CSCI 3308 Section 209 - Team 7
Agents 007
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Milestone 1

Application Name - Pathfinder

Application Description - This app will pick out a path for someone who wants to go on a run, but doesn't necessarily know where to go. It has options for distance, type of surface (running on the roadside or the sidewalk for example), elevation change, and will pick a path based off of that. The app will also have the option for the user to set a location/destination they want to end up at. In addition to this the app will also "pathfind" for more than just runners. If they want to ride their bike, or ride their motorcycle, or drive their car along a route just for fun, this app will recommend routes for them based on a preset criteria determined by the user. This app will help people find fun routes that they can run on, bike on, ride on, or drive on.

Vision Statement - The map for people who don't know where they want to go.

Version Control - Github Repository Link

Development Methods - We plan to follow the agile development methodology. Using a Kan-Ban board on Github to help organize. We will also use version control to manage changes to the project. We plan to first meet and breakdown smaller features/functions and assign them to individual group members or, depending on how we feel, assign smaller groups to each function. We plan to discuss and lay down a foundation for each function and then after a set amount of time we deem necessary we meet and discuss what we accomplished and what we need to do from there.

Github Board Link

Communication Plan - Initial communications will be done through text and email to organize group meeting times. Group meetings will be twice a week over Zoom in order to work on actively collaborative sections, such as the milestones. Between meetings, individual quick communications will be sent over text. Updates on progress will be added in the GitHub commits through comments. Longer messages or needed communications will be emailed through group emails. This communication plan will provide flexibility in urgency of communications as well as volume.

Meeting Plan - Tuesday, Thursday 4:30- 5:30pm Zoom, Tuesday with TA 12:20-12:30pm.

Proposed Architecture Plan -

Backend - Collect Map data from Apple Maps and Google Maps APIs. Cloud hosted (AWS, Azure, Google Cloud, etc.) server to provide information to the mobile apps and track leaderboards and other data.

Front End - Present information through a mobile app, created with Swift for iOS and Java or C++ for Android. Possible website application that may be created later (also cloud hosted.)

Use Case Diagram -

Actors:

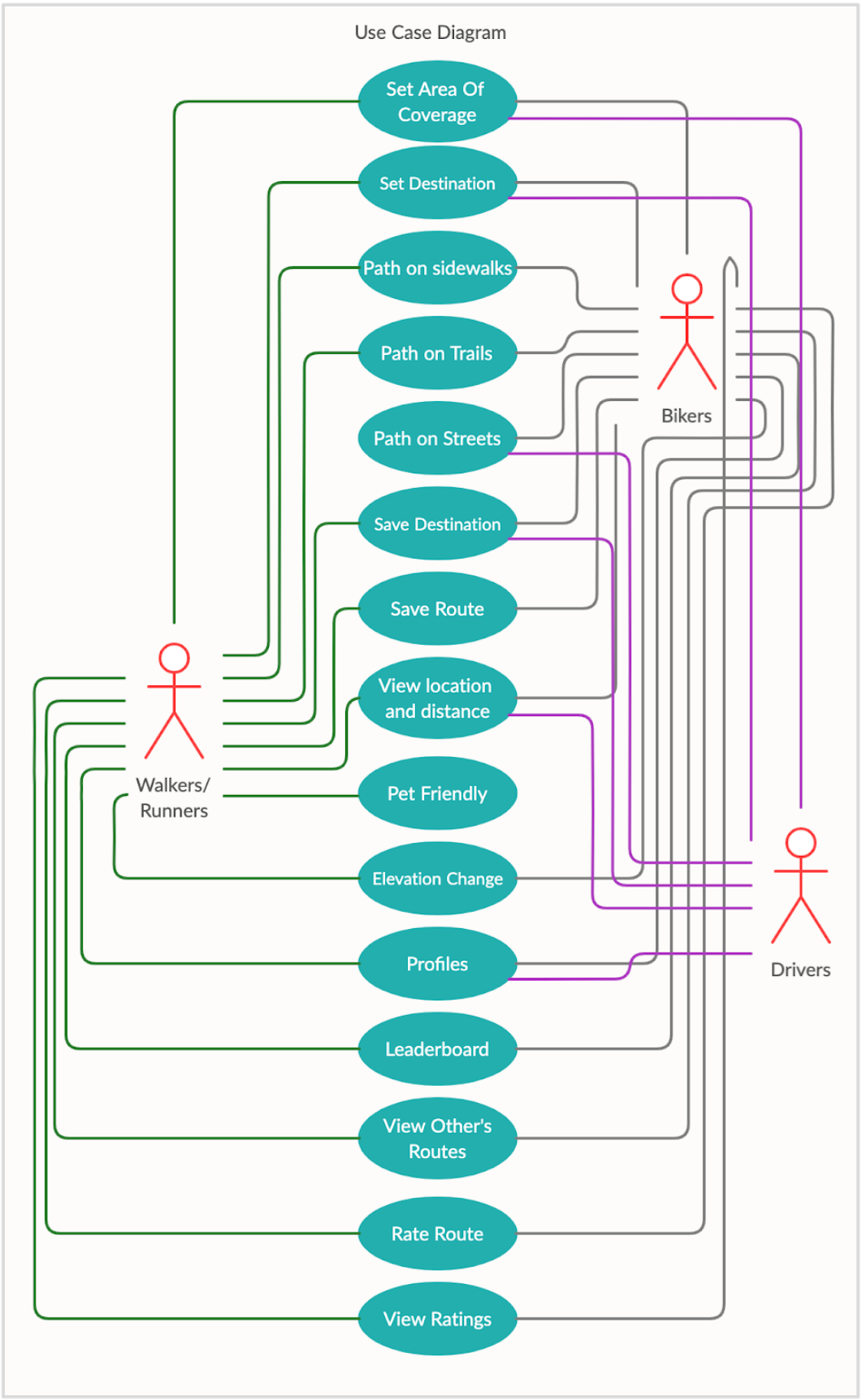
1. Walkers/Runners
    a. Pedestrians/people who are walking, jogging, or running on foot
2. Drivers
    a. Cars, Motorcycles, People who are mainly on streets.
3. Bikers
    a. Individuals who choose to travel by bikes, possibly skateboards or other non motorized transportations by wheel can also be considered in this actor.

Use cases:

1. Set area of coverage
    a. Essentially a radius around the user's current location set by the user. If they don't have a specific route and just want to have the app pick something for them that's within a certain radius, they just specify that and the app picks something within those bounds.
2. Set place/destination
    a. Locate a goal to travel to, and find the best route from current location to the chosen destination. This can be used by all actors.
3. Choose path on sidewalks
    a. For walkers/runners only, this will highlight the sidewalks that a pedestrian can follow and the user can pick one from there.
4. Choose to path on trails
    a. For walkers/runners only, this will highlight the footpaths (anything that's not a sidewalk essentially) that a pedestrian can follow and the user can pick one from there.
5. Choose to path on streets
    a. This option will be available to all users. It will show routes on roads that users can choose from.
6. Save a destination
    a. This will save a destination giving you a path to it from wherever you are. This can be used by all actors.
7. Save a route
    a. This will let you save any route you've taken just in case you want to do it again.This can be used by all actors.
8. View current location and distance along path

    a. Pedestrians/joggers and bikers can view where they are along their trip, as well as this page displaying how far they've traveled and how far they have left to go.
9. Find dog/animal-friendly areas/parks
    a. Pedestrians or joggers can use this to locate the nearest outdoor pet friendly location, as well as the route to get there. These locations include off leash dog parks, as well as areas with pet amenities. This feature can also show which areas prohibit pets, and what the leash regulations are in areas.
10. Set max/min elevation change
    a. If a user wants to specify a certain amount of elevation change this use case will allow them to see and pick routes based on other criteria in addition to elevation change.
11. Profiles
    a. This is a case usable by all actors which allows them to view saved destinations, routes, and other stats, like max elevation, total distance, longest route taken on each option, and your leaderboard, ect.
12. Leaderboard
    a. Pedestrians or bikers can choose to publish the total distance they have traveled and total time spent on routes on the app to an online leaderboard. There the users can see the top 25 profiles under different categories of rank.
13. Other routes people have taken (most popular)
    a. Pedestrians and bikers can use this feature to see routes near them that have the highest volume of people on the app. These are seen as popular routes that the user can download to travel as well.
14. Rate a route (out of 5 stars)
    a. If you have taken a route and you liked it or didn't you can rate it out of 5 stars so that way other people can decide if they want to take it.
15. View ratings of routes
    a. This will show the overall ratings of other routes to the user.

Use case diagram below


Use Case Diagram
Set Area Of Coverage
Set Destination
Path on sidewalks
Path on Trails
Path on Streets
Save Destination
Save Route
View location and distance
Pet Friendly
Elevation Change
Profiles
Leaderboard
View Other's Routes
Rate Route
View Ratings
Bikers
Walkers/ Runners
Drivers