Contributors: Rohan Kd, Brandon Vo, Ian Nezat, Max Dokell, Michael Gee, and Tyler Gallegos

Table of Contents

Proposal for TrackMyRide

Executive Summary

Time management is critical in the working world and daily routines. People living in the city have to deal with scheduling around public transit in order to reach their destinations in a timely manner. However, one inconvenience with daily commutes is that bus stop attendees are unclear when a bus is going to arrive, if at all. While bus stop schedules are occasionally posted at nearby bus stops, a bus stop will hardly be able to follow the timing to such a precise schedule with various external factors and volatile nature of the road. A case of slow drivers, unlucky stops at a traffic light, or a car accident can be enough to ruin a bus stop's scheduled arrival and departure time. While modern GPS-based apps are capable of identifying and leading their users to bus stops. These apps do not inform their users about the availability of the bus stops, arrival times, or departure times of nearby buses.

Our app, TrackMyRide aims to provide a method for riders and bus drivers to inform their future passengers about the location and time of arrival for their next stop so that passengers know when and where to make the necessary preparations to arrive on time, and in turn, will inform their passengers about any disturbances on the road during the ride between bus stops. People waiting at the bus stop with this newfound knowledge can either entertain methods to pass the time or look into alternative routes during the downtime from delays.

TrackMyRide also can serve as a security feature for passengers as well. Outside of commercial purposes, our app can be used by guardians who wish to watch over their children, peers, or colleagues. Our app will provide continuous updates regarding users' locations and their intended destination (Operating only when given consent by both parties). If a user appears to have missed his/her destination or is off-schedule, then an overseeing user will be informed and be able to take immediate action based on the circumstances.

With immediate updates, they will be able to make the proper judgement calls and take the proper actions necessary to make sure the passenger arrives safe and sound, and hopefully close to the intended schedule. Immediate action is the best way to ensure that the nearby police force, if necessary, can apprehend any potential abductors as soon as possible while the potential criminal is still on the road, while the app user within supervision.

After careful consideration of these pain points, we hypothesize that customers such as parents, children of parents, friends, peers, and public transportation drivers will enjoy using the features provided by this app. Parents will have reassurance knowing their children are on their way to home and school, and people who frequently use public transportation will know if they need to be aware of traffic jams and any other disturbances on the road.

Gap in the Market

Currently, apps that utilize tracking usually implement this service as a peripheral for measuring the arrival time of a good or service. Uber uses tracking to inform the user about when his driver is going to arrive, pizza delivery services use tracking to inform the buyer about the timing of his/her pizza delivery, Amazon uses tracking to inform the buyer about the location of his/her package, etc. Our app's intention is similar to these services, but we aim for a more generic, versatile approach. Our goal is to let anyone from carpoolers to bus drivers to inform their passenger, friends, or children that they're on their way or have arrived.

Meeting the market's needs

TrackMyRide will be designed to as a free and versatile application for any commute-oriented businesses. It will be designed to be safe and hands-free to minimize any inconvenience while on the road. In addition, our app's functionality will be simple and easy to use so that even friends or family may use our services to assist in carpooling for others.

Implementation

- **Management**
  - TrackMyRide will be developed and maintained by Rohan Kd, Brandon Vo, Ian Nezat, Max Dokell, Michael Gee, and Tyler Gallegos.

- **Development**
  - TrackMyRide will be made in Android Studio using the Google maps API. The Google maps API provides functionality regarding location tracking and travelling. If development continues further, porting to iOS will be considered.

Marketing and Distribution

Our app will be marketed through the Google playstore for Android only devices. In the future, if this app succeeds, we may look into porting the system onto iPhone and other mobile devices. As long as the android device is able to use their GPS system, then the app will be compatible with any Android devices.

Monetization

During the application's testing phase, it will remain free for all users in exchange for feedback on the service. When the app is considered complete, a premium subscription model may be considered for extra benefits such as being able to create local networks, being able to notify nearby people looking for a ride, and a more public sharing system for tracking.

Those who use this app for simple features such as carpooling will remain mostly unaffected when using the free version of our app. Paying for premium will allow users to expand their scale of operations and expand their

networks when necessary. Allows more methods for people to join a network and increases the limit on the number of people that can be within a network.

The Problem and Our Solution

Apps that work in a similar vein, such as Find My Friend, either charge a subscription fee for this service or run the risk of harvesting their user's data. We made our app designed as a peer-to-peer service so that there is no risk of our app using any more information than necessary for its functionality. Our information is sent directly to other users of the app who are within the same network, and their judgement is based solely on the information provided. How networks of our app will be established is entirely up to any organizations willing to set up their own networks and infrastructure within our app's functionality, allowing for flexibility at their own disposal.

Industry Need for Our Technology

TrackMyRide will become one part in providing convenience and security for passengers looking for their next available ride. Everyone's time is precious, and nobody can afford to waste their time due to unexpected events or unknown delays from traffic. People waiting on their ride, whether from a friend or from a public stop, would be more comfortable knowing if they can make it to their destination on time and safely.

Market Analysis/Primary Market/Secondary Market

A SWOT analysis was performed to determine the best way to market the app:

- **Strengths:** The app's main strengths are that it's free, easy to use, versatile, and does not collect data on our customers.
- **Weaknesses:** Unfortunately, it is only available on Android systems. However, dependent on its popularity, this may change in the future.
- **Opportunities:** There is potential for the app to be a big hit, since there is not much software on the market like what our app will provide.

- **Threats**: Some threats include market competition, and countless other apps already on the google play store, making differentiability a key component to success.

After careful consideration of these factors, and our app's various uses, the primary market of public transportation was chosen. This provides customers with comfort and reassurance knowing they will arrive safely to and from various destinations. Bus drivers and major corporations can also use the app to alert travelers of their arrival times, making public transportation more efficient. Customers who travel by taxi in major cities can also utilize the app for reassurance of arrival.

A secondary market includes anyone able and willing to travel. Parents can ensure the safe arrival of their children, and travelers can rest assured if they take a wrong turn when there is already a safety net activated, saving time to call for help. Whether it is to school, the local grocery store, or a friends house, this app can be used in many different scenarios. This not only eliminates the concern one may have if they arrive in an unsafe area but also what to do if they are lost, since the software is tailored to just that.

Marketing Strategies:

Overview

TrackMyRide will initially be open to the public in order to establish its proof of concept to transportation-based companies. Once it has been established to be a functional and beneficial product, the app can be advertised directly to transportation businesses. With low upkeep cost to use our services and the option for our users to create their own networks, we hope that our consumers will be capable of creating their own customizable network of drivers looking out to help each other on the road.

Primary Customer analysis and entry strategy

The app can be marketed towards bus companies and public transportation drivers to determine their interest in testing. Advertisements through the internet would be a great, cost-efficient way to spread the word; it can also be spread by word of mouth, posters, especially on campus, and in prime areas of vehicle and foot traffic, such as parking lots, bus stops, and parking garages.

Core Competency

Our low-cost maintenance and scalability are the main features of TrackMyRide. Our app will be demonstrably simple for riders to set up networks and simple for passengers to join and leave at will. Complexity and cost will be added as the network continues to expand where more input is needed to maintain such a large community.

Sales Strategy:

Pricing

TrackMyRide's pricing will depend on the scale of the user's network. During the testing phase, the app will remain free for all to use in order to get feedback to improve the prototype. The prices will be offered once the app is determined to be fully functional at a basic level.

Basic features of the app will remain available but only to small networks of people. A limit will be placed on the total amount of people that can communicate within a network. This is so that ordinary users, such as families and friends, can use the app without any inconveniences while commercial networks will need special features to accommodate an expanding network. This allows businesses to pay for what they need and expand when companies feel the need to pay for more.

Positioning

As previously stated, TrackMyRide will be designed for anyone to use from families to companies. The users will choose what parts of the app they wish to use given the circumstances.

Promotion

Due to the nature of TrackMyRide, its promotional strategies will follow the people who use them. Online advertising and personal business offers may set up a framework, but the word-of-mouth through our users will serve as the main method for people to share our app. Each network of drivers set up will provide them the opportunity to share their networks with other passengers with methods such as QR codes on each bus or bus stop.

Place

TrackMyRide is designed for mobile apps. As such, it can be utilized anywhere at anytime, given that there is a moderately stable connection available.

Competition

Competitors to TrackMyRide would be other services that enable tracking of other drivers to and from certain locations.

FindMyFriend(https://apps.apple.com/us/app/find-my-friends/id466122094), while not specifically designed for carpooling or commute, has similar functions to the intended features of TrackMyRide. FindMyFriend is capable of finding friends' locations and, combined with messaging or phone calling, allows friends to find out if they're arriving to help out.

Waze Carpool(https://apps.apple.com/us/app/waze-carpool/id1091029104) is an app that allows people to schedule rides with other carpoolers. It comes

with a payment system to reward carpoolers and a rating system to determine trustworthy and reliable carpoolers.

Transit(https://play.google.com/store/apps/details?id=com.thetransitapp.droid&hl=en_US) is an app used to monitor public transit systems with notifications of arrival and departure times. This app allows people to monitor their upcoming transit systems in real-time, complete with notices for unexpected disruptions. However, according to the store reviews, Transit is struggling with optimization for memory issues, has issues updating and tracking locations, providing accurate locations for stops, and bad UI interface.

Development Strategy

The first step for building TrackMyRide is understanding Google Map's API system and building a framework based off the functionalities the API provides. The most important step for setting up the app is to implement location-tracking functionality for our users as location-tracking is the core functionality required to set up our app's services.

The next step would be to implement networking services for our app. Networking services will allow us to send information regarding location, allowing users to track friends and family that are in-contact with each other. This step would construct TrackMyRide's next feature, allowing the prototype to be established.

Afterwards, with the prototype established, the focus will be mainly on bug-testing and improving features of TrackMyRide as we determine if the prototype's proof of concept works as we intended. If not, we will rebuild the framework and continue to improve features until the prototype works as desired.

Once the prototype works as intended, we will prepare an official launch of the app to do more stress-testing and see if the app is well-received by the

public. If expectations are not met, we shall continue on improving its main functionality until public reception improves. Once it reaches the public's satisfaction, then we will develop the business model on the app and work on the premium features of the app as well as continue adding quality-of-life improvements to the app's basic features.

Barriers

- Reliant on Google's API system. Can lead to instability based on Google's updates
- Potential risk of abuse by users
- Potential inconvenience for having users create and join networks
- Issues with optimizing for battery usage and network usage.
- Prototype can be used only by Android users, limited market of consumers.

Critical Risks

The largest risk comes with the app's security feature, the tracking service. In order to add some security, the app will be designed with the ability to track users on their way to their destinations. This, however, can be misused if someone, by stealing a phone or stealing the credentials, were able to use another person's account to track another person within the network. In addition, if a network amongst some of our users was made, our system would let someone offering rides, such as a bus driver, to inform nearby people waiting at a bus stop that their ride is coming soon. If someone were to gain unauthorized access as a rider in these networks, he can potentially misuse this app to trick people into boarding the wrong bus or lure people to a misleading location. However, with the ride being monitored, this allows overseeing users to determine if this is a potential threat or not.

One of our biggest challenges is creating a safe and secure method of communication among our users while maintaining a high level of convenience. We will need to design a system that can prevent false users

from entering the system, while letting more honest members of the network continue with no issues.

Validation and Interviews

After interviewing several people, we were able to confirm the market's need for safer, more transparent transportation. Our interviews demonstrated that there is a market of people who wish to use our type of application in order to make their daily routines easier, predictable, and more convenient as we have received positive feedback regarding our goals and plans for our application. We hope that we can develop a clear plan in order to accommodate for our newfound knowledge and feedback.

Q.1) How would you feel about an app that would make traveling safer?

" I am always down to travel safe."

"I would always use it!"

Q.2) If encountering a situation where help may be needed do you think you would use the app to send out an alert before calling for help?

"Yes, if my exact location is known"

"I would definitely use it."

Q.3) How likely would you be to use an app like this?

"I would use it if I traveled to another city or state."

"Commuting to and from work or school."

"More likely to use when driving off campus, rather than on."

Q.4) Any suggestions of added features?

“Possible alarm on phone that will sound when help is needed.”

“Ability to call for help without having to type in a password.”

“An app version for a watch that can alert with the press of a button.”

“A 2 -step system. Where one could call for help, alert family members to contact them , or contact other agencies, rather than immediately calling for help from law enforcement.

“Make the app offline compatible incase internet connection is lost, a cellular network can still be used.”