**Chapter 2**

**REVIEW OF RELATED LITERATURE AND STUDIES**

**Related Literature**

Ridesharing programs in public transit agencies are not far-reaching. Despite the fact that administration supported ridesharing ventures have been around since the 1970s, ridesharing isn't very much coordinated in to public transit agencies. Maybe along these lines, there is restricted research concentrating on the reconciliation of ridesharing and travel. The current research basically incorporates contextual investigations of particular projects keep running by transit agencies. These incorporates vanpool programs where a key reason for existing is to build infiltration into zones where van or other transportation vehicles are ineffecient.

These data is a huge help to the researchers for ridesharing programs like vanpools, it has the same procedure for the researchers’ project.

Carpool and rideshare programs help commuters share transportation. Carpools and rideshares can be informal arrangements between individuals, sometimes called casual carpooling, or be formally arranged through dynamic ridesharing programs or other ride-matching services. Employers, along with state and local governments, often support the creation of carpools and vanpools, coordinate ridership, and provide incentives such as preferential parking for participants (UC Davis-Yura 2006).

Information stated above helps the researchers in achieving goals to increase mobility and improve quality of life of the people.

Carpool and rideshare programs are suggested strategies to reduce traffic congestion, decrease emissions, and reduce vehicle miles traveled (VMT) (UC Davis-Yura 2006, ICF Consulting 2006, RAND-Sorenson 2008). Studies suggest that these programs can be cost effective (ICF Consulting 2006, RAND-Sorenson 2008, Gallivan 2011), especially for longer commutes (Silva-Send 2013); programs may also improve mobility and quality of life for seniors (Silvis 2009) and reduce stress for commuters (Robbins 2015). Overall, transit incentives can increase use of alternative transportation; however, additional evidence is needed to confirm effects and costs of carpool and rideshare programs specifically (Graham-Rowe 2011).

The data above is a huge commitment to the researchers mainly to help commuters to arrive to their destinations more efficient and less hassle than the traditional van commuting. The literature review reveals that existing research rarely focuses on the integration of ridesharing which helps the researchers an understanding of the project.

“Android is the first open source mobile application platform that has the potential to make significant inroads in many markets.” (Ableson et al 2009). Android which is initially developed by Android Inc., which was later bought by Google in 2005, is a software platform and operating system intended for mobile devices such as smartphones and tablets where it is mainly designed on direct manipulation using touch gestures, manipulating on-screen objects, along with a virtual keyboard for text input. Android has been the smash-hit OS on tablets and phone since 2013 and keeps running an immense majority of smartphones.

The proponents will be using Android since as mentioned above, has been on top OS on mobile devices since most people have smartphones which is currently running on android OS. Android is an open-source code, in its open nature has encouraged the researchers to use this software framework.

GPS innovation was utilized as a part of individual excursion (PT) study since mid-1990, and this innovation accomplished its fame in view of the change of exactness and conveyability of GPS gadget. In spite of the fact that GPS information could give exact spatiotemporal data of vehicular or individual developments, the transportation mode (on account of individual developments with wearable GPS gadgets) and excursion reason for existing can't be gotten from the GPS specifically. Also, the GPS information mistake recognizable proof and the trek portion from the persistent GPS information are very central to transportation mode distinguishing proof and outing reason induction. In this paper, we compressed the techniques and info factors used to fragment trip, construe trip reason and also recognize transportation mode in the current inquires about. Contrasted with likelihood strategy and criteria-based technique, Machine Learning are regularly connected in identifying transportation mode. Then again, rules-based techniques are more prominent than probabilistic strategy and machine learning as the apparatus for gathering the excursion reason. At long last, explores endeavoring to use the information from accelerometer which are prevalently coordinated in cell phones shows the capability of more exact individual outing information inference from cell phones can be accomplished with substantially less weight on the respondents later on. (Gong, L., et. al. (2014).

According to Wikipedia, GPS or Global Positioning System uses satellites to relay microwave signals is a key-tool for the researchers‘ project for determining the GPS receivers’ mobile device to obtain their current location and time. GPS are becoming an important tool particularly in transportation, each conceivable approach to better deal with the transportation system.

According to Wikipedia, Google Maps is a web mapping service developed by Google. It offers satellite imagery, street maps, 360° panoramic views of streets (Street View), real-time traffic conditions (Google Traffic), and route planning for traveling by foot, car, bicycle (in beta), or public transportation.

The proponents will be using Google Maps API since it is free and is publicly accessible and does not charge for accessing it so it is easier for the proponents to embed and integrate on the mobile app.

**Related Studies**

The following data below were gathered from different related studies made by other researchers that provide guidance in the conduction of the researchers study.

Uber has risen to be the pioneer of the “Sharing Economy”. The sharing economy uses unmobilized assets and turns them into services (Lieberman et al., 2015). This sharing economy can assemble the profitability of a million people. On account of Uber, drivers who are ‘willing’ are matched with paying customers searching for rides, henceforth Uber is being labeled as a “ride-sharing” service by many. (Chen, Mislove, & Wilson, 2015).

Uber is a well-known app for people who book for rides who wants to avoid traffic congestion, efficient commuting. Basically this gives the researchers hint into their project since the processes are similar to what in Uber.

Grab (formerly known as GrabTaxi) is a tech-company that offers extensive variety of ride-hailing and logistics services through its application in Singapore and neighbouring Southeast Asian countries such as Malaysia, Indonesia, Philippines, Vietnam, Thailand and Myanmar. As of June 2017, the quantity of drivers registered in the network was over 1,000,000, and the Grab application was downloaded onto more than 45 million mobile devices cross wise Southeast Asia.

Lyft is a transportation network company based in San Francisco, California. It creates, advertises and works the Lyft car transportation mobile application. Propelled in June 2012, Lyft operates in approximately 300 U.S. cities, including New York, San Francisco and Los Angeles and provides 18.7 million rides a month. The company was valued at US$7.5 billion as of April 2017 and has raised a total of US$2.61 billion in funding. Lyft will be expanding into Canada in December 2017 to rival with Uber.

Overall, Uber, Lyft, Grab, an app who provides transportation services which is a great contribution to the researchers’ project which mainly aims to improve mobility and quality of life for seniors (Silvis 2009), reduce stress for commuters (Robbins 2015), and makes use of the advantages of technology to alleviate human problems from their day to day lives. However, additional evidence is needed to confirm effects and costs of carpool, vanpool and other rideshare programs. The researchers would want to solve the existing problems encountered by the passengers.