

INFO8980 – Final Exam



1. UX Strategy

Description:

LOOP is an eco-friendly bike-sharing mobile application designed to revolutionize urban transportation by providing a convenient, cost-effective, and environmentally conscious solution. The app aims to make bike rentals user-friendly and accessible while promoting sustainability and reducing carbon footprints.

UX Objectives:

User-Centric Design:

Craft an intuitive and seamless experience that simplifies bike-sharing, catering to diverse user needs and preferences.

Inclusive Accessibility:

Ensure the app adheres to accessibility guidelines, providing equal usability for individuals with disabilities through high contrast, scalable text, and assistive technologies.

Optimized Efficiency:

Enable users to perform essential actions, such as bike reservations, route planning, and payments, quickly and effortlessly.

Engaging Experience:

Deliver visually appealing and interactive designs, leveraging dynamic maps, real-time updates, and engaging animations to maintain user retention and satisfaction.

Sustainability Focus:

Promote eco-friendly transportation by highlighting sustainable routes, carbon savings, and the environmental benefits of choosing LOOP over other modes of travel.

2. Prototyping

Interactive Prototype Overview:

The **LOOP** prototype is developed in Adobe XD, showcasing all key functionalities and interactions to simulate a realistic user experience. Advanced interactions and accessibility features were integrated to ensure inclusivity and usability.

Key Screens:

1. Onboarding and Registration:

- Intuitive onboarding process.
 - Secure login and account creation with email verification.
2. **Home Screen:**
 - Displays nearby bikes with real-time availability and pricing.
 - Search functionality with filters for stations, bike features, and locations.
 3. **Trip Management:**
 - Interactive map with start and end location inputs.
 - Real-time trip tracking and estimated arrival times.
 4. **Route Planning:**
 - Provides eco-friendly, scenic, and fastest route options.
 - Displays estimated travel times and distances for each route.
 5. **Station Information:**
 - Real-time data on bike and dock availability.
 - Integration with public transport stations for seamless transfers.
 6. **Payment and Cost Management:**
 - Subscription plans and top-up options.
 - Secure payment methods with detailed transaction summaries.

Advanced Interactions:

- QR code scanning for bike unlocking.
- Real-time updates for bike and dock availability.
- Animated transitions between screens for smooth navigation.


3. Sketches

Sketching Process:

Sketches served as the foundation for visualizing the app's design and functionality. Each sketch was annotated to provide clarity on:

- Key features like buttons and interactive elements.
- Accessibility considerations, including high contrast and large text sizes.
- Navigation flows between screens.
- Home Screen: Includes filters, bike availability, and booking options.
- Trip Management: Highlights route selection and trip tracking features.

Create Account



Create Account

Get Started

Already have account?
Login

Swipe next

Onboarding Page

Skip



Scan the Bike's QR code and Unlock It

Swipe next

Onboarding-2

Skip




Please follow the rules and Enjoy a Safe Ride!

Swipe Back

Create Account

Welcome



Sign In or create an account

Email address

abc@gmail.com

Continue

or continue with

Continue with Google

☐ Agree to terms and services

Verify Email

Verify Email



Please verify your email address

We have sent you a code to your mail address

Code Enter

Continue

Didn't receive code? Resend Code

Finish Create Account

Create Account



Finish creating account

First Name

Last Name

Birthday

Password

☒ Terms of Service

Create Account



My Wallet

< My Wallet

Logo

Weekly Pass
\$27.55

Purchase

Total Balance \$270.85

Payment

>

Top up



Hi Twinkle!



Search By add, bus stops

Bike Nearby



Bike Name
\$30/Day

*4.7

250 mtr

Lorem ipsum

Book Ride



Bike Name
\$100/Day



600mtr

*4.9

Book Ride



Bike Name
\$70/Day



80 mtr

*4.8

Book Ride

Scan to Ride



From Address
To Address

Map
Image



Bike Name

Estimated
time
30 min.

Estimated fee
\$25/day

Speed
25km/hr

Scan to Ride

Trip Ended



Destination
Address

Map Image

Arrived In 0:18:36

Trip Ended

From's Address

To : Destination

Receipt

Payment

Logo


mastercard


Balance
\$10,000

Apple Pay

Payment Options

Add Card

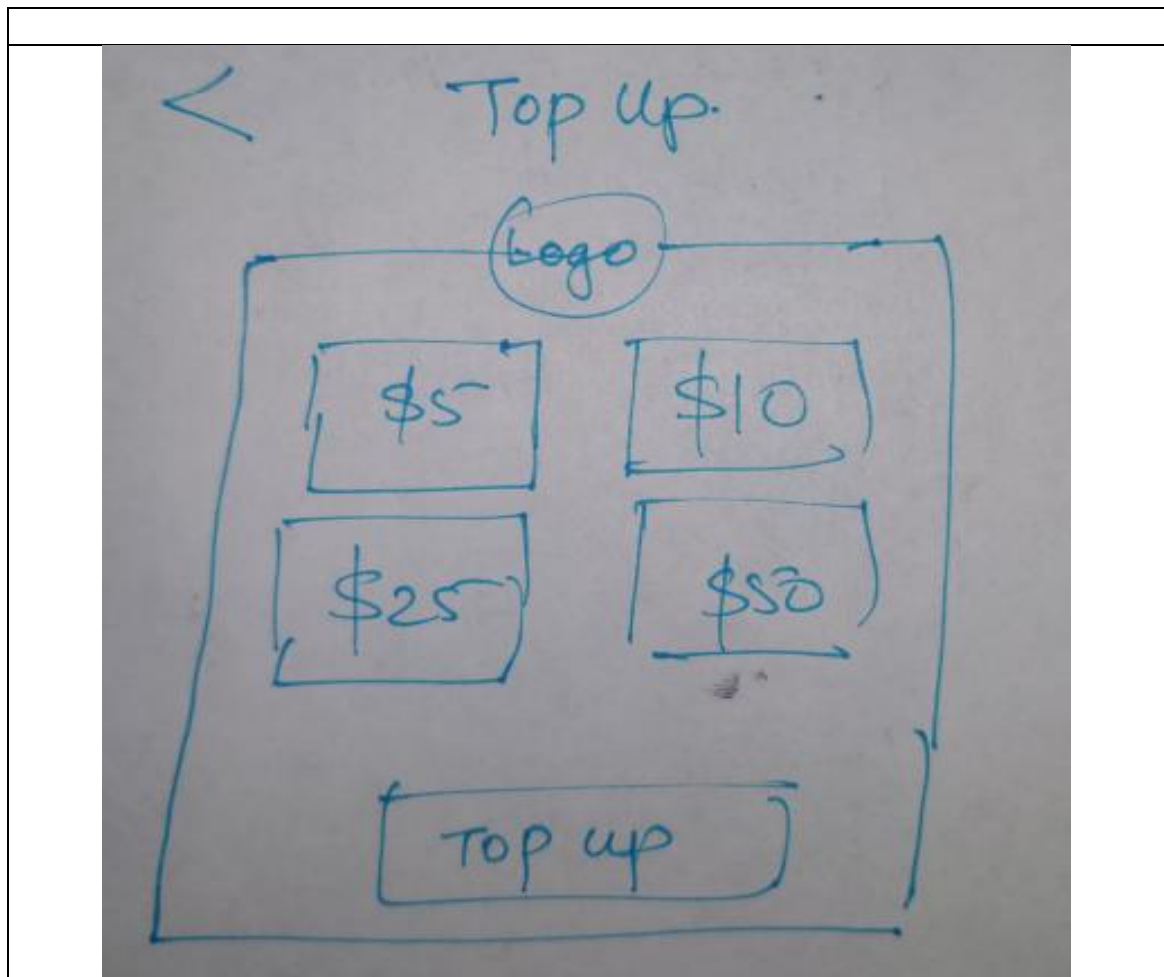
Payment Options

Payment Options 

MasterCard

Apple Pay

Pay with Another
Card



Trip Started - I



Pick up address
Address name

Map
Image

Arriving In

0:30:35

Trip started.

(o) From : Address

(o) TO : Address.

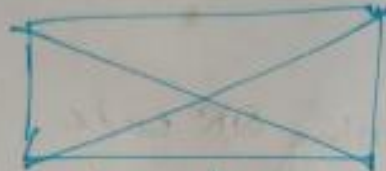
Change Destination

End Trip

Payments



Your wallet
\$ 3000.86



Bike Name:

Bike Id	Pst Id Number
Location	Address...
Price	\$ 28.00
Additional Fee	\$ 10.26
Total	\$ 36.00

Payment Method

Loop Wallet
..... 9786

Change Payment Method

Pay Now

< Choose A Plan.

Logo

We are flexible

Just the right plan
to plan your ride.

Monthly
\$25
for frequent users

Yearly
\$125
for local users

24-Hour Pass
\$10
for day trips under 30 mins

Pay

< my statistics

Logo

Duration
49 mins

Calories
452 cal

Distance
485 m

Carbon
6002

Share



Payment Successful
Successfully paid
\$ Amt.

Payment methods

Transaction Id

Id Number

Date

Date (MM)

Type of Transaction CC

Charge \$25

Additional Fee \$0.75

Member Discount - \$ 5

Status . Success

Total

\$28.70

← Trip Management ○

🔍 Search by Add, ...

Start Location

End Location

Map Image

Station Information



Station 1

Address

Bikes Rental

Station 2

Address

Bikes Rental

4. Wireframes

Wireframe Details:

Low-fidelity wireframes were created to outline the core layout and functionality of the app. These wireframes helped refine the design before moving to high-fidelity prototypes.

Key Wireframe Features:

- **Home Screen:** Displays bike availability and filters.
- **Payment Screen:** Includes top-up and payment method options.
- **Route Map:** Shows detailed paths with time and distance estimations.



<div><div>Skip</div><div></div><div><p>Please follow the Rules and Enjoy a Safe Ride!</p><div><< Swipe Back </div><div><div></div><div></div><div></div></div></div></div>	<div><div>Welcome</div><div><div>Logo</div></div><div><p>Sign in or create an account</p><p>Email address</p><div>my account@gmail.com X</div><div>Continue</div><div><p>or continue with</p><div>Continue with Google</div><div><input type="checkbox"/> By continuing you agree to Terms of Service and Privacy Policy</div></div></div></div>
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Verify Email

Logo

Please verify your email address

We have sent you a code to **myaccount@gmail.com**. Enter your code below

Continue

[Didn't receive the code? Resend Code](#)

Verify Email

Logo

Please verify your email address

We have sent you a code to **myaccount@gmail.com**. Enter your code below



Continue

[Didn't receive the code? Resend Code](#)

Create Account

Logo

Finish creating account

First name

Last name

Birthday mm/dd/yyyy



Password



☐ By continuing you agree to [Terms of Service](#) and [Privacy Policy](#)

Create account

Login Account

Logo

Sign in to your account

Email address

my account@gmail.com



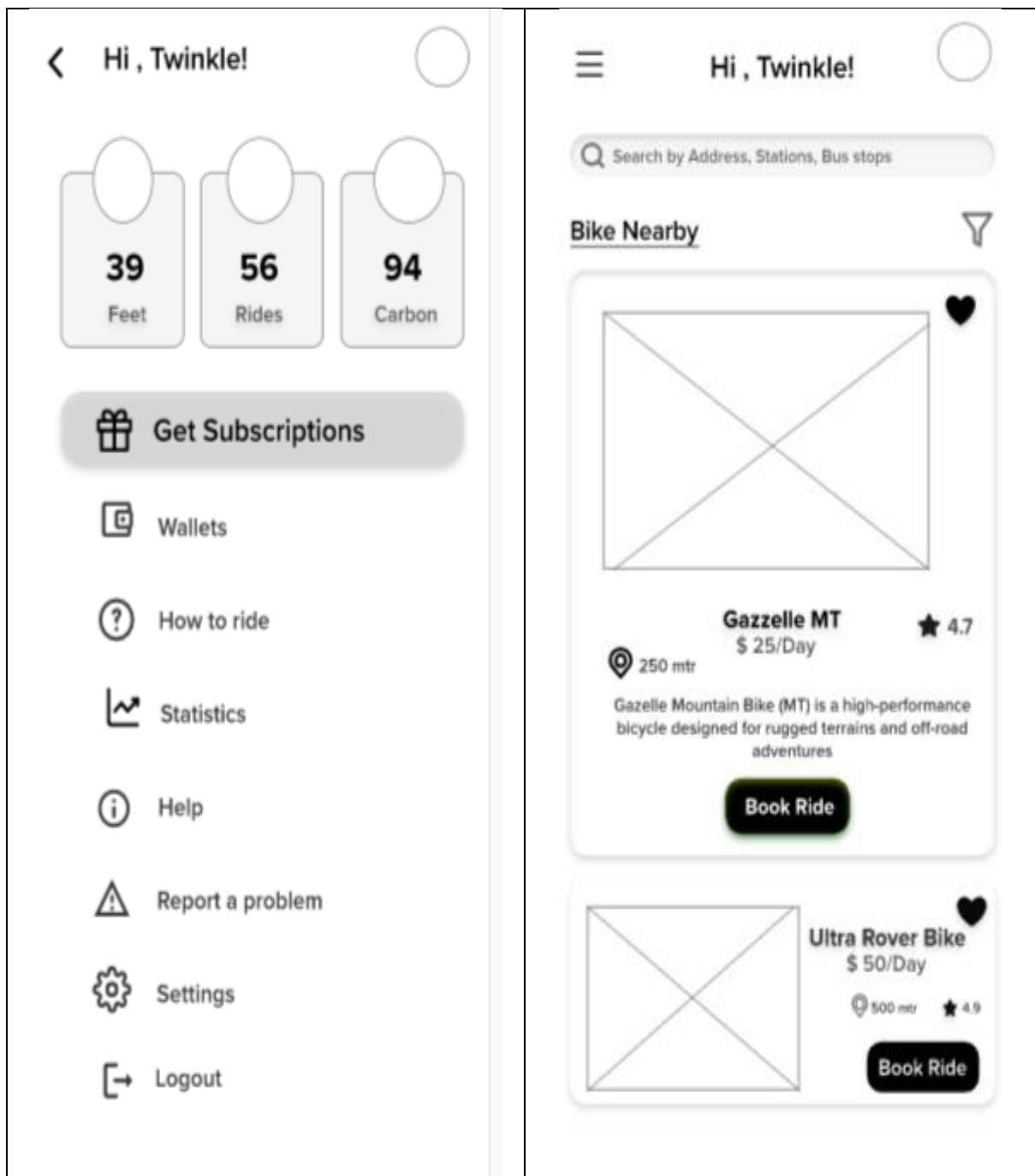
Password



[Forgot Password?](#)

Login

[Don't have an account ? Register](#)





Mills Pond Street, Waterloo , IN, Canada



High Court Lexington, Waterloo, ON, Canada

Map
Image



Gazzelle MT
445577448

Estimated Time

30.00

Estimated fee
\$ 25/Day

Speed
25km/hr

Scan To Ride

Your Wallet
\$ 2,435.56



Gazzelle MT Bike

Bike ID 445577448

Location High Court

Price \$ 25.00

Additional Fee \$ 1.76

Total \$26.76

Payment Method

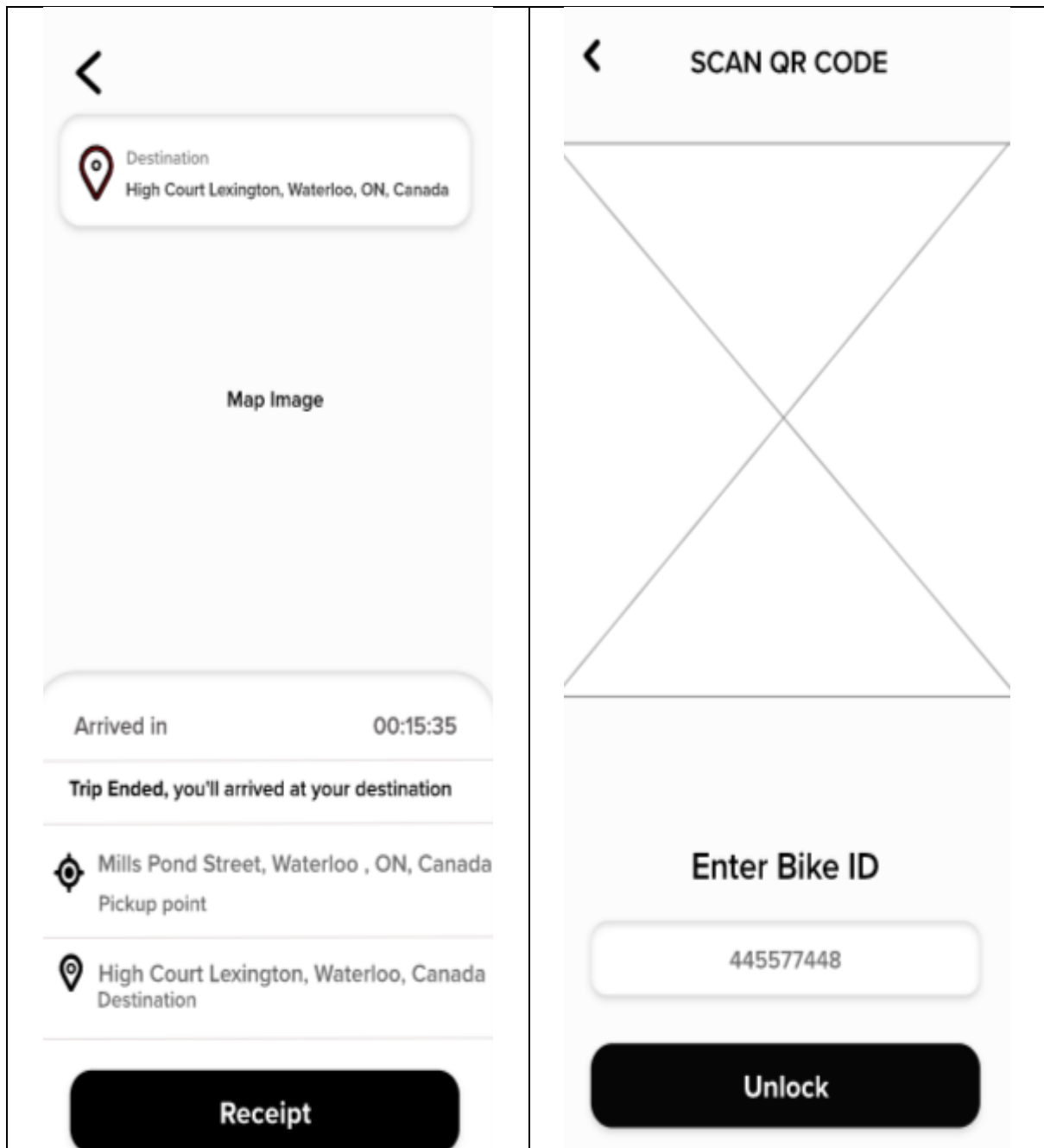


Loop Wallet

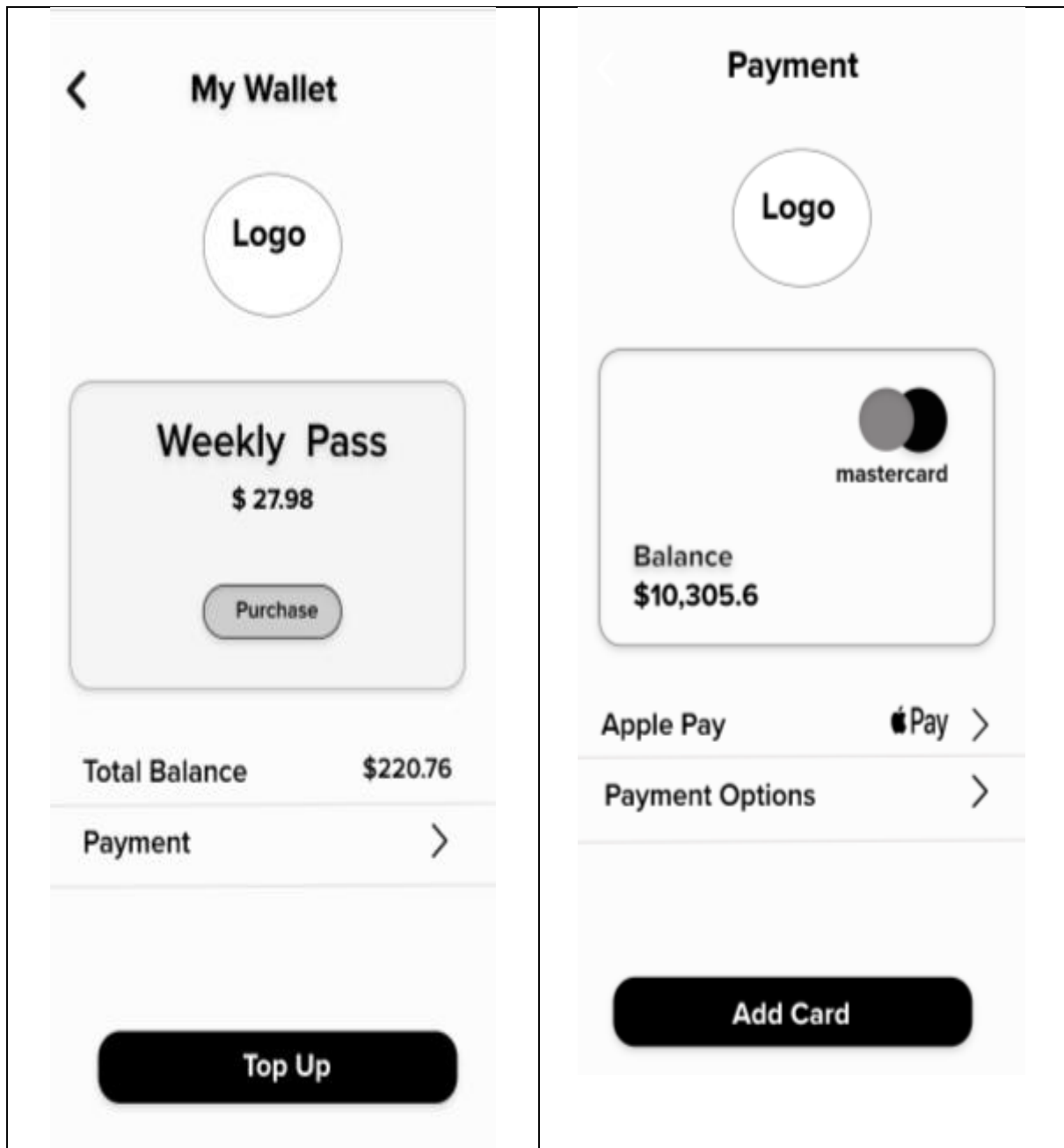
.... .. 9876

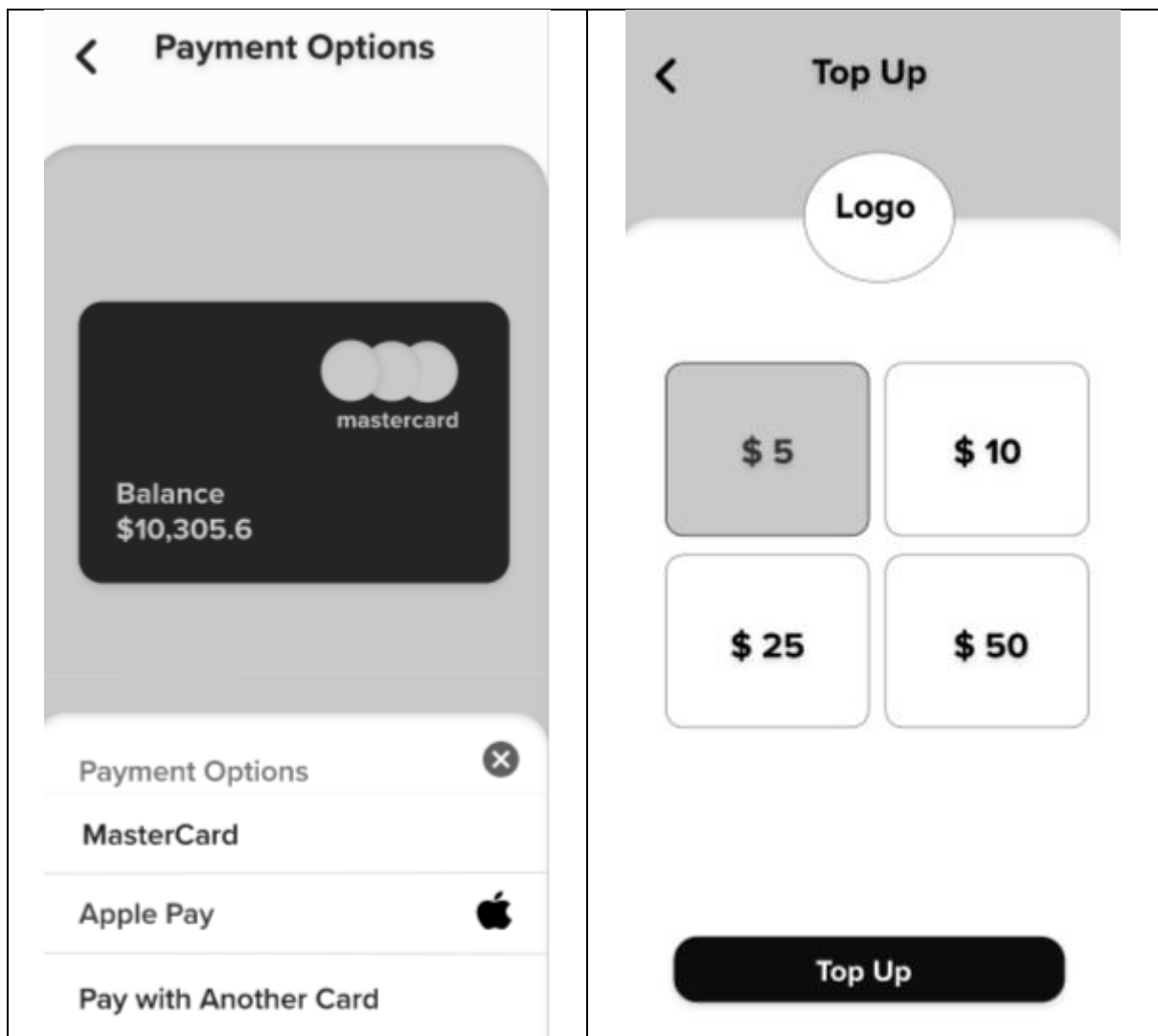
[Change Payment Method](#)

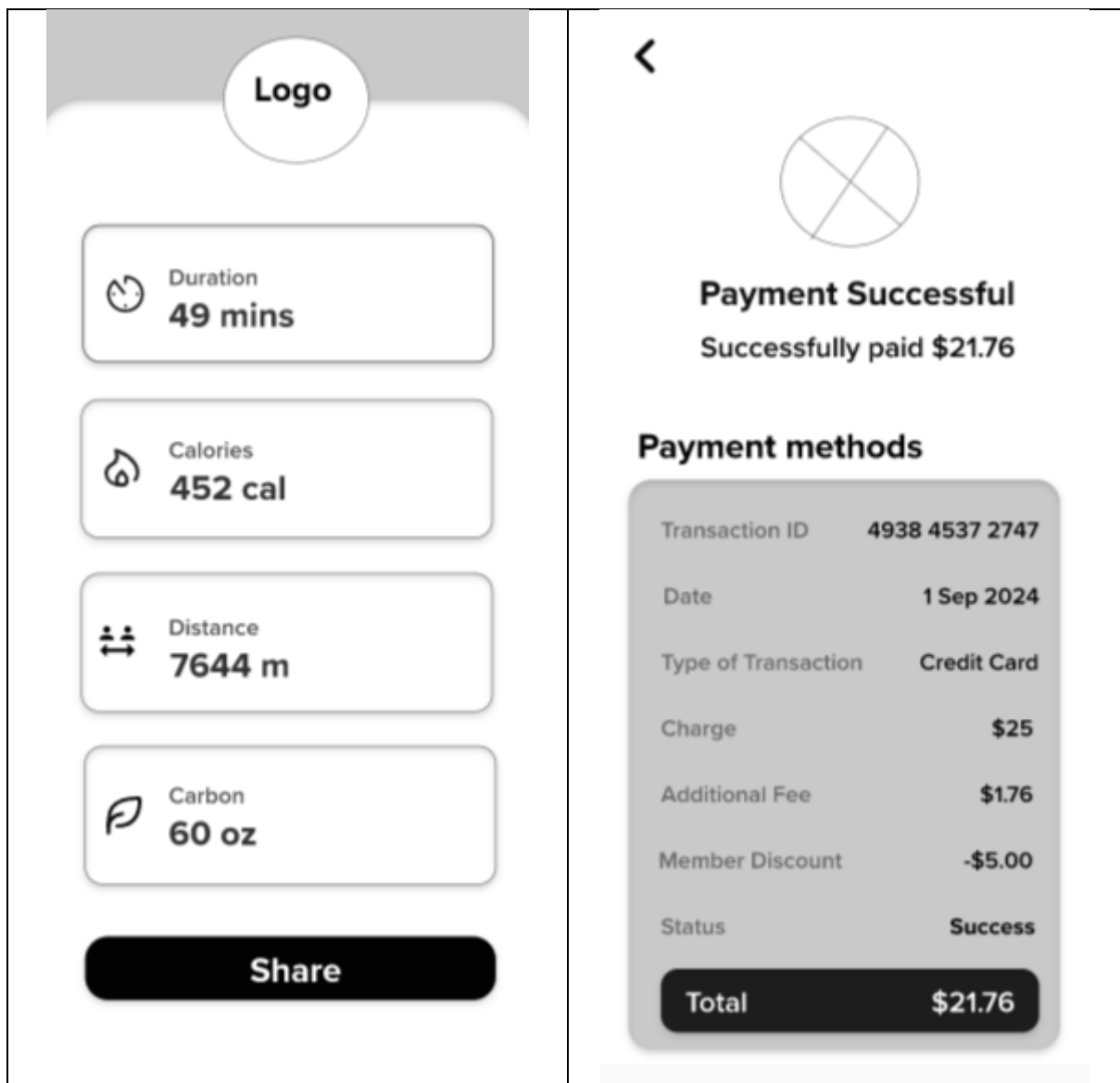
Pay Now

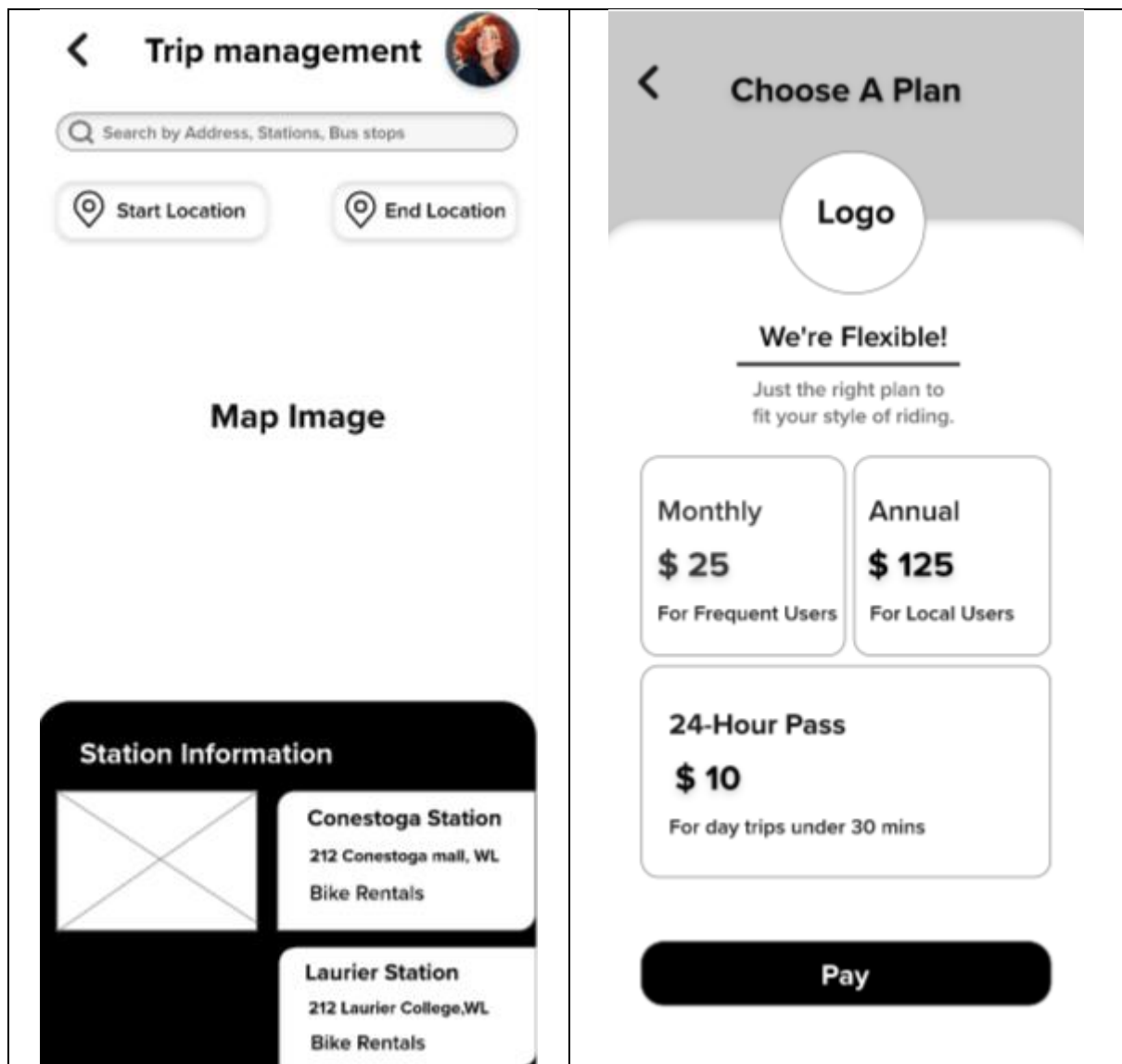


<div><div><div><div><div><div></div><div>Mills Pond Street, Waterloo , IN, Canada</div></div><div><div></div><div>High Court Lexington, Waterloo, ON, Canada</div></div></div></div></div></div>	<div><div><div><div><div><div></div><div>Pick up point</div></div><div><div>Mills Pond Street, Waterloo , IN, Canada</div></div></div></div></div></div>
<div><div>Map Image</div></div>	<div><div>Map Image</div></div>
<div><div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div><div><div>Estimated Time</div><div><div><div></div><div>30.00</div></div></div></div></div><div><div><div><div>Estimated fee</div><div>\$ 25/Day</div></div><div><div><div>Speed</div><div>25km/hr</div></div></div></div><div><div><div><div>Gazzelle MT</div><div>445577448</div></div></div></div></div></div></div></div></div>	<div><div>Arriving in00:15:35</div><div>Trip Started , you will reach in approx 15 mins</div><div><div><div><div></div><div>Mills Pond Street, Waterloo, Canada</div></div><div>Pickup point</div></div><div><div><div><div></div><div>High Court Lexington, Waterloo, Canada</div></div><div>Destination</div></div><div><div>Change Destination</div><div>End Trip</div></div></div></div></div>









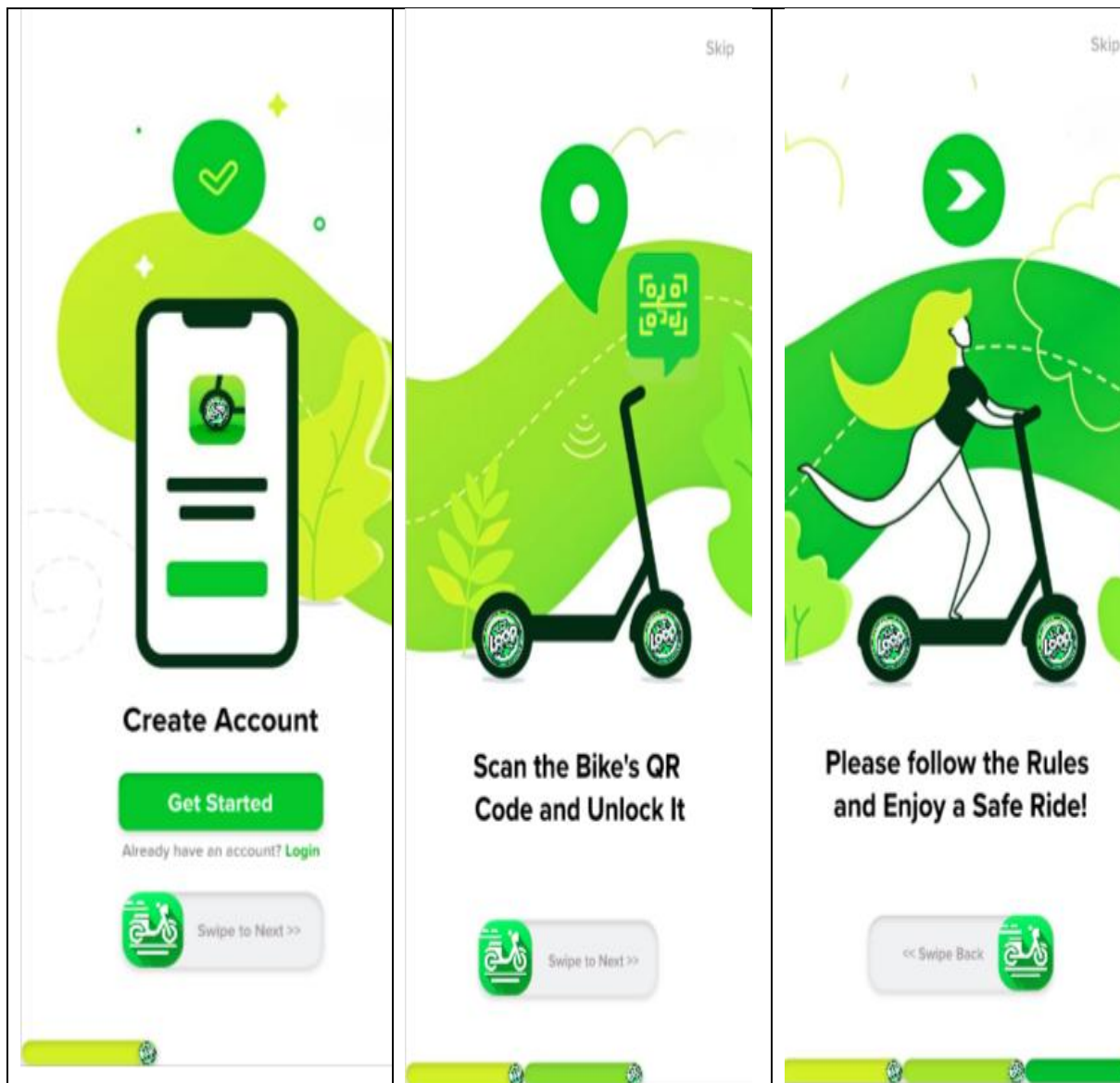
5. Interactive Prototypes





Features Demonstrated:

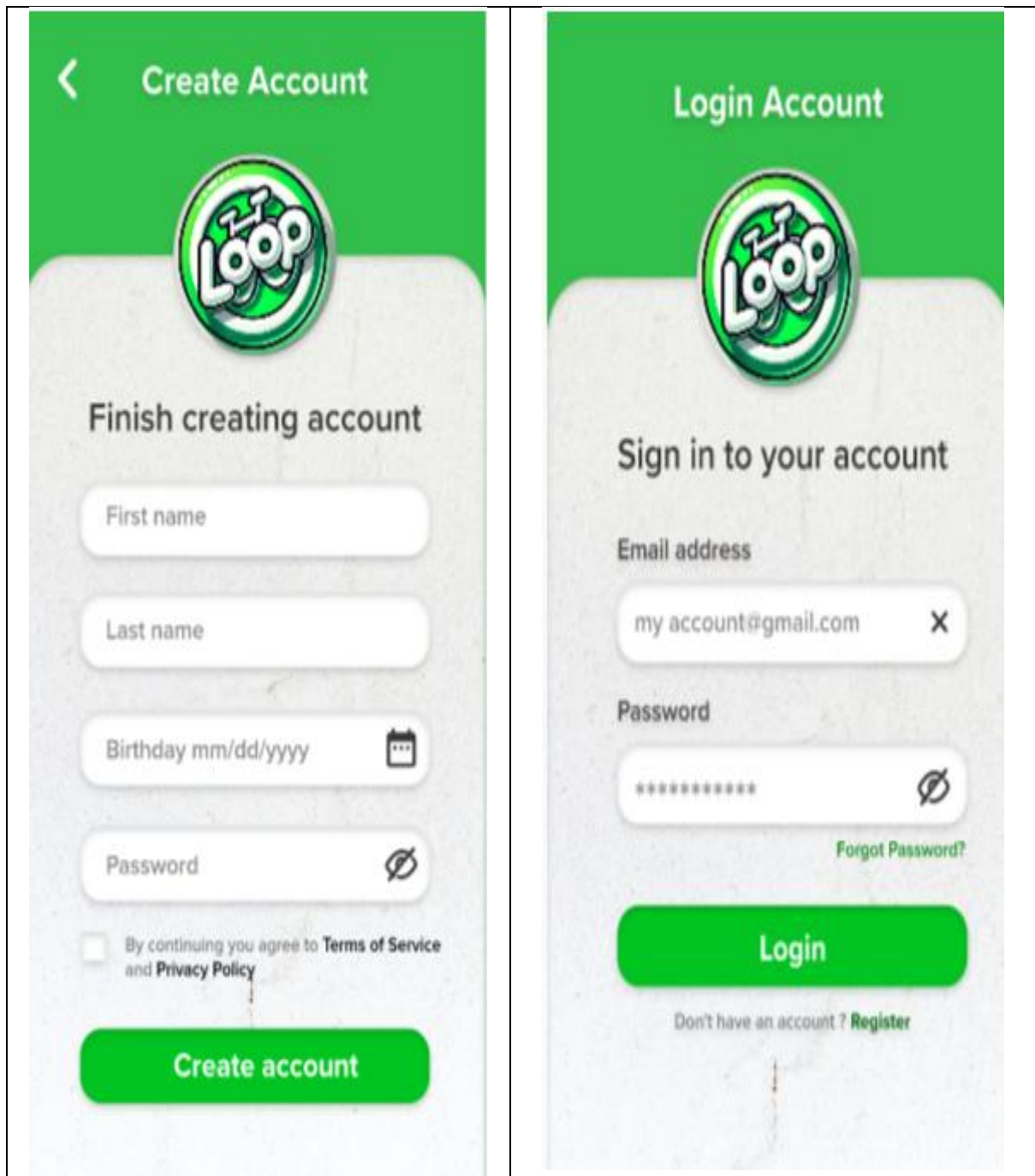
1. Smooth navigation between app screens.
2. Real-time updates for bike and dock availability.
3. Advanced functionalities like QR code scanning and dynamic trip tracking.
4. Accessibility features, including keyboard navigation and screen reader compatibility.

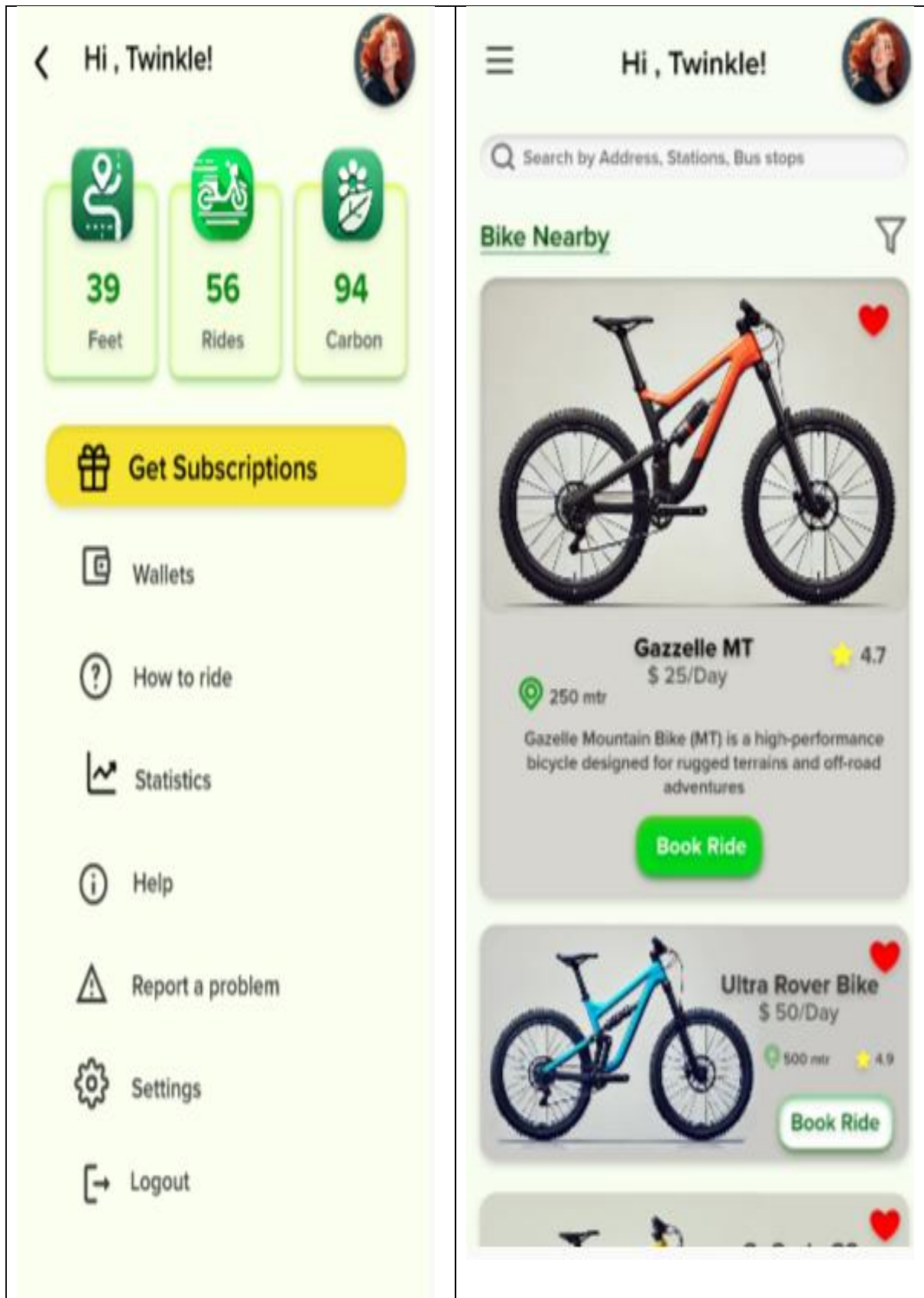
Prototype Highlights:

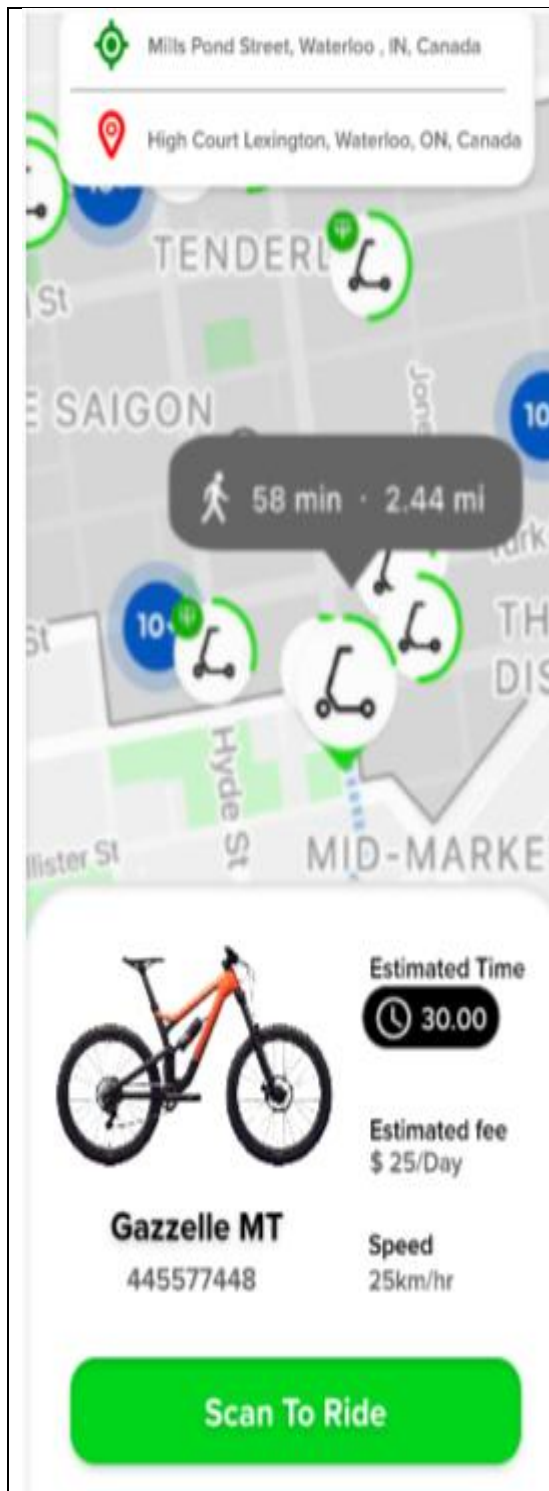
- Fully functional navigation.
- Dynamic updates on trip progress and station availability.
- Engaging animations for transitions between screens.

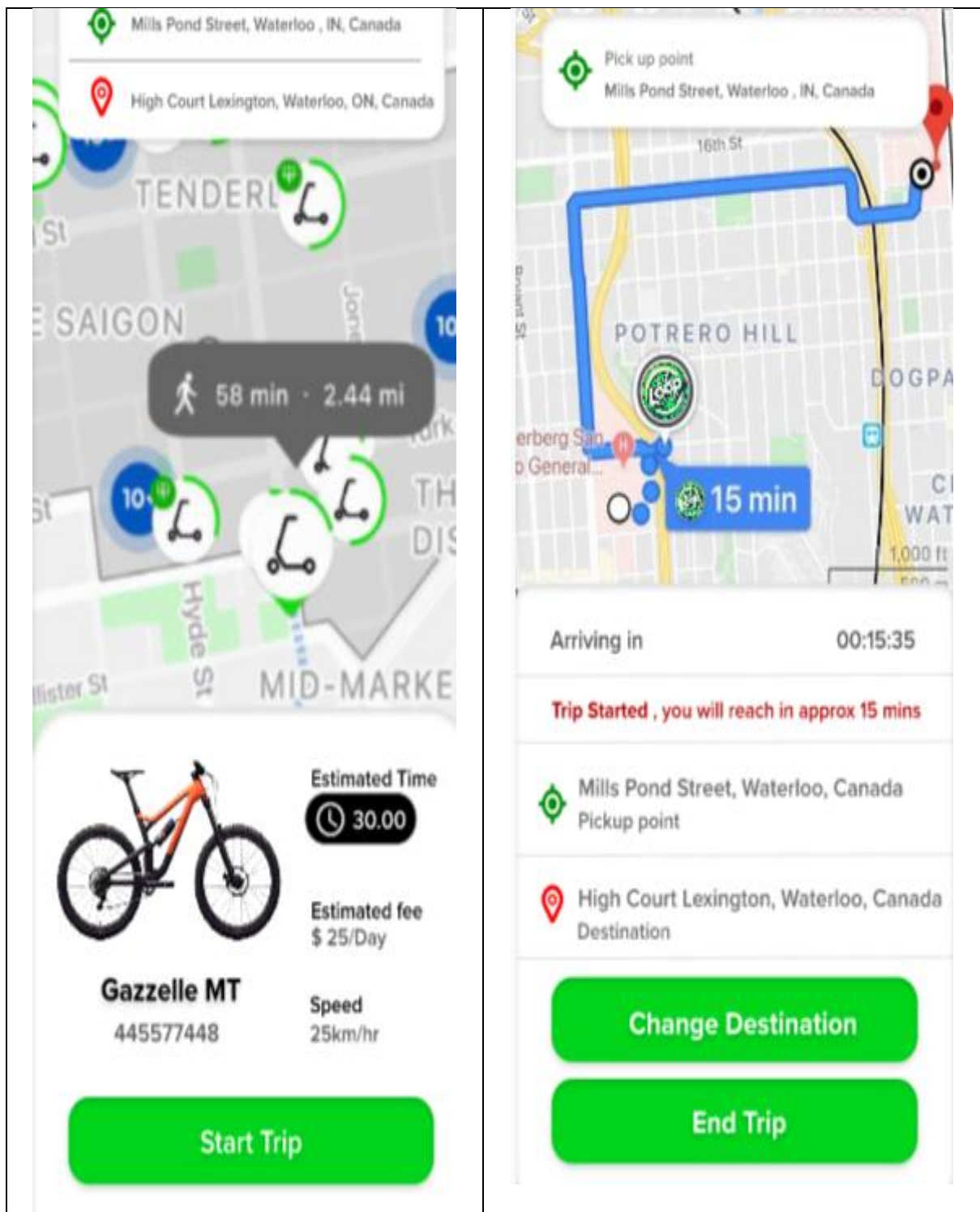


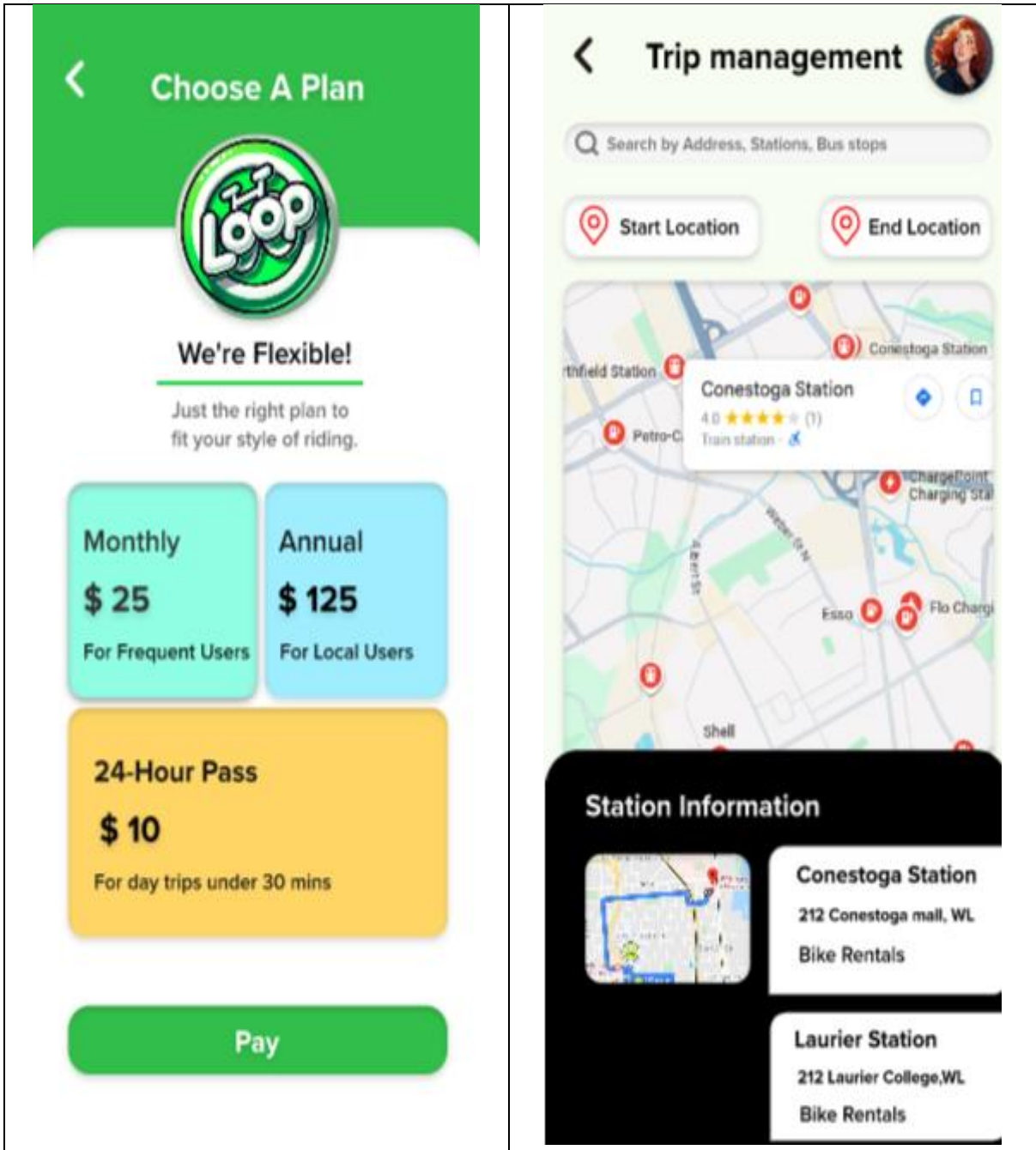
<div>Welcome</div> <div></div> <div>Sign in or create an account</div> <div>Email address</div> <div><div>my account@gmail.com</div><div>X</div></div> <div>Continue</div> <div>or continue with</div> <div> Continue with Google</div> <div><input type="checkbox"/> By continuing you agree to Terms of Service and Privacy Policy</div>	<div>Verify Email</div> <div></div> <div>Please verify your email address</div> <div>We have sent you a code to myaccount@gmail.com. Enter your code below</div> <div><div>Enter Code</div></div> <div>Continue</div> <div>Didn't receive the code? Resend Code</div>	<div>Verify Email</div> <div></div> <div>Please verify your email address</div> <div>We have sent you a code to myaccount@gmail.com. Enter your code below</div> <div><div><div>AU7E5X</div><div>X</div></div></div> <div>Continue</div> <div>Didn't receive the code? Resend Code</div>
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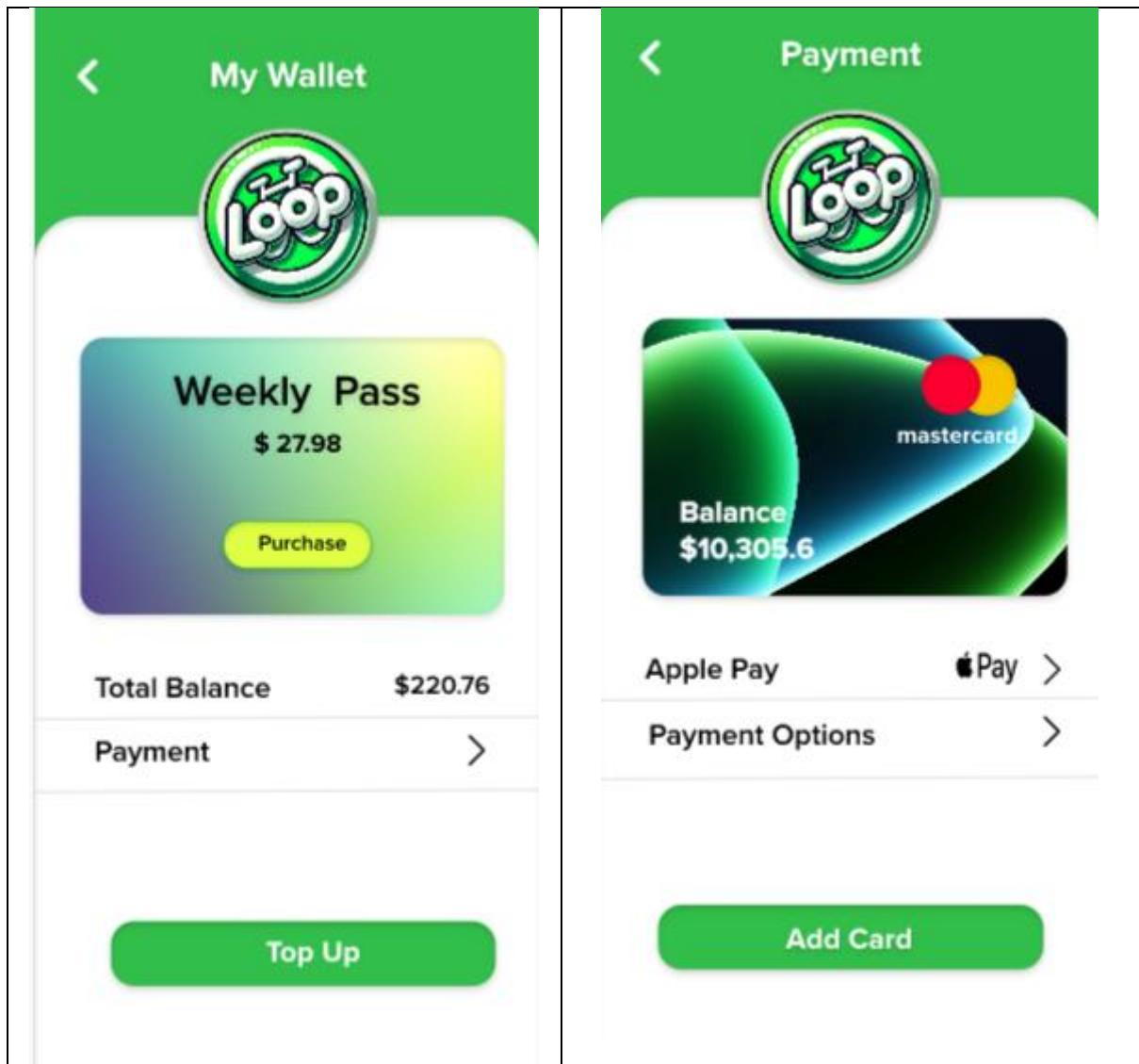


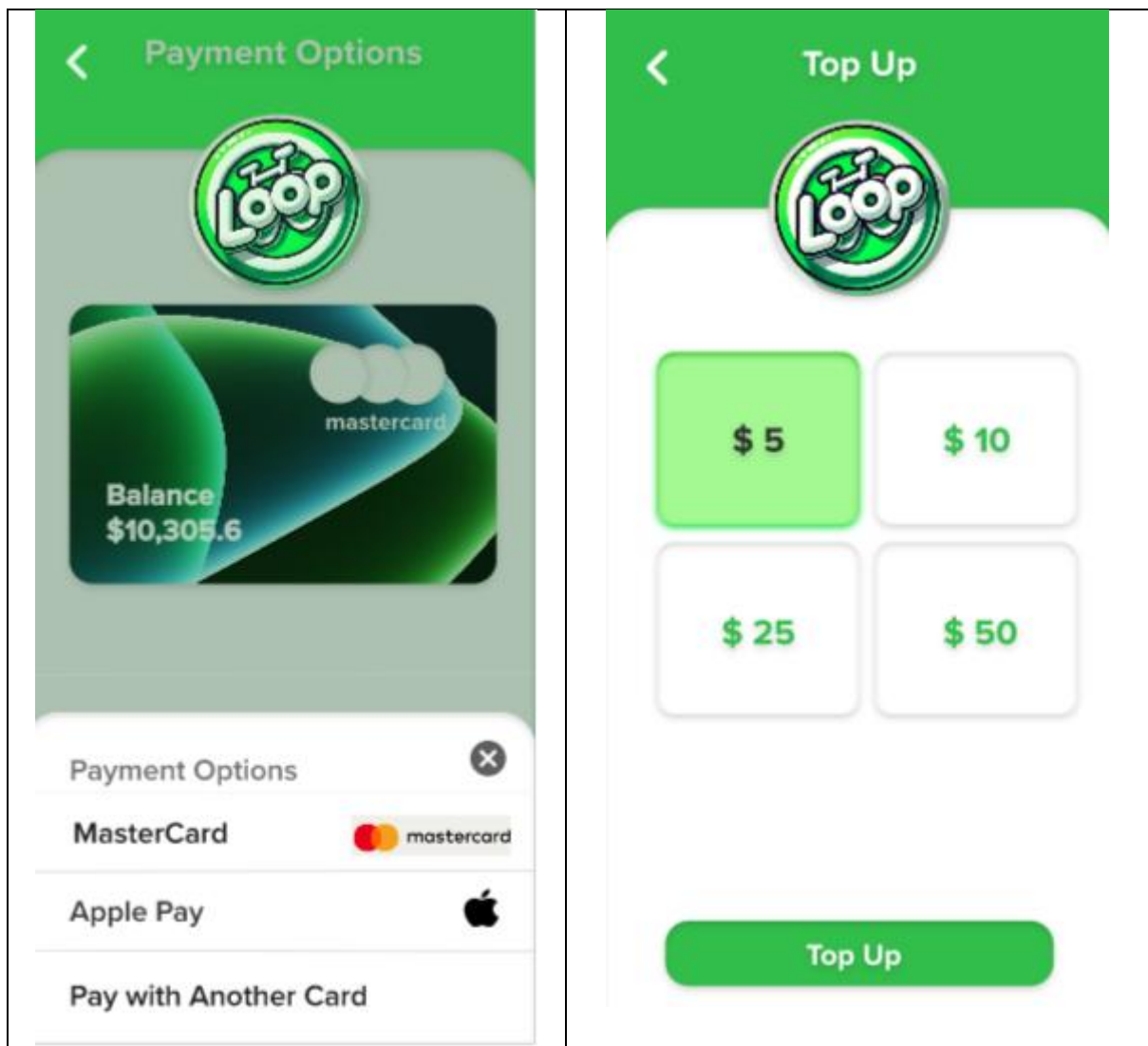


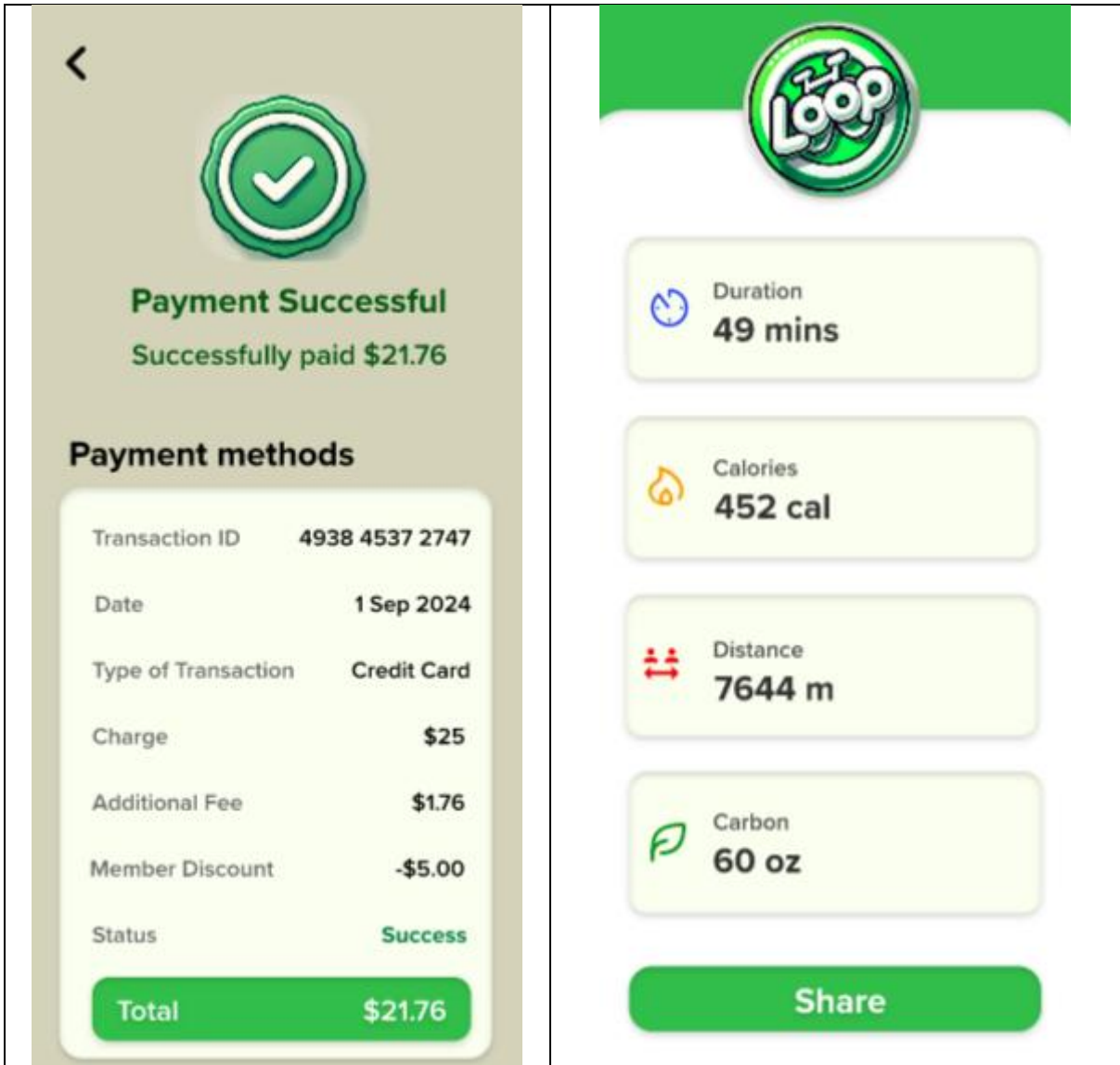












6. Addressed Design Challenges

1. Trip Management

Challenges:

- Enable users to start and end trips seamlessly.
- Provide real-time tracking and notifications for trip events, such as start, end, and overage fees.

Solutions:

- **QR Code Scanning:** Implemented a **QR Code Scanner** for unlocking bikes. Users can also manually enter a **Bike ID** as a fallback option, ensuring flexibility and accessibility.
- **Real-Time Notifications:** Users receive visual updates on the trip status, such as:
 - **Trip Started:** Displayed as soon as the QR code is scanned, showing the route and estimated time to destination.
 - **Overage Fees and Costs:** Transparent cost breakdown displayed in the **Trip Summary** and **Receipt Page** to notify users of extra charges incurred during the trip.
- **Trip Progress:** Real-time tracking on a dynamic map, showing time, distance, and route navigation, with updates throughout the journey.

2. Route Planning

Challenges:

- Provide diverse route options, such as eco-friendly and scenic paths, alongside the fastest route.
- Deliver real-time updates on traffic conditions and travel times.

Solutions:

- **Route Options:** Users can select from multiple route types (eco-friendly, scenic, or fastest), displayed on an interactive map.
- **Real-Time Updates:** Routes update dynamically based on real-time traffic data, ensuring accurate **Estimated Arrival Times (ETA)**.
- **Distance and Duration:** The route map provides clear visual indicators of travel distance and time, helping users plan effectively.
- **Tourist-Friendly:** Scenic routes are highlighted to promote local sightseeing and encourage eco-tourism.

3. Station Information

Challenges:

- Provide users with real-time data on bike and dock availability.
- Integrate with public transportation to enhance accessibility.

Solutions:

- **Station Availability:** Each station's card displays:
 - The number of available bikes and free docks.
 - Visual indicators (e.g. icons or color-coded markers) to show station status briefly.
- **Integration with Public Transport:** Stations near subway or bus stops are highlighted with transport icons, ensuring seamless multimodal connectivity.
- **Station Details:** Users can view station-specific information, including addresses and nearby landmarks, on the **Station Information Screen**.

4. Payment and Cost Management

Challenges:

- Offer flexible payment options and transparent cost breakdowns.
- Introduce subscription plans and discounts for frequent users.

Solutions:

- **Subscription Plans:** Users can purchase weekly or monthly passes (e.g., **Weekly Pass for \$27.98**) directly from the **Wallet Screen**.
- **Transparent Costs:** The **Payment Summary Page** clearly displays:
 - Base cost, additional fees, discounts, and total payment.
- **Multiple Payment Options:** The **Payment Screen** supports various methods, including:
 - Credit/Debit Cards (e.g., MasterCard).
 - Digital Wallets (e.g., Apple Pay, Loop Wallet).
 - Flexible Top-Up Options: Users can add funds in preset amounts (\$5, \$10, etc.).
- **Transaction History:** Users can access receipts with complete transaction details, ensuring transparency and trust.

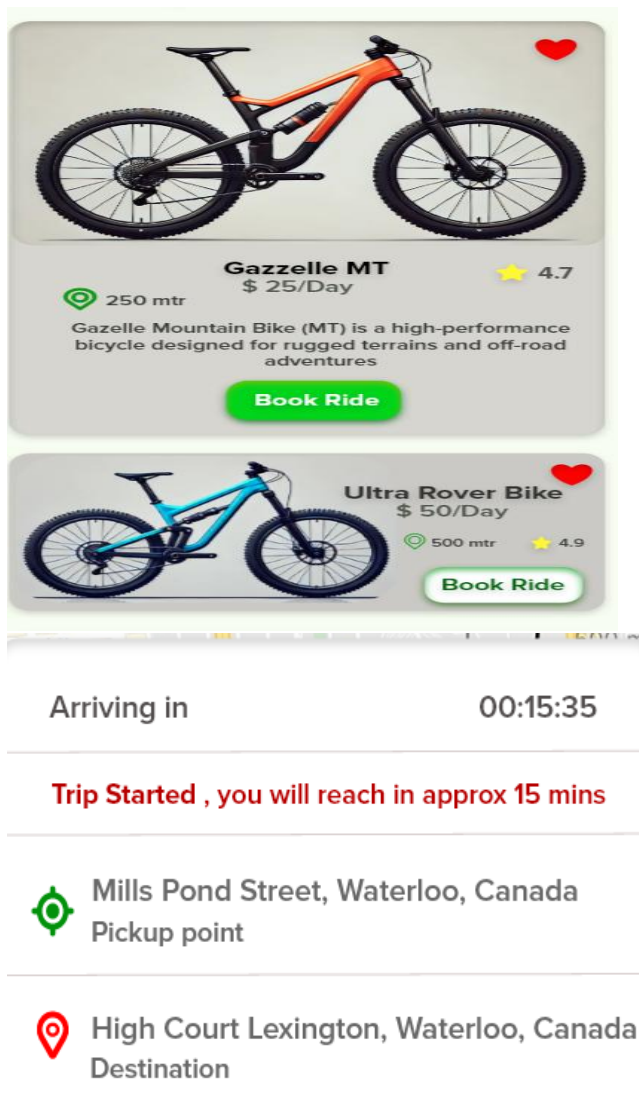
7. Design Analysis

Usability Heuristics Applied:

- **Visibility of System Status:**
 - Real-time updates on trip progress and notifications.
- **Consistency and Standards:**
 - Uniform design elements such as buttons and icons across screens.
- **Error Prevention:**
 - Confirmation dialogs before critical actions, such as payments.

UI Patterns Incorporated:

- Card-based layouts for bike and station details.
- Floating action buttons for quick actions like booking.
- Sticky headers for consistent navigation.



Payment Method




Loop Wallet

.... 9876


[Change Payment Method](#)


Pay Now



Arrived in	00:15:35
------------	----------

Trip Ended, you'll arrived at your destination

	Mills Pond Street, Waterloo , ON, Canada Pickup point
--	--

	High Court Lexington, Waterloo, Canada Destination
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8. Accessibility

Accessibility Features:

1. **High Contrast:** Ensures readability for users with visual impairments.

webaim.org/resources/contrastchecker/

[Home](#) > [Resources](#) > Contrast Checker

Foreground
Hex Value
#363836
Color Picker
Alpha 1
Lightness

Background
Hex Value
#FBFEEF
Color Picker
Lightness

Contrast Ratio
11.62:1
[permalink](#)

Normal Text
WCAG AA: **Pass**
WCAG AAA: **Pass**
The five boxing wizards jump quickly.

Large Text
WCAG AA: **Pass**
WCAG AAA: **Pass**
The five boxing wizards jump quickly.

2. **Adjustable Text Size:** Allows users to customize text size for better visibility.

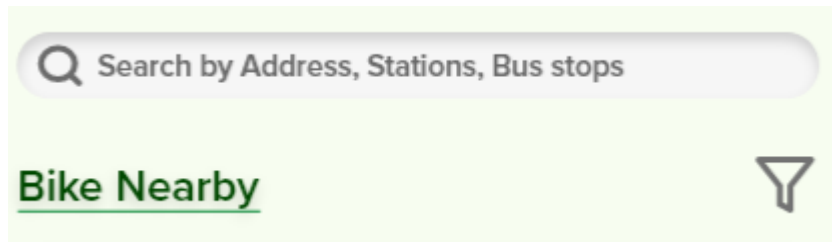
Bike ID	445577448
Location	High Court
Price	\$ 25.00
Additional Fee	\$ 1.76
Total	\$26.76

3. **Keyboard Navigation:** Ensures compatibility with keyboard-only interactions.
4. **Alt Text:** Provides descriptive text for all icons and images.

Home Screen (Bike Nearby Section)

- **Icons:** Alt text for filter and search icons, e.g.:

- Search Icon: "Search for bikes, addresses, or stations"
- Filter Icon: "Filter available bikes by features"

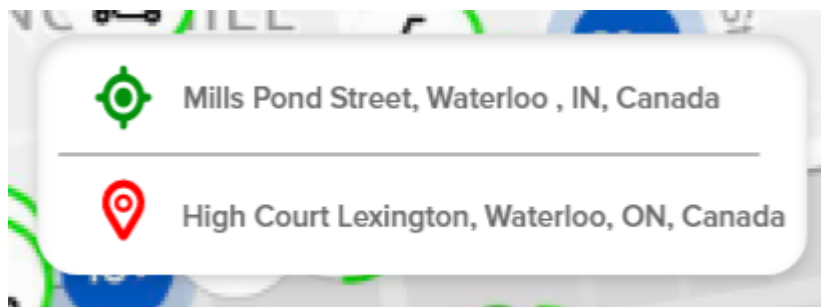


- **Images:** Descriptions for bike images:
 - "Gazelle MT Bike, 250 meters away, \$25/day, rated 4.7 stars"



Trip Management (Map Screen)

- **Map Elements:** Alt text for interactive map points:
 - Start Location Pin: "Your starting location - Mills Pond Street"
 - End Location Pin: "Your destination - High Court Lexington"



QR Code Screen

- **QR Scanner Image:** Provide a description for the camera interface:
 - "Camera view with QR code scanner frame"



- **Input Field:** Label for the manual ID entry field:

- "Enter Bike ID manually"

Enter Bike ID

445577448

Payment and Wallet Pages

- **Icons and Buttons:** Alt text for payment options and wallet features:

- "Payment method: Loop Wallet ending in 9876"
- "Top-Up button to add funds to your wallet"



- **Subscription Images:** Provide descriptions for subscription plans:

- "Weekly Pass for \$27.98"



Summary and Receipt Pages

- **Icons:** Alt text for status badges:
 - "Payment successful icon, green checkmark badge"

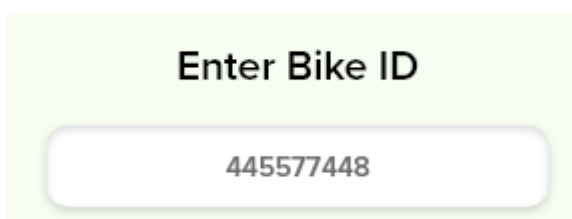
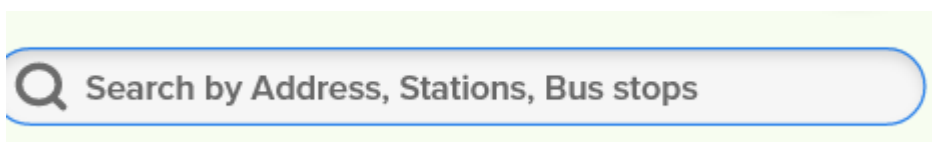


- **Text Elements:** Alt text for transaction summaries:
 - "Transaction ID 4938 4537 2747, paid via credit card on 1 Sep 2024"

5. **Screen Reader Support:** Fully compatible with voiceover and screen reader tools.

Example: Buttons: "Start Trip" instead of "Click Here."

Input fields: Label like "Enter Bike ID" or "Search Address."



Examples:

- Payment screen with bold, legible text.
- Navigation buttons with clear and descriptive labels.