Project Inception

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Vision Statement

***Elevator Pitch***

RoadRunner will be an Android app built off Google Maps’ navigation functionality that allows the user to search on-the-road for stops *along* their route. Whether wanting to plan out a lunch break or a fuel stop, RoadRunner will help road-trippers choose when and where to stop. They will be able to see what food, hotels, attractions, gas stations, and rests stops are within a user-determined radius of their route. This will allow users to road trip efficiently are carefreely, never having to backtrack and never having to worry about missing their last option.

***Business Case***

Currently, if you want to plan out stops while road tripping you have a few options. First, you can periodically use the ‘search nearby’ function of any maps app to find things within a few miles and manually go through each to disregard ones that would require backtracking. Secondly, you can plan out the whole trip ahead of time on your computer at home using a variety of dysfunctional websites dubbed “road trip planners.” Third, you can exit whenever you see a “food at this exit” sign that interests you or pass it and hope that it isn’t the last exit for a hundred miles. Thus, there are no direct competitors for the RoadRunner app.

RoadRunner distinguishes itself because it is geared towards planning individual stops on the go rather than planning out the whole trip ahead of time, while still making sure you never have to backtrack on your trip. The indirect competitors from the above scenarios are apps such as Google Maps, Trip Advisor, and Yelp to use while driving to find what is nearby. There are also the indirect competitor websites such as roadtrippers.com, tripit.com and roadtripamerica.com directed towards planning roadtrips. This product is entering the well-established market of mobile navigation apps but holds a distinct functionally that none other provide.

***Stakeholders***

The stakeholders for this application are the YOCO team members, the SDD instructor team, and our out-of-class friend Varun Madith who has experience doing mobile app development for TripAdvisor.

***Features***

Upon opening the RoadRunner application, the app with access the users location and load a Google Map of the area with about a 5 mile radius. After prompting the user to enter their destination address, the fastest route will be loaded and a map will be displayed. It will also unobtrusively give the option to choose between up to two alternative routes. This will follow exactly as basic Google Maps Navigation functionality.

Next, by selecting a special RoadRunner search icon, a menu will open giving the user a menu of 5 different fields with certain options. **Radius from route:** 1, 5, or 10 miles. **Type of stop:** Eat & drink, see & do, fuel-up, rest & empty (bathroom breaks), and sleep. **Optional specific search field:** used to search for a specific chain or key word. **Distance to search from:** any amount from zero/current location to total distance/destination which will be represented by a slider from zero to total distance with tick marks at each 5% showing the corresponding mile value to choose from. **Range of search:** 10 miles, 50 miles, 100 miles, and 200 miles. (Note: this is a total range from the distance selected as a midpoint so if you chose to search from your current location, the range would not search behind you so would really be 5, 25, 50, and 100 miles. Similarly, for search at your destination, it would use the portion of the route leading up to it.)

The results will be displayed in a full-screen list layout ordered by distance from current location. If the results list produces more than 25 options due to the search being non-specific or in a more populated area, it will be segmented into distance ranges and the user can either go through all the options segment by segment or choose to add a more specific search term in a text field at the top of the page to refine the options.

If the user choses to add a stop from the results, it will add the location as a stopover on the way to the final destination. After that, the app will continue with typical Google Map directions. The same RoadRunner icon will be there as before to choose to start a new search later on.

***Risks***

The major risk of the project lies in the group’s lack of experience developing with Android and familiarity with Java and XML. Another risk is that the team is composed entirely of sophomores and thus do not have the experience of upper level computer science classes or much development experience in general.

A risk related more to the project is that there are many dead or poorly functioning projects online which promised similar functionality but none have succeeding in deliver it through a mobile platform at all. This could be due to lack of dedication of those developers or because the development is more complicated than we are anticipating.

User Scenarios

**I. Peter Cardigan**



*Age:* 32

*Profession:* Tech Consultant Travels 20% of the time around the USA

*Living Situation:* Married with 2 young children, 7 and 4. Lives in the outskirts of Washington D.C. McLean Virginia in a three bedroom house

*Income: $*150,000

*Education:* High School in Detroit, BS in Computer Science at U Michigan. Then spent 6 years in the Air Force since he had done ROTC

*Motivation:* He likes to travel and visit his family and in-laws. He wants to have both sets of grandparents be actively involved in the upbringing of his kids. He enjoys road tripping and doing new things while traveling. He likes taking his kids places and teaching them cool skills

**Description of Persona**

Peter is a man who is very good with technology and wants to take advantage of it to make an aspect of his life more simple—road tripping. He must travel a lot because of his job and on top of that likes travelling with his kids and family and visiting the rest of his family, all of which he does by car. He likes a few places to eat more than others and likes to be able to know if he can eat at one of those along his route.

*Other Aspects:*

* Wants things to load quickly
* Does not like cluttered interface
* Wants the ability to access much more information than he needs
* Picks up new technology quickly
* Wants stuff based on upgrading technology

*Goals:*

* Never Drive Backwards
* Not have to deal with hungry kids and no food Know what options he has for rest stops and eating
* Know where he can have potty breaks for his kids
* Goal arrival time to calculate leeway (fast food vs. full sit-down)
* When (in miles) we will be able to get gas and how
* Be able to see what places they can eat at in a given distance

**User Interface**

He’s familiar with using Google Maps to navigate. A simple interface concurrent with standard Google Map interface would make the learning curve close to nothing. He does not want to have too many buttons, they need to be well placed, and it should make directions is simple and intuitive. The interface should be much like the other apps he has used because he wants to be able to hand off his device to his wife or kids and have them have no issue figuring it out. It should have buttons that bring up subsections on the screen with destinations and options from there. All the information is overlaid on the map and updated when requested such as the distances for each search result. The route is determined and information is integrated into the interface but not obtrusive when not in use.

**Steps gone through to accomplish goals**

Peter, his wife, and his kids are in the car fully packed and ready to leave on Saturday at 6 am. They are about to start a 540 mile drive to a visit his wife’s parents in Knoxville, Tennessee. By conservative standards, it will take about 10 hours to do this trip. Peter packs his kids into the car, starts, and pulls out his phone. He then loads the RoadRunner App. His current location loads automatically and he enters his destination and plots his route. Looking at the app he decides that for the time being he won’t need any gas stations (his car has 450 miles of range) and he won't need any places to sleep (they’ll be staying with the grandparents). He figures he’ll get hungry for an early lunch around 11 but will just wait to see how the trip goes. He then puts his phone on the dashboard and begins to drive. After driving for three hours with his kids and wife asleep, the kids begin to wake up. They hit some traffic on the way out of DC so they still have about 400 miles to go. It is now 10 am so he decides it they’ll probably want to stop within an hour or so. He wakes his wife so he doesn't have to operate the app while driving. He tells her to click on the RoadRunner icon to bring up the options for food within the next 100 miles. She has never used the app before, but after clicking the RoadRunner icon, she selects ‘Eat & Drink,’ moves the slider to 25%(of their trip distance left, which would be about 100 miles) and selects to search within 50 miles. They’re on a very empty stretch of road in Virginia. She does not like anything she sees so Peter advises her to bring the search range up to 100 miles. They see that in 55 miles there is an IHOP. They figure it’ll be better to stop sooner to keep the kids happy than wait till they having no options and have to deal with upset kids for another 100 miles. She clicks the ‘Add Stop’ option. The app directs them to IHOP. Peter arrives without any issues. They get some food, make sure the kids go to the restroom, get back in the car, and the app resumes the trip to Knoxville. Later, while his wife is driving, Peter uses the app to find a rest stop for everyone to stretch their legs.

**II. Martha Smith**



*Age:* 42

*Profession*: University of Michigan Athletics Softball Recruiter

*Living Situation:* Long Distance Life Partner, Ohio University Softball Coach. Lives in a Small one bedroom apartment by the campus

*Income:* $70,000

*Interests:* Softball, U M Athletics and College life, Country Music, Likes Rugged Clothing, Likes the outdoors, Loves Pottery

*Education:* University of Michigan Major B.A. Women’s Studies

*Motivation:* She wants the best recruits for her team so she travels a lot. When she travels she does not want to think about looking for food and gas. She is very selective about her fast food choices and gas station choices due to a traumatic experience as a kid.

**Description of the Persona**

Martha is a woman who is not very good with technology and is having it forced upon her by the modern world. She is, bit by bit, seeing the good parts about technology. She travels a lot going from high school to high school searching for the best new recruits she can get for her school. She loves meeting these new kids and wants to be able to think only about the softball, not about searching long and far for food and lodging. She wants something to do that for her.

*Other Aspects*

* She doesn't like using computers or any other technology but is forced to do so.
* She doesn't understand most technology and likes having many options.
* Once she makes a choice she doesn't want to think about things.
* She has difficulty using multiple apps and gets frustrated easily with more complex User Interfaces.

*Goals*

* Be able to travel and find a place to sleep on the way
* Be able to see where her favorite chains are along her route
* Be able to plan stops

**User Interface**

She needs a simple user interface that does not throw too many options at her and overwhelm her. She wants to be able to find her desired locations at their different positions with ease. She wants to be able to insert rest stops at desired locations to be integrated into the route with ease. Based off of her route and progress she wants to be able to find a place to sleep with ease. She doesn’t wants to have to do much to the application once she opens it and sets her location. Very simple Google Maps like interface. Buttons bring up subsections on the screen with destinations and options from there. All search results are overlaid on the map and updated upon request.

**Steps gone through to accomplish her goals**

Martha has just finished another successful season coaching Third Base for the women’s team at UMich. She had a day off and now being Monday must begin to go out and scout the country for the best softball players in the nation. She wakes up early Monday morning in Ann Arbor, Michigan and drowsily gets dressed. As she gets all her things in the car and prepares to go, she pulls out the information of her destination and her phone. She then opens RoadRunner and enters the destination to get a route. Today she will be driving approximately 600 miles to the Albany area in upstate New York. She chooses a radius of 5 miles because she is willing to go a little more out of her way for good stops due to her picky tendency. She slides the slider to 20% (stop in 120 miles) with a 50 mile range. She hopefully enters Tim Horton’s, her favorite chain for breakfast, in the optional search field and sees that there is a location and without hesitating adds it to her route—137 miles away. She puts the phone on her mount and begins to drive. The app routes her to Tim Horton’s. When she is done she gets back in the car and is continues on to her original destination. She keeps on driving. After a while she notices she has ¼ tank of gas and wants to fill up. She pulls up the option submenu and chooses the 10 mile item, “Fuel-up,” and doesn’t move the slider. There’s no gas within 5 miles but it prompts her to try a larger range. She chooses 25 miles. She sees that there is a gas station in 9 miles and she adds it to her trip. She is routed there, fills up, and goes back on her way, eventually arriving in Albany.

Project Schedule

We dealt with the project by making three separate aspects for it. The first is a phase based system which breaks down what we need to create for the app and gives a basic description and timetable. The second is a week-by-week breakdown of the class deliverables, our deliverables and the learning goals we want to have for said week. The final part of schedule but not directly linked in the progression of what the app needs to have, what we want to have and a not likely going to have.

**Phase Attack**

*Research Learning and Basic Stage* (We will be learning and working on Base) Feb 21- Mar 7

a. Find the basic Google Maps and research how to extract the base function without altering whether it works or not (Feb 21-Feb 28)

b. Create a simple RoadRunner App that will serve as the holder/empty frame that we will put the maps functionality into (Feb 21-Feb 28)

c. Merging of RoadRunner empty frame and Google Maps (Mar 1-7)

*Construction Phase* (Adding our major app functionality) Mar 8-May 6

*Development I* (Before Stakeholder Meeting #1) on April 6

a. Create a basic user interface from a design standpoint. Links and actions do not have to do anything (Mar 8-Mar 22) Extra week because of spring break

b. Create the windows to adjust the settings, display the different options to add to. In other words have the user interface but have it be empty and not usable (Mar 8-Mar 22) Extra week because of spring break

c. Create the functionality that will load all the locations along the route using Google places and outputs them to a .txt file so we can check if it is correct and that we are getting the results we are expecting (Mar 17-Mar 24)

d. Show the results from the previous task in the user windows we have created thus making them functional (Mar 24-Mar 31)

e. Debug the results to make sure they are working and display the information we want it to display (Mar 31-April 2)

*Development II* (Before Stakeholder Meeting #2) April 3-April 22nd

a. Work on backend to be able to divide and search amongst the information based on either a specific parameter or category etc. (April 3-April 10)

b. Test the effects of these backend changes to make sure they are functioning correctly and fix any issues we are having. (April 11-April 14)

c. Create the functionality for the user to look at all the items that will be at the preset markers (1, 5, 10 miles) ahead. (April 11-15)

d. Work on the progress meter so people can select a certain distance in that they want a stop and pre-program it from the beginning.(April 15-April 19)

e. Tweak the app so that it is not that buggy and displays the information as we want it to. (April 19-April 22)

*Development III* (Before the Final Presentation) April 23-May 6

a. Work through the UI to make sure that it is simple, easy to use and feels like a version of Google Maps with increased functionality. (April 23-April 30)

b. Modify the aesthetic parts of the application (E.G. logos, menu bar locations, display locations) to show the information as best we can and test it with people while getting their input. Do more changes based on the input so that our app is intuitive. (April 31-May 6)

*Development IV* (While Presentations) May 6- We Present

a. Tweak the projects as presentation teach us issues in UI so we can present the best thing possible.

**Week By Week Project Schedule**

|  |  |  |  |
| --- | --- | --- | --- |
| *Week* | *Class Deliverables* | *Project Goals* | *Learning Goals* |
| Feb 10- Feb 16 | N/A | Work On Inception | Research |
| Feb 17- Feb 23 | Project Inception (Thursday) | Finish Inception, Do elaboration. Begin to work on android SDK | Learn Java. Learn about the production tools for Android apps |
| Feb 24- Mar 2 | N/A | Have a base layout for app working in simulator | Learn more Java, Map SDK. Learning to use UML and MOSCOW and use cases |
| Mar 3- Mar 9 | Elaboration (Thursday) | Finish elaboration. Have a base maps with a non-functioning GUI overlay | Learn about any projects on Git with similar goals |
| Mar 10- Mar 16 | Spring Break | Improving the app, Catching up | Learn more UML and Java |
| Mar 17- Mar 23 | N/A | Have 50% of Sprint Goals | Done More Learning of java and base functions |
| Mar 24- Mar 30 | N/A | Have 85% of Sprint Goals Completed | Learn about bug management and tracking |
| Mar 31- Apr 6 | 6 Stakeholder Product Review #1 (Monday) | Have 100% sprint done. 25% of overall goals. User experience and testing scenarios | Learn about User Experience and GUI. Learn from other groups and do research |
| Apr 7- Apr 13 | N/A | 50% of Overall Goals Done | Learn about Bug management and field testing |
| Apr 14- Apr 20 | N/A | 75% of Overall Goals Done | Learning about updating (Google maps updates) |
| Apr 21- Apr 27 | Stakeholder Product Review #2 (Monday) | 80% of Overall Goals Done | Learn from other groups and do research |
| Apr 28- May 4 | N/A | 95%Overall Goals, create presentation | Learn about the aesthetic fixes |
| May 5 - End | All deliverables due (Monday) | Fine Tune Product and Presentation | Tweaking techniques |

**Product Features and Goals**

*Sprint Features*

1. Google Maps like GPS navigation function
2. RoadRunner UI Shell and empty frame
3. RoadRunner merged with the Google Maps like GPS
4. User interface (Settings pane, results pane, etc)
5. Outputted to txt for all the items gone by
6. Displayed results of what the user will go by in the previously created UI Shell

*App Features*

1. Categories for the different items
2. Search Based on said categories
3. Functionality for the 5 search parameters
4. Preset Distance ahead markers
5. Slider for approximate distance stop
6. Logo and images/links in app that are aesthetically pleasing and functional
7. Clean and unobtrusive UI
8. Effective and simple division of features as to not confuse user and make easy to use

*Snowball’s Chance in Hell*

1. Pitt Stop Planning
2. Gas Reminders
3. Connections to Yelp or TripAdvisor

Contribution Summary

*Daniel Campos:* Defined the goals and step by step of the user scenario. Worked on the schedule, focusing on the time required and features (outward facing) for the timeline. Created the learning goals and researched much of the android framework to talk about if it is feasible to create the app.

*Zoe Konrad*: Researched competition (all vaguely similar apps available), their strengths, weaknesses, reason for success and reason for failure then presented to the group. Worked on the Vision Statement section and aligned use cases with actual functions.

*Nick Marton*: Researched the niche for the app and based on said niche helped develop features that the user may want or need. Helped defining the user cases and how they translated into app features.

*Daniel Yoon:* Looked into what the base Google maps functionality is and how we may extrapolate that into an application. Worked on the risks and elevator pitch in the vision statement. Helped break down what featured needed to be in the backend section to have them place in the schedule

Status Report

*Achieved:*

Finished Project Inceptions

Began to code in Java and work on App development

Made a schedule

Set Goals for projects

Made a wiki

Made a bug tracker

Researched competition

Came up with multiple ideas with likely choice to produce

Began to analyze the business value of said ideas

Looked into the possible code repositories and their tradeoffs

Brainstormed ideas

Selected our performance metrics

Set up Groupme to have group communication, whenisgood to meet, finalized roster

*Risks:*

We all need to learn Java and XML

All the apps that did something similar were dead

Had issues creating a unified ideal of what the app will give users

*Plans:*

Work on Elaboration

Begin working on app

Learn Java and XML