a decision, whether to adhere to the reading/scanning user rule, left to right with importance prioritised to the topr left and bottom right or to place essential functionality within the thumb zone. We resolved this by allowing the target device to define our design direction, finalising on the placement of the app's settings and directional icon within the thumb zone.

2. WHO WILL USE IT

2.1 PERSONAS AND SCENARIOS

Primary Persona
Name: John
Age: 30
Nationality: Irish
Occupation: IT for a financial firm
Education: Bsc in Computing, MA in Applied Computing and Encryption
Tech experience: Expert

Personal Details
Likes fitness and health
Likes being social/going out with friends and meeting new people

Personal Goals
Establish his own company
Travel
Wants to keep good control over weight
Purchase own home in the next 5 years

Product Related Goals
To save time on his commute by locating free parking stands/bike availability prior to cycling
Free download
Calorie counting & Distance travelled
Safer journeys via voice assistance (hands free)

Attitude/Skills
Loves learning and developing new skills
Always willing to help and teach people
Positive mental attitude

As a commuter, John uses the app daily, to plan, store different routes (distance and time, calories consumed). The Rider app is particularly useful to him during these peak times when bike/parking availability is low.

John was born and raised in Dublin, so knows the city very well. He works at the Docklands and commutes to and from his apartment in Smithfield using DublinBikes.

Last night John was at a birthday party and he overslept this morning. After getting ready for work, he rushes out the door to the square where he finds the DublinBikes station already empty. He then hurriedly walks to another DublinBikes station. That's empty too. He turns around and rushes back to the Luas. It's packed and he's already late for work. He wishes he could have unlocked a DublinBike.

During his lunch break, he posts on his Twitter how maddening it was not to unlock a DublinBike for his commute. His friend replies with a link to the Rider app, which he downloads for free. He decides to try it out for his commute home. It locates the closest stations from his work and parking near his apartment. After a stressfree journey home, he knows that he will definitely use the app the next morning to locate a free DublinBike.

Secondary Persona
Name: Maria
Age: 25
Nationality: Spanish
Occupation: Digital Design
Education: BSc in Digital Design
Tech Experience: Expert

Personal Details
Enjoys keeping fit with a particular interest in cycling
Likes to travel, especially to cities around Europe (weekend stay)
Interested in different cultures, exploring new places and meeting new people with a view to a more locally inspired city break

Personal Goals
To learn about psychology and anthropology (to inform UX Design)
To speak and write Japanese, Mandarin and Korean
To travel worldwide, especially to remote areas

Product Related Goals
Quick and easy download
Simple UI with clear maps/directions
Store routes for future visits to Dublin
Store quantified self data
Voice assistance in the Spanish language
Local information
Places of interest

Attitude Skills
Lifelong learner
Good communicator
Adaptable, energetic, positive - a people person

As a weekend tourist enjoying a city break in Dublin, Maria downloads the Rider app to receive directions to city sights and local, scenic routes, added by local users. She enjoys feeling part of the city and Rider gives her independence.

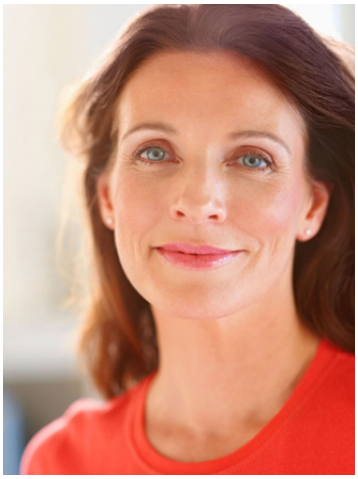
Maria is in Dublin for the weekend. She got into Dublin on Friday evening and made her way to the Generator Hostel in Smithfield.

While having a coffee the next morning, she looks through a selection of tourist leaflets and flyers. Her English isn't that good so she's having a bit of trouble reading all the information. Also, the prices for most of the tours seem a little steep. She'd like to do her own thing as well, rather than joining a trouist group. She sees an ad for cycle rentals and then thinks about the CityBikes scheme, popular in her own city, Barcelona. She googles City Bikes Dublin and goes onto the DublinBikes homepage, where she notices a skyscraper ad for Rider. She is taken to the Rider site and then downloads the app to her iPhone 6.

She unlocks a bike and cycles about the city a little. She decides to get a coffee and to explore the app a bit. She enjoys social media, so creates a profile, opting to fill in her Bio later. She is pleased to be able to change language to Spanish. The app translates both text and the voice assist script. This is particularly useful for her as she pops in her earbuds and receives directions while cycling around the city.

She wishes to cycle the routes of local Dublin people so is pleased to receive different route options for her chosen destination, saved by Rider members. She also locates available DublinBikes and parking about the city, feeling confident to park her DublinBIke, have a wander around Dublin sites, like the River Liffey and Stephen's Green, and be able to locate the nearest stations with available DublinBIkes for her onward journeys.

Third Persona
Name: Catherine
Age: 42
Nationality: Irish
Occupation: Primary School Teacher
Education: Bachelor of Education
Tech Experience: Average, uses computers for work and iPhone/iPad for her private life, mainly for social media and communication.
Also uses Kindle Paperwhite for reading.



Personal Details
Interested in the arts and culture
Avid book reader
Independent and private personality

Personal Goals
To publish her novel
To attend drawing classes
To take a career break and spend one year in Paris

Product Related Goals
Quick download and setup
Minimal information needed to signup and login
Easy to use and simple UI

Attitude/Skills
Does not adapt to changes easily
Late adopter to digital innovations
Holds to traditional values

As an occasional short journey weekend user of DublinBikes, Catherine uses a Rider app to check the locations of DublinBikes stands and also whether the bikes or bikes stands are available at those locations. Since Catherine cycles only short distances in the city area in which she knows her way around, she doesn't need additional help with directions.

It is Saturday morning and Catherine is on the DART coming from Dun Laoghaire to the Pearse Station. Upon her arrival to Pearse Station Catherine opens Rider app on her smartphone to check where the closest available DublinBikes are.

The app shows that at the Science Gallery bike station there are 6 available DublinBikes and she makes her way to get one from the DublinBike station.

She takes her DublinBike, puts on her headphones and starts cycling towards Royal Hibernian Academy to check the exhibition that opened this Thursday.

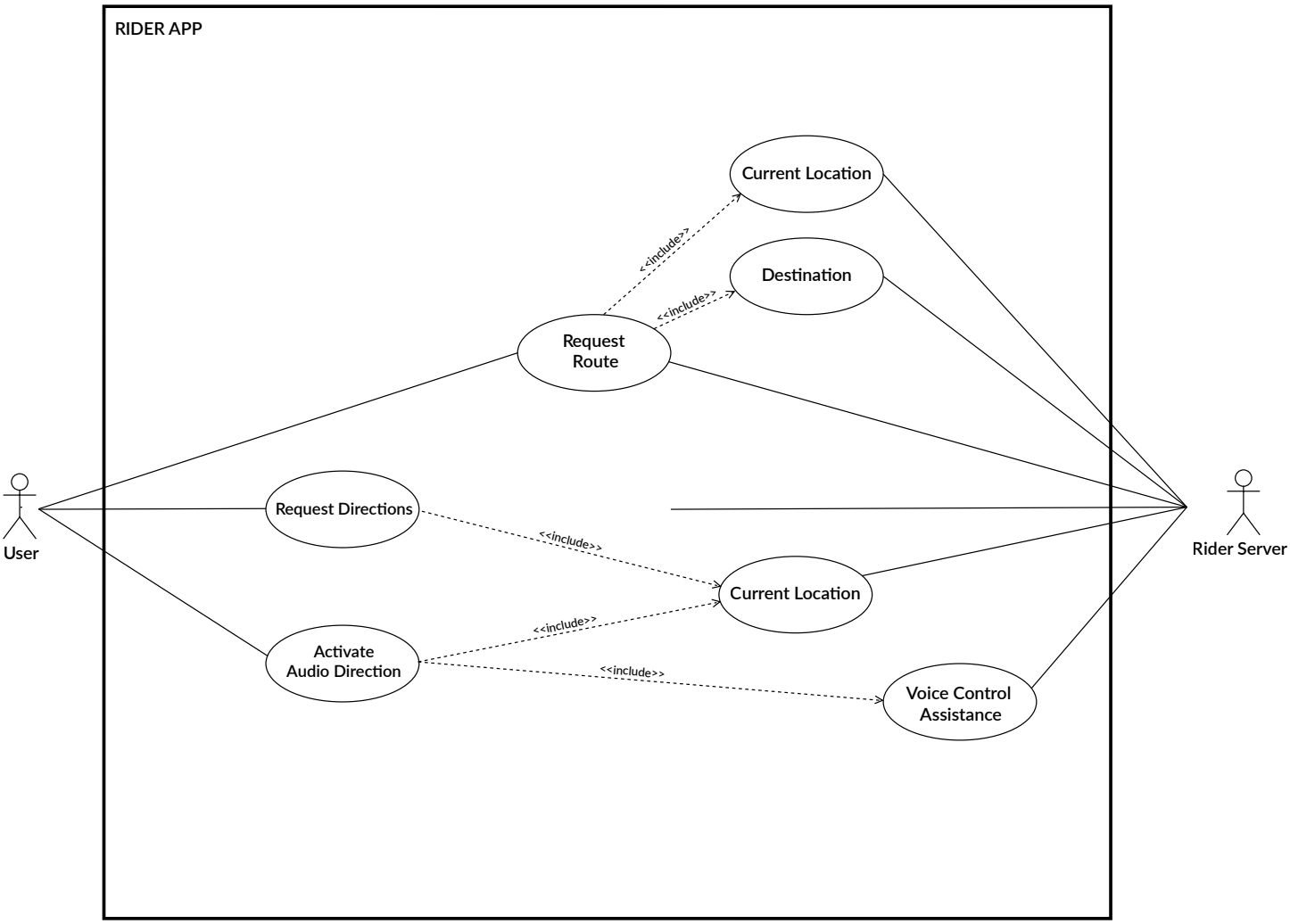
While cycling, she asks her voice assistance to open the Rider app for her and she hears the app's welcoming message and the confirmation of the 'waiting for request' mode being activated*.

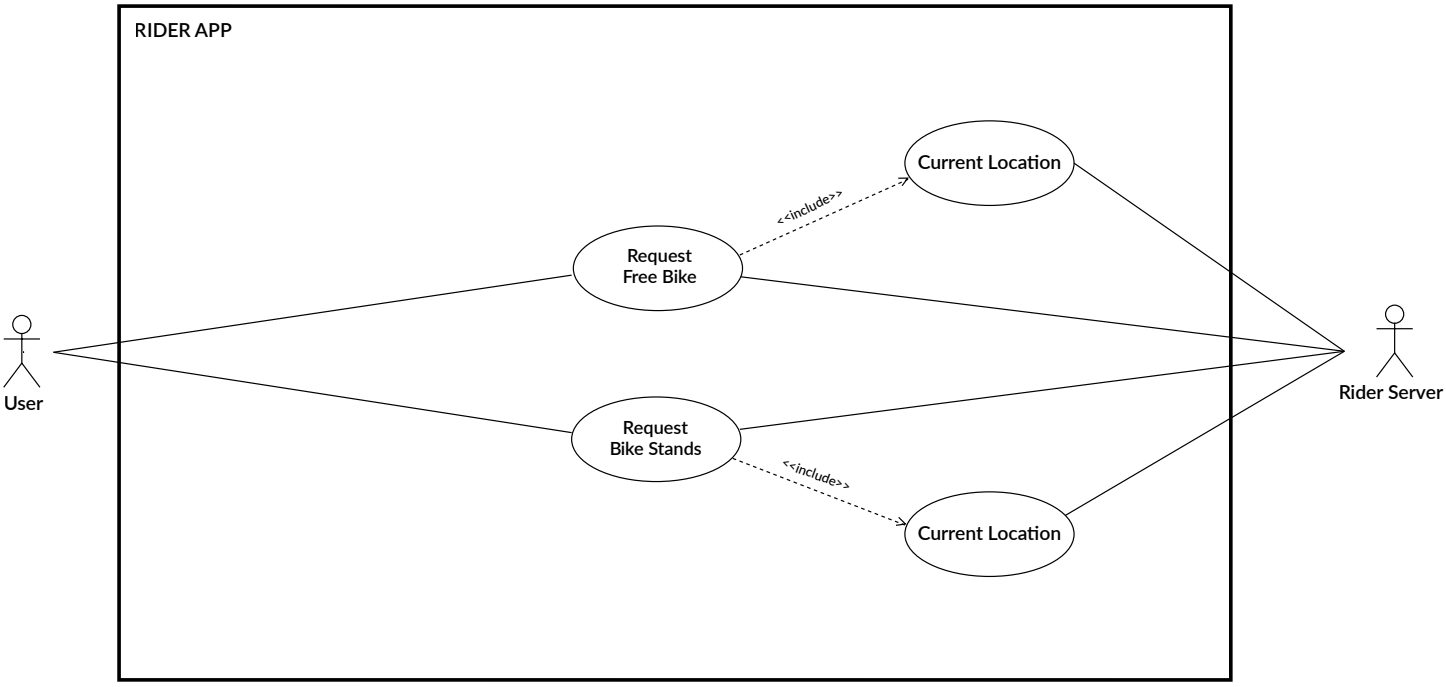
After her turn to Merrion Square Catherine asked the Rider app to give her closest DublinBike station with spaces available and the app responds that there are 11 spaces available at the St. Stephen's Green East station. After few minutes Catherine arrives to the DublinBike station, locks her bike and walks to the gallery.

* During the first-time user setup process Catherine has set her personalised preference to no directions assistance needed.

3. HOW WILL THEY USE IT

3.1 USE CASE DIAGRAM




RIDER APP
Current Location
<<include>>
Request
Free Bike
User
Rider Server
Request
Bike Stands
<<include>>
Current Location

3.2 USE CASES (2 MAIN FUNCTIONALITIES)

Use Case Name: DublinBike Availability/Parking

Actors:
Registered Member (Has an existing account, with personal data, route history and saved routes)
Non-registered Member (Does not have an existing account)
Real time Data System (JC Decaux provides real time data on status of DublinBike stations)
Voice Assistance System (Real time data is conveyed using audio)

Triggers:
The user indicates that he wants to know the DublinBike availability/parking in a particular vicinity.

Preconditions:
User has an iPhone with Siri voice assistant.
User has selected the DublinBike availability/parking Audio On function and wears earphones.
User has set up his own personal preferences, relating to app, start map, profile etc.
User has shared his location with the Rider app.

Post-conditions:
The user will have an option to turn off audio function after DublinBike is located.

Normal Flow:

1. The user will indicate verbally that he wishes to open the Rider app.
2. Siri voice assistant confirms the opening of the Rider app.
3. Rider app verbally welcomes the user.
4. Google Maps appears with his preferenced start map.
5. Rider app asks how it can help the user.
6. The user will indicate verbally that he wants to locate DublinBike availability/parking in his chosen vicinity.
7. The Rider app confirms the user's request with the user.
8. The user confirms.
9. The Rider app states that it is getting real time data.
10. The user will select verbally the vicinity in which he wishes to locate available DublinBikes/Parking.
11. A map of his selected vicintiy appears, while the realtime data system highlights the number of free bike/parking at each station.
12. The real time data system will verbally inform the user of the number of DublinBikes at each of the stations in his selected vicinity.

Alternate Flows:
1A1. The user wishes to turn off audio function, to continue the task without giving voice commands.

1. The user will indicate that he wishes to turn off audio function.
2. Google Maps appears with his preferenced start map.
3. The user will indicate on screen that he wants to locate DublinBike availability/parking.
4. The user will indicate he wishes to search for his vicinity.
5. The user is presented with a search box in which to enter his vicinity.
6. The user enters his vicinity and 'Return'/'Go'.
7. A map of his selected vicintiy appears, while the realtime data system highlights the number of free bike/parking at each station.
8. The real time data system will verbally inform the user of the number of DublinBikes at each of the stations in his selected vicinity.

8A1. The system fails to understand the user's verbal vicinity selection.

1. The system will inform the user that it has not understood his verbal selection.
2. The system prompts the user to say his selection again.
3. The system will thank the user and confirm that it has understood.
4. A map of his selected vicintiy appears, while the realtime data system highlights the number of free bike/parking at each station.
5. The real time data system will verbally inform the user of the number of DublinBikes at each of the stations in his selected vicinity.

10A1. Delay in real time data from JC Decaux system
1. A map of his selected vicintiy appears, while the realtime data system highlights the number of free bike/parking at each station.
2. The system will inform that user that it is waiting for real time data and thanks the user for his patience.
3. The real time data system will verbally inform the user of the number of DublinBikes at each of the stations in his selected vicinity.

Use Case Name: Route Search (with Registration)

Actors:
Non-Registered Member (Does not have an existing account)
Voice Assistance System (Real time data is conveyed using audio)
Google Maps

Triggers:
The user indicates that he wants to register with Rider app to locate scenic route recommended by Rider members.

Preconditions:
User has an iPhone with Siri voice assistant.
User wears earphones.
User has shared his location with the Rider app.

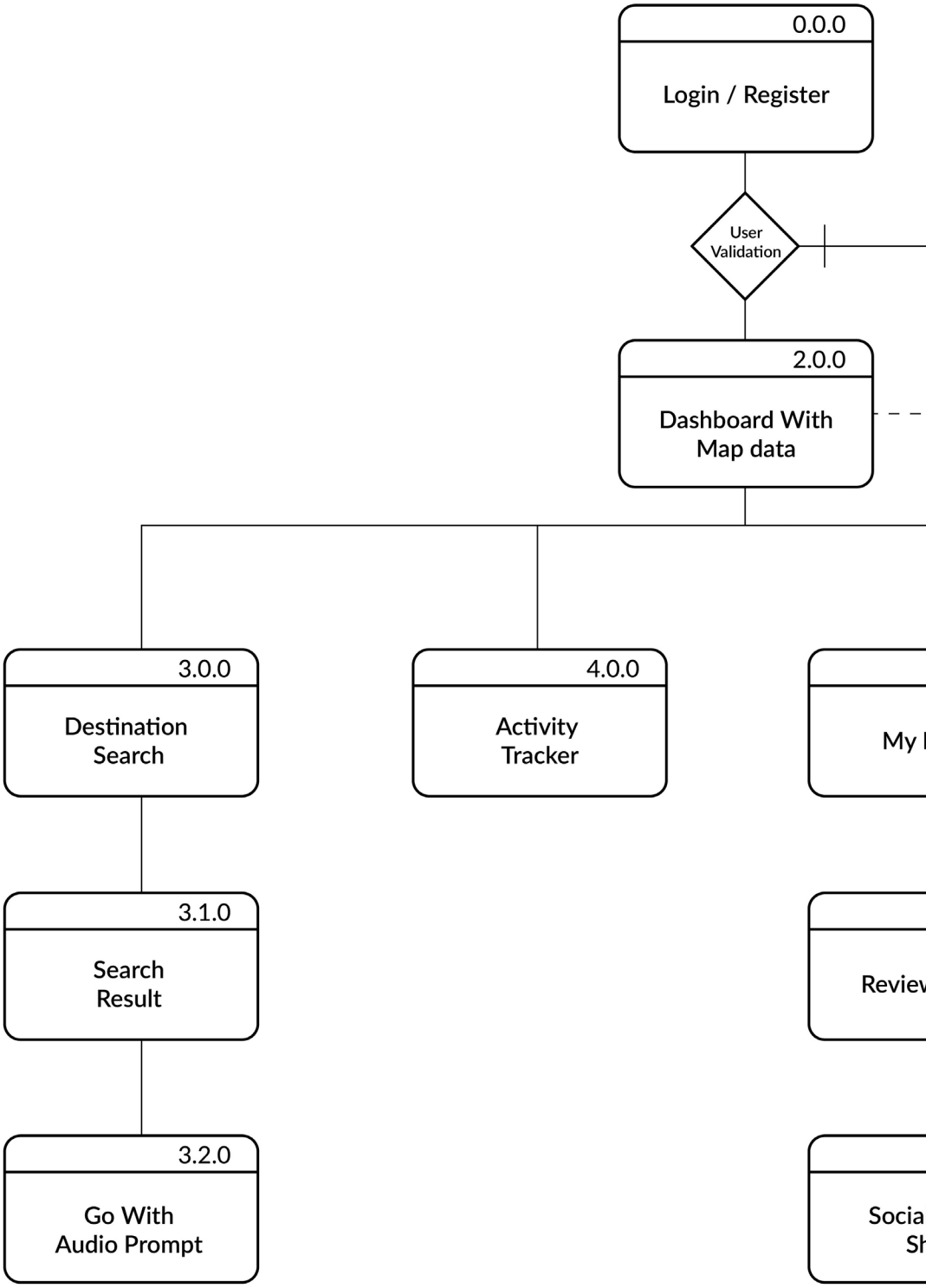
Post-conditions:
The user will have the option to save route and personal data to their Rider profile.

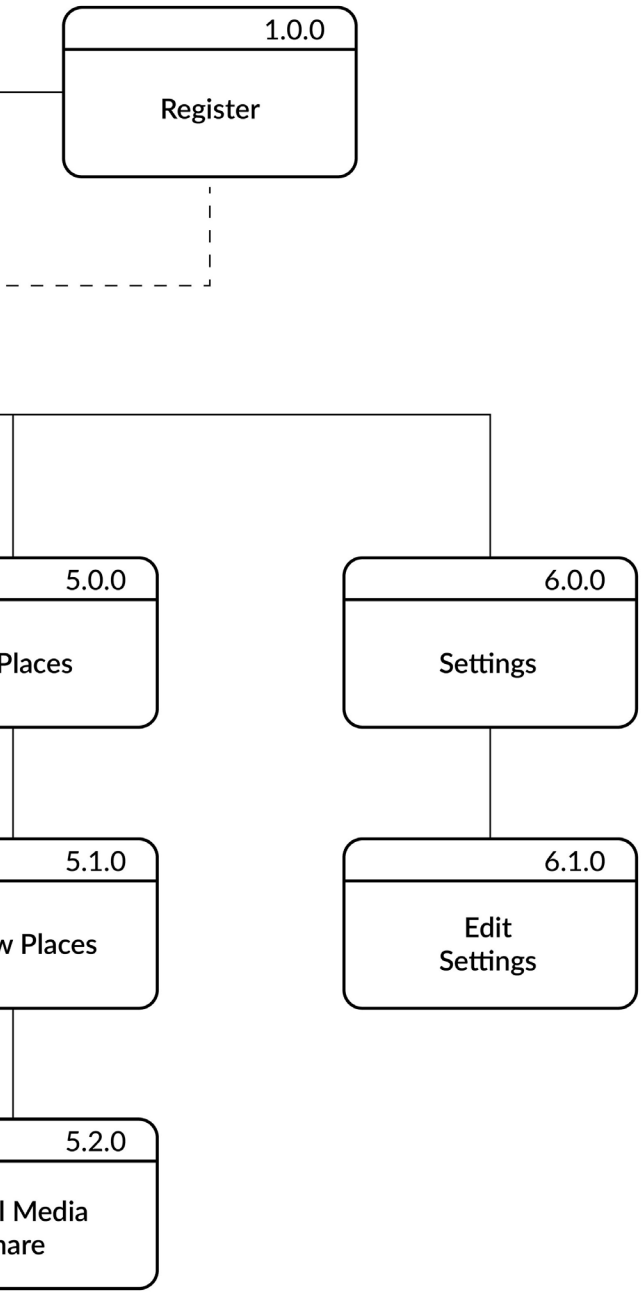
Normal Flow:
1. The user will tap Rider icon to open the Rider app.
2. The Rider app displays welcome screen.
3. The user taps the welcome icon.
4. The Rider app displays a 'create account' and 'log in' choice for the user.
5. The user indicates he wishes to create an account.
6. The Rider app displays options to sign in.
7. The user chooses to sign with his email.
8. The user enters username and password and 'Let's Ride'.
9. Rider app displays Google Map with user's current location.
10. The user indicates he wishes to open the menu.
11. The Rider app displays list of options.
12. The user chooses 'My Profile'.
13. The Rider app displays the 'Create Profile' screen.
14. The user enters his first name, surname, birthdate and gender and hits 'Create'.
15. The user taps the photo icon.

16. The user is presented with a list of options from which to source a photo.
17. The user chooses a photo from Photos (iPhone).
18. The user hits ‘Create’.
19. The Rider app displays the user’s profile with additional information fields.
20. The user opts out of entering further information by hitting ‘Not now’.
21. The Rider app displays a map with the user’s current vicinity.
22. The user indicates he wishes to search for a route.
23. The Rider app displays a start point (current destination default) and destination search box.
24. The user enter his destination.
25. Rider displays a list of routes, shared by other Rider members.
26. The user chooses his preferred destination.

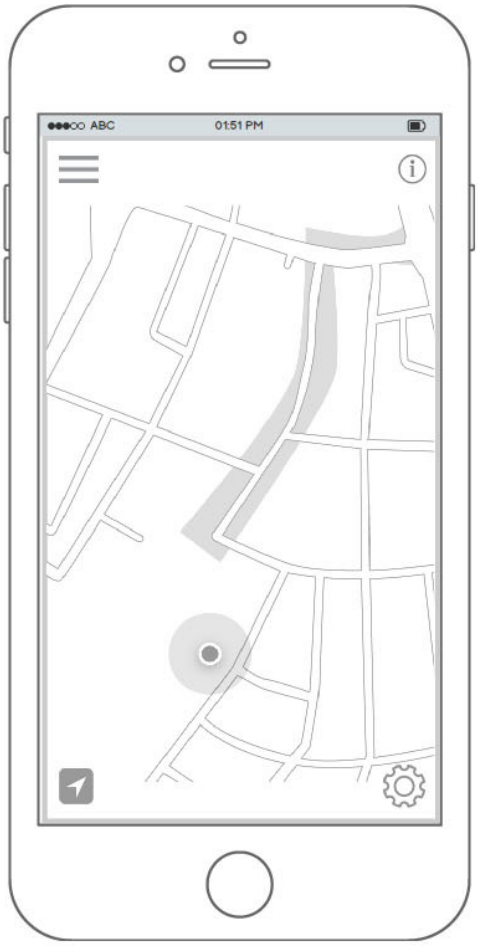
4. THE PRODUCT DESIGN

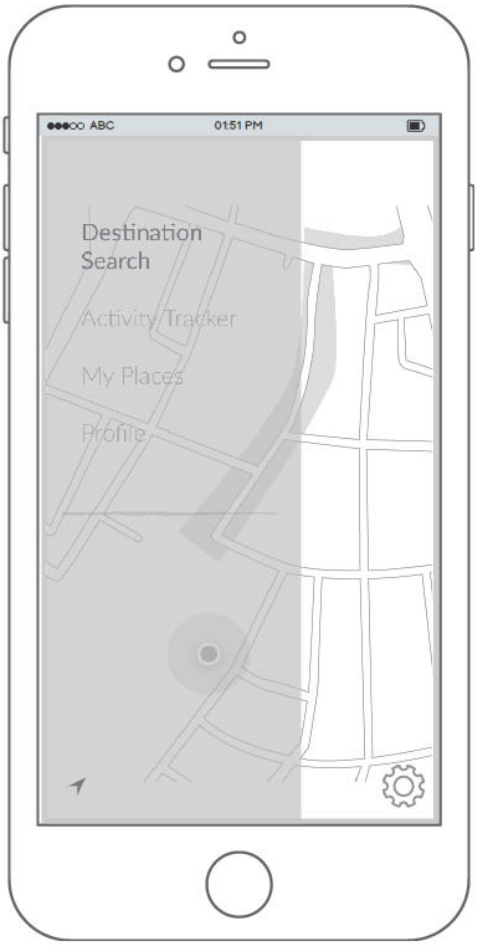
4.1 STRUCTURE MAP

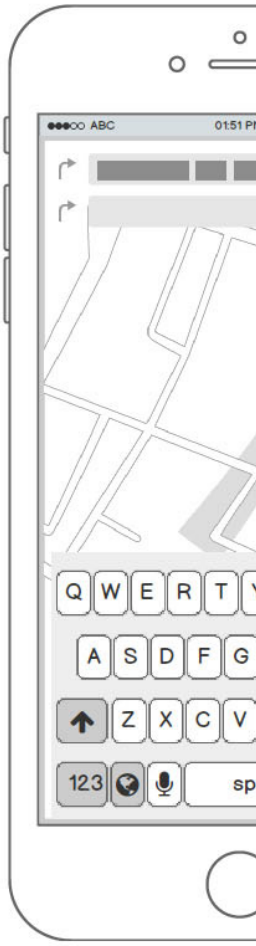


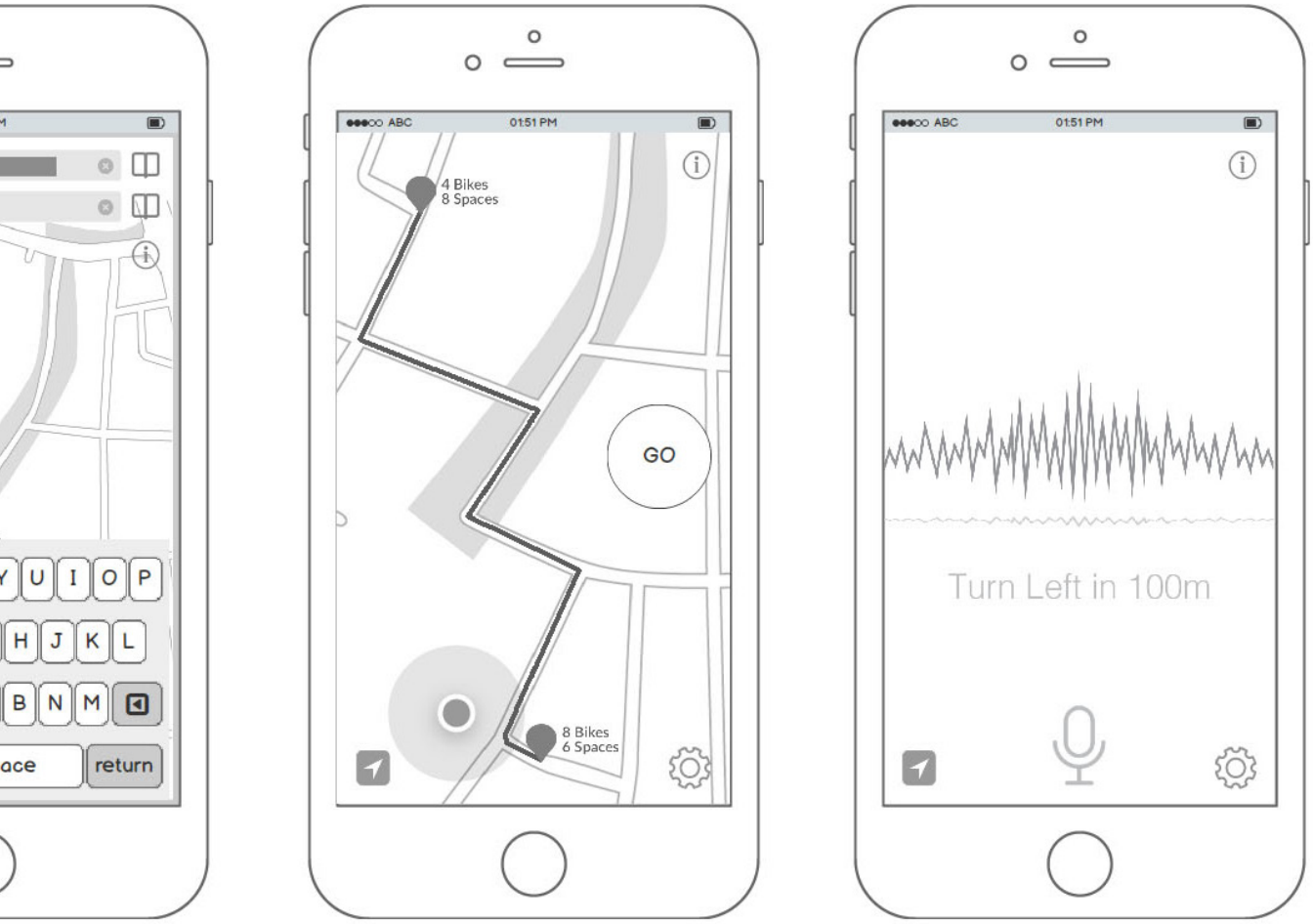

1.0.0
Register
5.0.0
Places
6.0.0
Settings
5.1.0
w Places
6.1.0
Edit
Settings
5.2.0
l Media
hare

4.2 WIREFRAMES

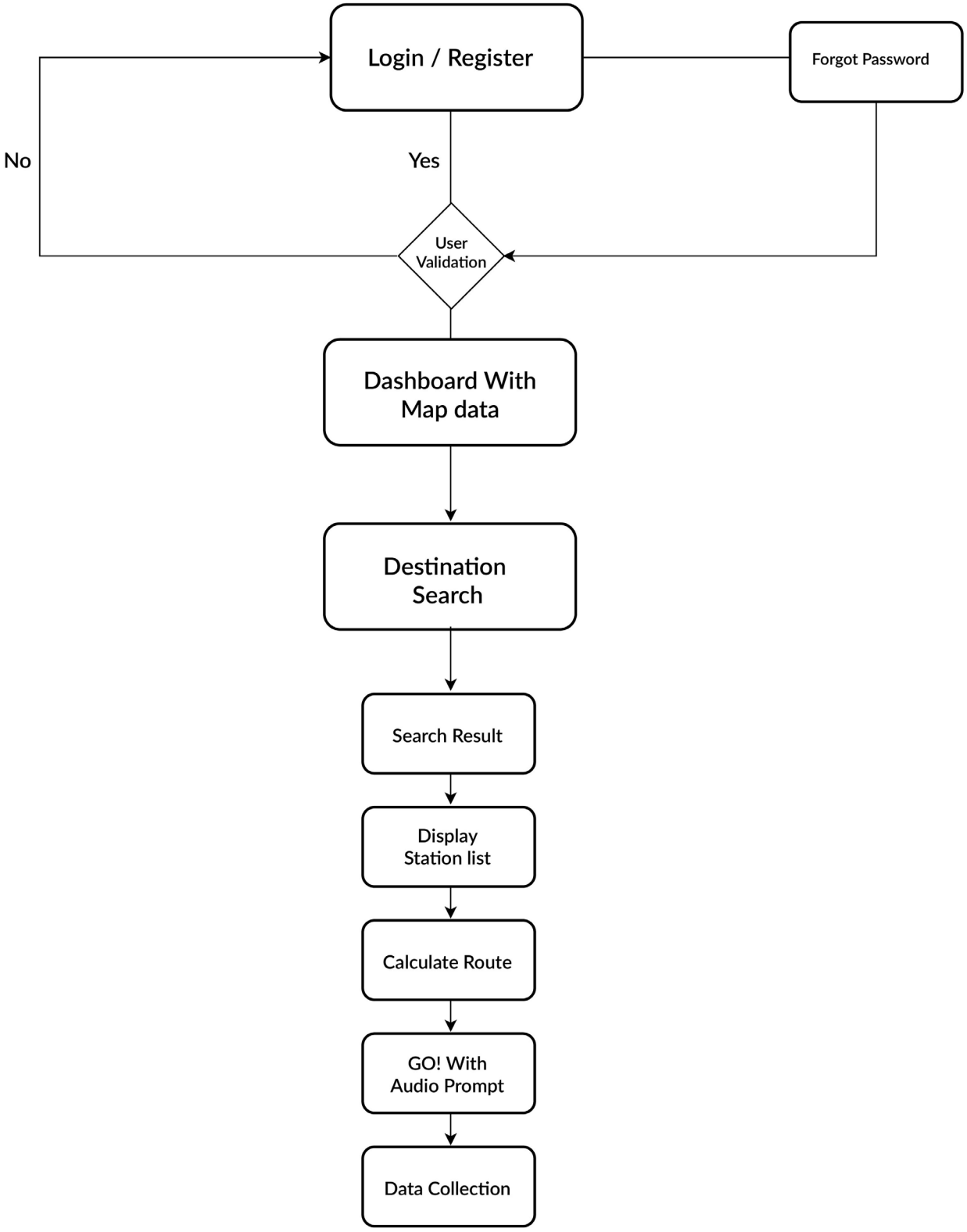







ABC
01:51 PM
4 Bikes
8 Spaces
GO
8 Bikes
6 Spaces
ABC
01:51 PM
Turn Left in 100m

4.3 TASK DIAGRAM



4.4 STORYBOARDS

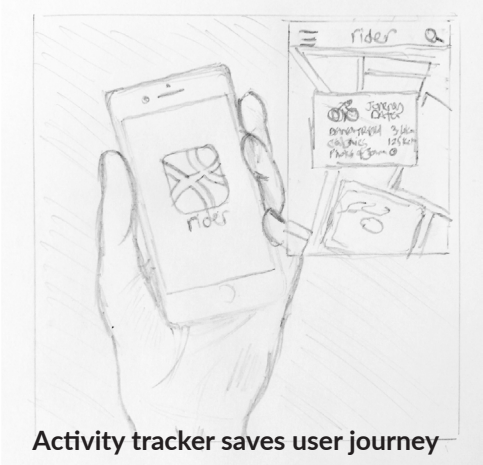
Sightseeing/Shopping

Empty DublinBikes station

User get Rider app and plans journey

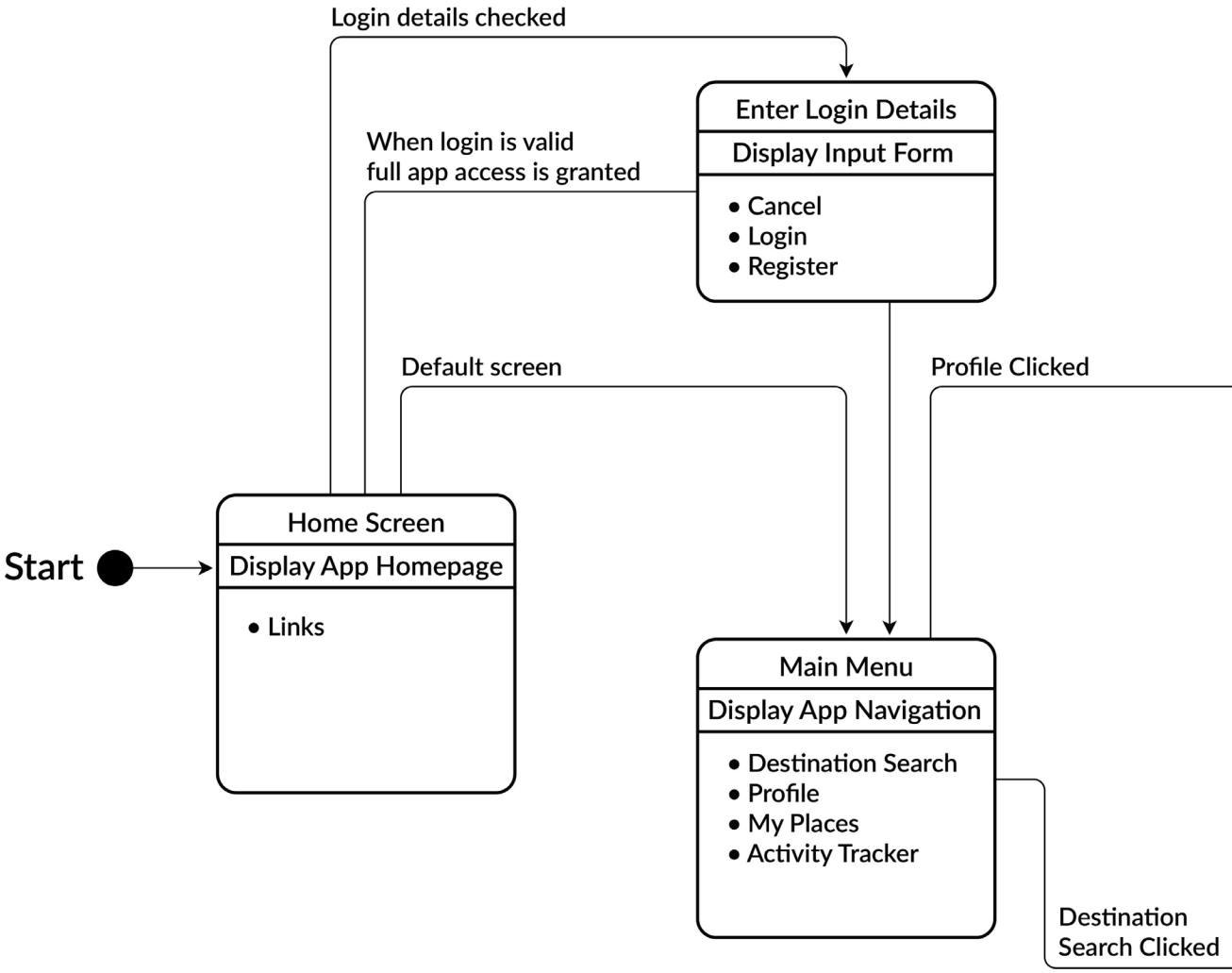
Rider audio prompts user to destination

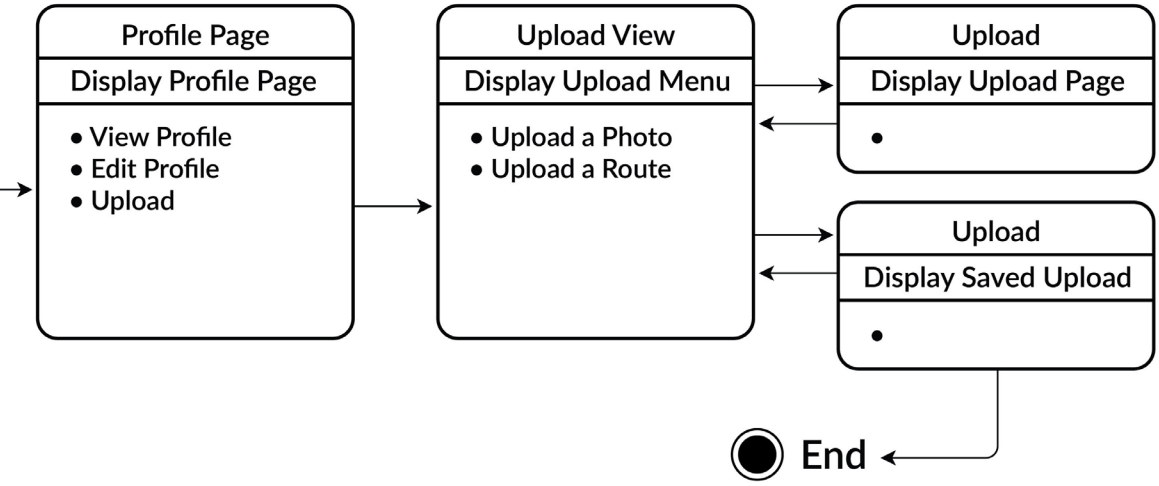
Journey successfully completed

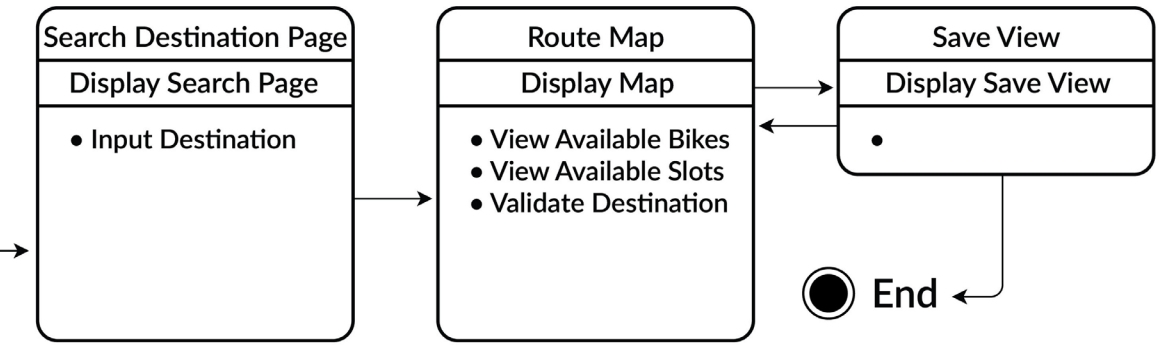


Activity tracker saves user journey

4.5 STATE TRANSITION DIAGRAM




Profile Page
Display Profile Page
• View Profile
• Edit Profile
• Upload
Upload View
Display Upload Menu
• Upload a Photo
• Upload a Route
Upload
Display Upload Page
•
Upload
Display Saved Upload
•
End


Search Destination Page
Display Search Page
• Input Destination
Route Map
Display Map
• View Available Bikes
• View Available Slots
• Validate Destination
Save View
Display Save View
•
End

5. REFERENCES

5.1 REFERENCES

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