Location is Key: Improving Uber's safety

IMPLEMENTATION PROPOSAL:

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Though Uber has been on the scene for many years and broken much ground as a pioneer in its industry, it is not without its shortcomings. Uber is constantly associated with safety issues surrounding the murder of college girls like Samantha Josephson at The University of South Carolina and so many others. Clearly, Uber has many safety needs that must be met if this company should continue its path of progress. There are many emerging technologies that may be used to instill a newfound sense of safety amongst Uber users and drivers, but geolocation and geofencing especially. Though these technologies may sound like a great way for a company like Uber to ensure future safety of drivers and passengers, it is not without its risks. For example, for an individual to allow an app to track them is something of a big deal. What if passengers do not take kindly to this, even if it is just as a security measure? The proposal includes a six-month plan to create and test the actual technology, three months to collect locational data, a one-month period for test drives and lastly implementation. Implementing the new technology should take no longer than a year. The overall cost of the implementation is $3,645,000, which is feasible for a company of Ubers size.

Overall, Uber is a well-known company that has been on the rise since 2009. Uber offers services ranging from ride-hailing to food delivery that is all mobile and easily accessible from an app. On this app, you connect a card, and you add some basic information about who you are. Uber will then track where you are through their GPS, location finder or if you do not share your location then they will go to the location you provide them. This app will then provide you with information on the driver, the license plate, and a small picture to identify what the driver will look like. Uber's mission statement is “Uber’s mission is to bring transportation — for everyone, everywhere”. They also provide a vision statement, “ Smarter transportation with fewer cars and

greater access. Transportation that's safer, cheaper, and more reliable; transportation that creates more job opportunities and higher incomes for drivers." The overall company is an important business that has made a name for itself and increased their customer base over the years.

Uber is a way to transport where you do not think you have to worry about safety. It is a way to get from one place to another, with a reliable person whether you are out with friends, at dinner, need a ride from work in the rain or more possible reasonings. You should be guaranteed a ride that will get you from point A to point B in the safest way possible. But, unfortunately recently this has not been the case. There have been issues with uber drivers and college students or uber drivers and women who need rides. Multiple incidents have been reported on the issue and the issue of the safety of customers when they drive depending on whether or not the drivers have background checks.

These problems have grown over the past few years to the point where they have lawyers and attorneys just to provide help to victims in this situation. In 2019, an article was released about the first report ever from Uber from the year 2017-2018 about their "safety." According to the article written by Nick Statt , "The report discloses that 3,045 sexual assaults occurred during Uber trips last year. Additionally, Uber says nine people were murdered during Uber rides and 58 people died in auto-related crashes" (https://www.theverge.com/). Further into the article, it states the type of sexual assaults, where "Uber says 235 were rapes and the remainder were varying levels of assault. A vast majority involved unwanted kissing or groping, Uber says, and it broke down such assaults into 21 categories" (Statt, 2019). This number of sexual assaults is a horrible number and the fact that 235 were rape victims. How do you expect people to feel safe in a car where they do not know what can happen. People who are intoxicated after a night out go into an uber and do not know what will happen inside the car, if they will even make it home.

This is not just a United States issue either, in 2019 England's uber came out with a report as well. In London Morgan Winsor reported that , “Uber says it received nearly 6,000 reports of sexual assault from both riders and drivers across the United States in 2017 and 2018” (abcnew.go.com). Uber also broke down the different percentages, “Among the sexual assault incidents, the company counted 464 reports of rape in 2017 and 2018. About 92% of the victims were riders and roughly 7% were drivers. Women and female-identifying individuals comprised 89% of the victims, while men and male-identifying individuals made up about 8%.”(Winsor, 2019). It is extremely important for the safety of everyone who gets into these car.Over the past year, there have been many reports through the news about college kids and college campuses having people taking Uber’s and getting harassed inside the uber with sexual questions, or getting pictures taken of them while they are fully passed out in the back of the car. It is just not safe anymore and it makes a lot of people feel uneasy when getting into an Uber knowing all of these ongoing issues. Now knowing the results and the extreme amount of safety protocols that Uber needs to move forward with taking it is important that they better understand what it means to “transport that is safer” which they use in their vision statement. They need to do better. There are now many different websites that provide lawyers to defend people who have been in a situation like this. It's an unfortunate situation but there are ways you can better the safety of the customers.

When evaluating different emerging technologies that would be beneficial for Uber and the safety of their riders, geofencing sticks out as a great resource. For those unfamiliar, geofencing creates an imaginary boundary around any given area using IP addresses and GPS tracking of the devices of its users. The boundaries assigned for geofencing are very flexible and can be altered depending on the desired geofencing radius. When people enter your desired

boundaries, people will see ads and receive push notifications for your company or product while using their devices.

Primarily, geofencing is used for marketing a target audience at a specific place and time. Often, companies will place geofencing boundaries around a competitor's store so that customers will be swayed to use their product or services over their competitors. In simple terms, geofencing is a location-based marketing tactic that taps into smartphone users GPS, Bluetooth, or Wifi to advertise their products or services to consumers.

In 2022, it is estimated that marketers will spend over 38.7 billion dollars on location-based marketing such as geofencing. This goes to show just how popular and successful geofencing marketing has become and will continue to grow. For some, the issue of privacy is a main concern that comes with geolocation. However, in a lot of ways, the use of GPS in geolocation makes ads, push notifications, and other marketing tactics more personalized for consumers.

Geolocation is one of the simpler emerging technologies, as it is not necessarily as emerging as it is developing. Geolocation, which is a product of The Global Positioning System (GPS), is a form of technology that can determine the exact location of a mobile device at any given point in time (Contributor). With that, geolocation falls under the umbrella of geopositioning, its parent technology. In the APR industry, geolocation is commonly used in several marketing strategies. One simple example of geolocation can be represented by an individual utilizing a weather app on their mobile phone. Geolocation technology utilizes GPS to determine the coordinates of an individual, therefore finding their exact location and delivering the correct forecast. This is just one way that geolocation is used in everyday life.

In order to implement geofencing into Uber's application, the first thing that should be considered is the cost. Geofencing has a CPM, or cost per thousand impressions, of roughly $4-$14, and Uber has over 75 million riders according to Buildfire (ThumbVista). Each Uber user took an average of 5.4 rides in the first quarter of 2020 (Business of Apps). With this data, one can multiply the average CPM amount, $9, with the 75 million customers to result in 405 million impressions. Then if you multiply $9 per thousand impressions by 405 million units of thousand impressions it equates to a final cost of $3,645,000. As Uber has increased the number of customers as well as riders, with the exception of the COVID 19 pandemic, this cost is expected to increase as well. Uber's success rates were increasing steadily until the beginning of the COVID-19 pandemic, however with things beginning to open back up, numbers have begun increasing again for Uber usage. This reinforces the plan that the price for geofencing will increase. With these new costs, Uber may wish to consider raising the per-mile cost of each drive by a cent or two to fund the geofencing costs expeditiously. However, considering Uber made $14.1 billion in 2019, and their success has continued to increase, a rounded $4 million will be manageable.

Uber also needs to alert their customers of their use of geofencing early in the implementation process. Though public reaction to geofencing has been mostly positive, some still fear that the technology is too invasive and threatens personal privacy (QuickBooks). In being transparent and honest about using this technology, Uber will assist in offsetting those concerns. The company should simply state the safety precautions being invoked with geofencing and assure their customers that their privacy is protected. In doing this, Uber is

reassuring the safety of their company, as well as the non-threatening technology geofencing presents.

Geofencing does not take an extremely long time to apply, as one only needs to set coordinates to longitude and latitude. Since geofencing can range in areas as large as cities, each city that benefits from Uber will obtain its own geofence to use through the Uber app. Essentially, analyzing the coordinates will be the time consuming factor, not necessarily the technology. Theoretically, Uber can continue with the app as is after announcing its impending use of more developed geofencing with an estimated release date. Then, Uber software programmers can submit the coordinates of each city that uses Uber. This will be a time consuming process, but with a six month plan specified to the technology it can be done in under a year. Each city will submit the longitudinal and latitudinal coordinates of their entire city. With this data, it should take programmers roughly three months to input the established data, as well as document cities Uber is looking to expand towards. Next, will be one month of test drives among Uber employees to ensure the updated app is working correctly. Finally, implement the new layer of geofencing for Uber users in San Francisco since this is where Uber was originally established (Business Insider). After a month testing period to ensure the new updated Uber app works well publicly, Uber should allow all users to update their Uber app and install the new implementations of geofencing in their Uber experience. Since Uber already uses geofencing for commercial purposes, the app will need to be reprogrammed to implement geofencing geared towards safety mechanisms. Essentially, when a customer plugs in their pick-up and drop-off locations, their drop-off coordinates will become a gateway for the geofencing technology, to signal a text message inquiring about the customer's safety.

The implementation phase regarding a safer user experience for the both Uber riders and drivers will not have a finite duration; however, it can be predicted that the evaluative period will span over roughly 180 days. That is not to say that Uber will not continue their efforts in bettering the safety of the app's users, more so that they will take the data from this 180 days to determine whether further data is needed and go from there.

Roughly speaking, geofencing is a location-based service in which an app uses radio frequency identification (or RFID), wifi, GPS, or cellular data to trigger a targeted marketing action (i.e., a text message, email, app notification, etc.) when a mobile device or RFID tag enters or exits a virtual geographic boundary, or geofence. In simpler terms, geofencing focuses on the virtual perimeter in which you build around a specific geographic location to deliver targeted messaging. These targeted messages can be sent out on and delivered to mobile devices, tablets and even desktop computers. Geofences can be configured to target a certain area, such as a mall, a demographic market area, a business category, such as restaurants, a brand location, a specific city and even an entire state. The compatibility between apps that have a geofence enabled and smartphone users is roughly 92%. Not to mention, geofences also have the ability to hyper-target prospective customers.

To address the issue of rider safety within the Uber app, let's first address the detailed process one must undergo before becoming an Uber driver. First, in order to become an Uber driver you need a car that is under 15 years old. Next, the driver must submit the following documentation:

- A valid US driver's license,
- Proof of residency in your city, state, or province,
- Proof of vehicle insurance if you plan to drive your own car,

- A drive profile photo,
- And you must undergo a background check facilitated by Uber.

In a 2018 blog post written by Uber CEO Dara Khosrowshahi, the following was stated in the article “Getting serious about safety,”

- Annual background check reruns will be facilitated in jurisdictions where required, wherein they will rerun criminal and motor vehicle checks each year, regardless of whether there is a legal obligation to do so.

“Uber conducts its background checks using a startup called Checkr. Checkr’s background checks typically screen potential Uber drivers’ records within the past seven (7) years. Driver candidates cannot have a felony, violent crime or sexual offense(s), or a registration on the US Department of Justice National Sexual Offender public website,” (O’Brien, 2018). The charge for repeated background checks will be paid for by Uber, not the driver.

According to the data stated in Uber’s 2017-2018 U.S. Safety Report Executive Summary, nearly 3.1 million Uber trips happened everyday in the United States - which is roughly 45 rides per second. The vast majority of these 3.1 million trips ended without any sort of safety-related issue at all. It was reported that roughly 1.4%, or 43,400 users, had issued a support request, most frequently for issues such as lost items or refunds. While 0.1%, or 3,100 users, had issued support requests for a safety-related concern, such as harsh barking or verbal arguments. Coming in at the smallest percentage, Uber reported that in 2017-2018 only 0.0003% of all Uber trips involved a critical safety report. Critical safety incidents, according to Uber’s U.S. Safety Report (2017-2018), can be divided into 3 categories:

1. Motor vehicle fatalities
2. Fatal physical assaults

3. Sexual assault (further detailed in 5 subcategories)
    a. Non-Consensual Kissing of a Non-Sexual Body Part
    b. Attempted Non-Consensual Sexual Penetration
    c. Non-Consensual Touching of a Sexual Body Part
    d. Non-Consensual Kissing of a Sexual Body Part
    e. Non-Consensual Sexual Penetration

It is important to note that in order for a fatal physical assault incident to be established as Uber-related, one or more of the following must be true:

1. The incident involved at least one person on an Uber-facilitated trip, not necessarily with parties paired by the Uber app,
2. and/or the incident occurred between parties that were paired by the Uber app, and it occurred within 48 hours of the trip ending (US Safety Report, 2019).

In relation to a fatal physical assault incident to be established as Uber-related, the same goes for sexual assault(s) to be established as Uber-related. It should, also, be mentioned that "for the purposes of sexual assault data classification for this report, Uber defines an active trip for drivers as beginning when the driver has accepted the trip request in the app and is en route to the rider's pickup location. For riders, an active trip begins once they are picked up by their driver" (US Safety Report, 2019).

Now, to address our implementation proposal of Uber enforcing a geofence as a way to increase rider safety, there are many steps that we must take. First and foremost, we must consult with Uber's U.S. Safety Advisory Board. The safety advisory board, created in 2015, helps to navigate safety and security hurdles while bringing in new approaches, feedback, and expertise to Uber's safety process and technology. The board, which consists of six members, range in

their respective areas of expertise from physical safety of drivers and passengers, data security, and ways of working with local law enforcement. As mentioned in a blog post by CEO Dana Khosrowshahi, as of 2018, Uber's Safety Advisory Board welcomed Jeh Johnson, former U.S. Secretary of Homeland Security under President Barack Obama, to serve as Chairman of the board.

As stated above, we expect this implementation to take around 180 days, or roughly 6 months. The reason being that in order for Uber to create a geofence around a specific users route, the company must first launch in a select few, say 3, cities to see if there are any reports that are faulty, misleading or untrue. Should the data come back conclusive and sound in the first three months, the Safety Advisory Board will then gather the data reported in the select few cities and use that to determine whether they will implement the plan nation-wide. However, that doesn't go to say that Uber will not consistently check on the data reported. Regardless of what the numbers are, Uber will essentially use the geofence surrounding the riders route to determine whether or not an emergency contact is sent a message. Should a driver go slightly off route, an Uber update will be sent to the rider's list of emergency contacts stating the reason for the route change. Should the driver drive 10 miles or more off route, local authorities (city and county), will be notified and the driver's license plate will be tagged. Should the driver go so far as over state lines with a rider, state and local law enforcement will be contacted in both respective states - the state that the geofence is leaving and the state that the geofence is entering. This has never happened, but it is always better to be safe than sorry.

In addition to the geofence contacting an emergency contact as well as local and state law enforcement, the driver should also receive a notification stating that they are out of their jurisdiction and will no longer be paid for the ride that they are completing.

While it is exceedingly crucial to increase the accuracy and utilization of Geolocation and Geofencing in Uber, there are several risks associated with this tracking technology that raises concern from Uber drivers and riders alike. In the modernized world we find ourselves living in today, the relevance of an accurate and personalized online experience is highlighted more than ever before. Throughout the duration of location-aware innovations being implemented in social media, websites, advertisements, mobile applications and even in governments, there have been multiple — whether users are aware of the fact or not— cases of Geolocation being exploited in criminal ways. The commonplace of situations involving unjustifiable surveillance and privacy breaches dissuades individuals from giving companies or applications permission to share their location. Unfortunately, this can be an extremely precarious situation if the geolocation data falls into the wrong hands. The intentional misuse of one's personal information can lead to physical or cybercrime.

One of the most prevalent risks of integrating Geolocation and Geofencing into a corporation is the inevitable demise of trust between the consumer and the business. Unfortunately, Uber has a track record of abusing location-based services. In 2014 Maya Kosoff covered an investigation for Uber's New York general manager tracking a Buzzfeed reporter without her permission— a clear infringement of the organization's privacy policy. Employees of Uber revealed, "tracking customers is easy using an internal company tool called 'God View'...Which is widely available to corporate employees" (Kosoff, 2014).

The clear dilemma in this occurrence is that the Uber employees previously were able to monitor the location of riders, even if they have not yet requested a ride, or even open the application. Luckily, this problem can be easily fixed by simply limiting the individuals who have access to the location-based data, or even hiring an outside source to be in charge of ensuring drivers and riders are all safely where they should be. With the transgression of sexual assault in mind, Uber would be wise to partner with local first responders or law encforcement to emphasize that their usage of location-tracking services is being done with the intent to ensure that all passengers and riders of Uber have a safe and positive experience while maintaining personal privacy. Promotional material explaining that Geolocation is being utilized solely for the purpose of protecting women, college students or anyone who might not feel comfortable with riding in an unknown individual's car.

Geofencing could serve as a tool for surveying drivers for the entirety of the ride. For example, this technology could alert the company, local authorities or the rider themselves if the driver leaves the designated area that the trip is in. This helps in keeping drivers accountable and passengers knowing exactly what their personal location is being used for.

An additional possible risk of employing Geofencing and Geolocation as safety features for Uber is the prospect of accidental data sharing due to unclear permission requests to track user location when the application is initially downloaded. National Public Radio wrote an article in 2017 concerning the settings and lack of options for riders to secure their privacy: "After Uber changed the privacy options in November, users were forced into all-or-nothing location permissions: If users did not permit the app to "always" track their locations, they were forced to select "never" – which meant having to type out their current location every time they hailed a ride" (Wamsley, 2017).

This privacy setting is misrepresented as a way to make one's life easier, which influences users to consent to the agreement. Additionally, the lack of options for when the application uses location-tracking leads to confusion on what the agreement actually said in the first place. If Uber were to be transparent about utilizing Geolocation and Geofencing each time the application is opened, consumers would be much more likely to trust the brand. Another way to combat this risk is to promote that Geofencing allows for the application to alert the rider's emergency contact if the driver strays from the route. This would be a huge tool for parents and friends to stay updated on the safety of the rider.

References

BuildFire. (2021, February 27). Uber Revenue and Usage Statistics. BuildFire. https://buildfire.com/uber-statistics/.

Contributor, V. G. (2018, November 1). What is Geolocation and How is it Being Used in Targeting and Advertising?MarTech Advisor. https://www.martechadvisor.com/articles/proximity-marketing/geolocation-for-social-targeting-and-advertising/.

Hartmans, Avery. "The History of How Uber Went from the Most Feared Startup in the World to Its Massive IPO." *Business Insider*, Business Insider, 18 May 2019, www.businessinsider.com/ubers-history.

Iqbal , M. (2021, April 30). Uber Revenue and Usage Statistics (2021). Business of Apps. https://www.businessofapps.com/data/uber-statistics/.

Khosrowshahi, D. (2018, April 19). Getting serious about safety. Uber Newsroom. http://www.uber.com/newsroom/getting-serious-safety/.

O'Brien, S. (n.d.). Uber tightens driver background checks. CNNMoney. https://money.cnn.com/2018/04/12/technology/uber-safety-update/index.html.

QuickBooks. (n.d.). What is Geofencing? Pros and Cons of Geofencing 2020. Quickbooks. https://quickbooks.intuit.com/time-tracking/resources/geofencing-pros-cons/.

Reiff, N. (2020, August 28). How Does Uber Make Money? Investopedia. http://www.investopedia.com/news/how-does-uber-make-money/.

Relations, A. P. (2020, January 31). *What's the difference between geofencing and geotargeting?* Axia Public Relations is the expert PR agency for regional and national brands. https://www.axiapr.com/blog/whats-the-difference-between-geofencing-and-geotargeting.

Skrabanek, Britt. “Difference Between Vision & Mission Statements: 25 Examples.” *ClearVoice*, 19 Feb. 2021, www.clearvoice.com/blog/difference-between-mission-vision-statement-examples/#:~:text=Mission%3A%20Uber's%20mission%20is%20to,and%20higher%20incomes%20for%20drivers.

Statler, S. (2016). *Beacon technologies: The Hitchhiker's Guide to the Beacosystem*. Apress.

Statt, Nick. “Uber's First Ever Safety Report Discloses 3,045 Sexual Assaults and Nine Murders in the US Last Year.” *The Verge*, The Verge, 6 Dec. 2019, www.theverge.com/2019/12/5/20997939/uber-safety-report-2018-sexual-assault-ride-hailing-platform-stats.

Thumbvista. (2018, November 14). Price Guide For Geofencing: Cost of Geofencing Explained. Thumbvista. https://thumbvista.com/2018/11/price-guide-for-geofencing-cost-of-geofencing-explained/.

Uber Technologies. (2019, December 5). US Safety Report Executive Summary. San Francisco .

Wamsley, L. (2017, August 29). Uber Ends Its Controversial Post-Ride Tracking Of Users' Location. NPR. https://www.npr.org/sections/thetwo-way/2017/08/29/547113818/uber-ends-its-controversial-post-ride-tracking-of-users-location.

Winsor, M. (2019, December 6). *Uber reveals nearly 6,000 incidents of sexual assaults in new safety report*. ABC News. https://abcnews.go.com/Business/uber-reveals-6000-incidents-sexual-assaults-safety-report/story?id=67538499.