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UNIVERSITY**

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Coursework Title: Project Proposal
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Deadline Date: 25 <sup>th</sup> Oct 2023	Member of staff responsible for coursework: Mr. Pramudya Thilakarathne
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Programme: BSc. (Hons.) in Software Engineering
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**PEDALIX**

The Trusted Bycycle Rental App

# INTRODUCING THE ULTIMATE SMART BICYCLE RENTAL APP

## PROJECT PROPOSAL DOCUMENTATION

In a world where environmental consciousness intersects with the desire for seamless, convenient travel, we are excited to introduce our pioneering mobile app, poised to revolutionize your cycling experience.



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# **Introducing the Ultimate Smart Bicycle Rental App: The Future of Green Transport**

In a world where environmental awareness meets the need for convenient travel, we're thrilled to introduce our innovative mobile app, set to transform your cycling experience. Welcome to the cutting edge of modern transportation with our Smart Bicycle Rental app - an all-in-one solution for an easy and eco-friendly way to get around. The days of inconvenient rental processes are a thing of the past. Our app reshapes bike rentals. After scanning the QR code on the bike lock, and you're all set for your cycling adventure. We've simplified the process to make it not just easy but incredibly user-friendly. To prioritize your convenience, our built-in payment system ensures secure, smooth, and speedy financial transactions. We're dedicated to ensuring your experience is as effortless as a well-maintained bike chain. Our dedicated administrators can track the location of each bike through a robust system, guaranteeing their safety and availability. If you're a fan of electric bikes, our app has you covered. It conveniently identifies nearby charging stations, making it a breeze to keep your e-bike charged and ready for your next journey. Whether you're a local exploring your city or a tourist looking for new adventures, our app comes with a user-friendly navigation system to guide you along various routes. No more worries about losing your way; our app is designed to keep you on the right track. Our driving vision is to promote eco-friendly transportation, reducing traffic congestion and excessive fuel consumption. The more people get on bikes, the fewer cars on the road, and the less fuel we consume. This not only benefits the environment but also ease the traffic congestion and reduce our reliance on finite fuel resources. By choosing the Smart Bicycle Rental app, you're not just renting a bike; you're becoming part of a larger movement aimed at creating a cleaner, brighter future for all. Our app isn't just about your cycling experience; it's a commitment to a greener, more sustainable world.

# Objectives

- **Bike Tracking System:** Admins will have access to a tracking system that enables them to monitor the locations of all bikes.
- **Bike Rental:** Users can easily access and rent bicycles by scanning the QR code on the bike lock.
- **Payment Gateway:** A secure and convenient payment system will be integrated to allow users to make rental payments.
- **E-bike Charging Stations:** Users will be able to locate and find places where they can charge their e-bikes.
- **Navigation System:** The app will provide a navigation feature to help users, especially tourists, easily navigate through different routes.
- **Data-Driven Improvements:** Continually increase the effectiveness of the app, the user experience, and the distribution of bicycles in keeping with demand.
- **Safety Initiatives:** Promote safe cycling practices, including helmet use, obeying traffic rules, and providing resources for bicycle maintenance.
- **Feedback and User Involvement:** Encourage user feedback and involvement in shaping the app's features and services to meet their needs and preferences.
- **Environmental Impact Assessment:** Regularly evaluate the environmental impact of the app and the usage of bicycles in terms of reduced emissions, energy savings, and other environmental benefits.

## Why these solutions being implemented to address the issues:

- **Reduce Traffic:** Encourage a reduction in traffic by offering a practical and environmentally beneficial alternative to driving a car or using public transportation.
- **Reduce Fuel Consumption:** Encourage people to use bicycles for short rides and other daily transportation.
- **Minimize Fuel Price Impact:** Help individuals to save money and make transportation more affordable by offering an economical alternative.
- **Combat Pollution:** Encourage emissions-free bicycle transportation to help reduce air pollution and its negative health impacts.
- **Improve Wayfinding:** Give locals and visitors a simple tool to utilize in unfamiliar locations, minimizing the need for private vehicles or pricey transportation services.
- **Promote Exercise:** Promote bicycle rides to encourage regular physical activity, which will improve users' health and wellbeing.

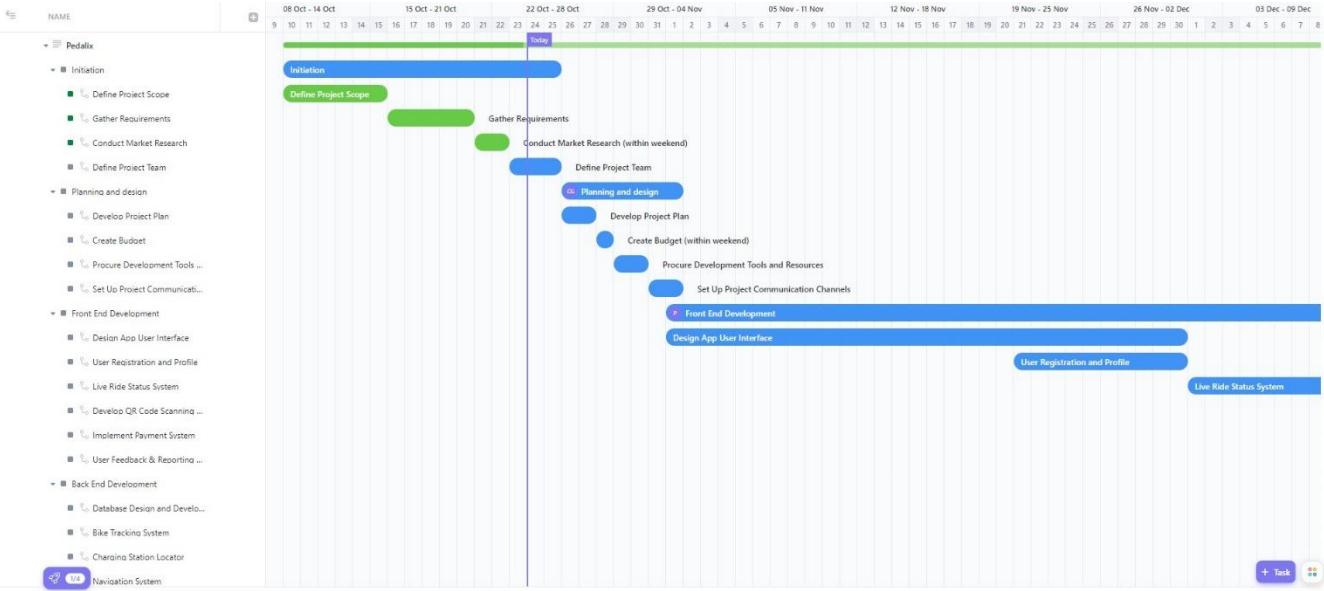
## Target Users

- Users: commuters who travel frequently.
  - ❖ Locals - who are looking for less expensive and healthy travel options.
  - ❖ Foreigners - Tourists seeking new horizons and desiring to experience new adventures.
- \*\*Aspects that we're seeking from our users,
  - Age between 18 to 60 years old (Due to security concerns, the registration process requires correct identifications such as NIC or Passport)
  - Knowing how to use smartphones and online payment methods is ideal.
- Bicycle/E-Bike Owners and charging stations.
  - ❖ People who are willing to offer bicycle rentals through our app and provide e-bike charging stations in specific places.
- Cafe Owners.
  - ❖ Those who provide our passengers with rest areas and healthy snacks for their journey.

## Application Features and Description

- **Registration:** People can download the app and sign up as new users by giving the requested information such as,
  - ❖ Name
  - ❖ Date of birth
  - ❖ Address
  - ❖ Mobile Number
  - ❖ E-mail
  - ❖ Identity verification (NIC photo or Passport photo)
- **Logging in:** For a rapid and safe login process, users can use biometric authentication or their login credentials.
- **Display Few Tips:** A few hints will be displayed to the user with several instructions on how to use the programs for an easy user experience. This will only be displayed when the user initially signs up.
- **User Dashboard:** In this step, customers can visit their dashboard, where they will initially receive journey suggestions based on their current locations; also, from here, users can search for destinations they are willing to visit. After selecting the desired destination or trips, the app will display the nearest bike stations to the user.
- **Bicycle rental process:** The customer can choose their preferred bicycle model from this page. They will meet with expected travel fair after selecting the bicycle and route.
- **QR Scanning process:** The user can scan the QR code with the application. The bicycle lock will unlock after scanning, and the journey and navigation will begin via the app.
- **Exploration:** The navigation page will show the best routes as requested by the user, as well as charging stations and other bicycle stations. Users can return the bike if they want to end the ride halfway through the journey or seems easy to return the bicycle to the nearest station as their current location.
- **Returning the bicycle and making the payment:** The user must return the bicycle to the bicycle station and pay the fee determined by the app at the end of the journey.
- **Review and Feedback:** At the end of the trip the user can offer feedback about the user experience and ideas or complaints as they please.

# Time Frame



**Figure 1**

<https://sharing.clickup.com/9010165811/g/h/8cgre1k-267/702a013766da68a>