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TRAVEL TOGETHER

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ABSTRACT

The Travel Together Booking Platform is a dynamic online ecosystem that revolutionizes the way people travel, connecting individuals with shared destination. By optimizing vehicle occupancy and promoting ridesharing, it contributes to the preservation of the environment while providing affordable and accessible travel options. Users can effortlessly create and manage ride listings, search for rides, book reservations, and communicate with fellow travelers, all within an intuitive and user- friendly interface. We are implementing this project using Java Programming language, Android framework and we use database like Google Firebase.

1. INTRODUCTION

Pooling is the sharing of car journeys so that more than one person travels in a car, and prevents the need for others to have to drive to a location themselves. By having more people using one vehicle, carpooling reduces each person's travel costs such as: fuel costs, tolls, and the stress of driving. Pooling is also a more environmentally friendly and sustainable way to travel as sharing journeys reduces air pollution, carbon emissions, traffic congestion on the roads, and the need for parking spaces. Authorities often encourage carpooling, especially during periods of high pollution or high fuel prices. Car sharing is a good way to use up the full seating capacity of a car, which would otherwise remain unused if it were just the driver using the car. In 2009, carpooling represented 43.5% of all trips in the United States and 10% of commute trips. The majority of carpool commutes (over 60%) are "fam-pools" with family members. Carpool commuting is more popular for people who work in places with more jobs nearby, and who live in places with higher residential densities. Carpooling is significantly correlated with transport operating costs, including fuel prices and commute length, and with measures of social capital, such as time spent with others, time spent eating and drinking and being unmarried. However, carpooling is significantly less likely among people who spend more time at work, elderly people, and homeowners. Drivers and passengers offer and search for journeys through one of the several mediums available. After finding a match they contact each other to arrange any details for the journey(s). Costs, meeting points and other details like space for luggage are agreed on. They then meet and carry out their shared car journey(s) as planned. Pooling is commonly implemented for commuting but is increasingly popular for longer one-off journeys, with the formality and regularity of arrangements varying between schemes and journeys. 2 Pooling is not always arranged for the whole length of a journey. Especially on long journeys, it is common for passengers to only join for parts of the journey, and give a contribution based on the distance that they travel.

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This gives carpooling extra flexibility and enables more people to share journeys and save money. Some carpooling is now organized in online marketplaces or ride-matching websites that allow drivers and passengers to find a travel match and/or make a secured transaction to share the planned travel cost.

The driver does not try to earn money, but to share with several people the cost of a trip he/she would do anyway. The expenses to be divided basically include the fuel and possible tolls. But if we include in the calculation the depreciation of the vehicle purchase and maintenance, insurance and taxes paid by the driver, we get a cost around $1/mile. There are platforms that facilitate carpooling by connecting people seeking respectively passengers and drivers. Usually there is a fare set up by the car driver and accepted by passengers because they get an agreement before trip start. The second generation of these platforms is designed to manage urban trips in real time, using the travelers smartphones. They make possible to occupy the vehicle's empty seats on the fly, collecting and delivering passengers along its entire route (and not only at common points of origin and destination). This system automatically performs an equitable sharing of travel costs, allowing each passenger to reimburse the driver a fair share according to the benefit actually gained by the vehicle usage, proportional to the distance traveled by the passenger and the number of people that shared the car.

2. LITERATURE SURVEY

Carpooling first became prominent in the United States as a rationing tactic during World War II. Ridesharing began during World War II through “car clubs” or “car-sharing clubs”. The US Office of Civilian Defense asked neighborhood councils to encourage four workers to share a ride in one car to conserve rubber for the war effort. It also created a ride sharing program called the Car Sharing Club Exchange and Self-Dispatching System. Carpooling returned in the mid1970s due to the 1973 oil crisis and the 1979 energy crisis. At that time the first employee vanpools were organized at Chrysler and 3M. Carpooling declined precipitously between the 1970s and the 2000s, peaking in the US in 1970 with a commute mode share of 20.4%. By 2011 it was down to 9.7%. In large part this has been attributed to the dramatic fall in gas prices (45%) during the 1980s. In the 1990s it was popular among college students, where campuses have limited parking space.

Together with Prof. James Davidson from Harvard, Dace Campbell, Ivan Lin and Habib Rached from Washington, and others, began to investigate the feasibility of further development although the comprehensive technologies were not commercially available yet at the time. Their work is considered by many to be a forerunner of carpooling & ridesharing systems technology used by Garrett Camp, Travis Kalanick, Oscar Salazar and Conrad Whelan at Uber. The character of carpool travel has been shifting from "Dagwood Bumstead" variety, in which each rider is picked up in sequence, to a "park and ride" variety, where all the travelers meet at a common location. Recently, however, the Internet has facilitated growth for carpooling and the commute share mode has grown to 10.7% in

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2005. In 2007 with the advent of smart phones and GPS, which became commercially available, John Zimmer and Logan Green, from Cornell University and University of California, Santa Barbara respectively, rediscovered and created carpooling system called Zimride, a precursor to Lyft. The popularity of the Internet and smart phones has greatly helped carpooling to expand, enabling people to offer and find rides thanks to easy-to-use and reliable online transport marketplaces. These websites are commonly used for one-off long-distance journeys with high fuel costs. In Europe, long-distance car-pooling has become increasingly popular over the past years, thanks to BlaBlaCar. According to its website, as of 2020, Blablacar counted more than 80 million users, across Europe and beyond. As of March 2020, Uber and Lyft have suspended carpooling services in the U.S. and Canada in efforts to control the COVID-19 pandemic via social distancing

3. SYSTEM DESIGN

3.1 System Architecture

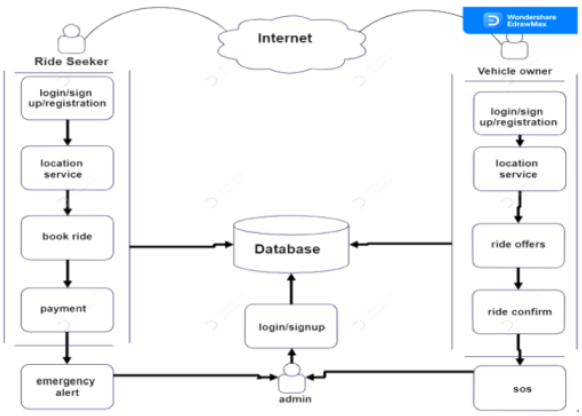

Fig 1 System Architecture

Activity Diagram for Admin

Activity diagrams represent the business and operational workflows of a system. Activity diagram is a dynamic diagram that shows the activity and the event that causes the object to be in a particular state. So, what is the importance of Activity diagram, as opposed to a state diagram? A State diagram shows the different states an object is in during the lifecycle of its existence in the system, and the transitions in the states of the objects. These transitions depict the activities causing these transitions, shown by arrows. Activity diagram talks more about these transitions and activities causing the changes in the object states.

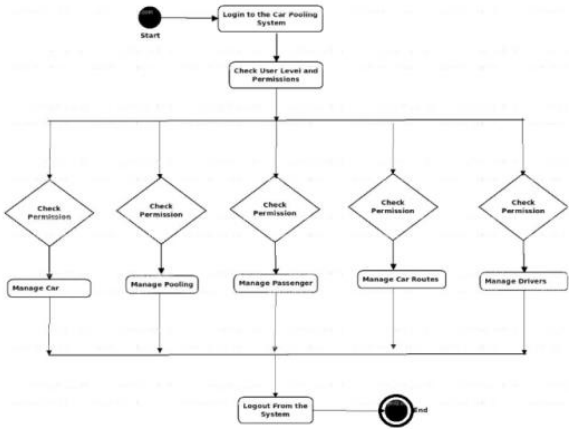

Fig 2 Activity Diagram of Admin

Activity Diagram for Passenger

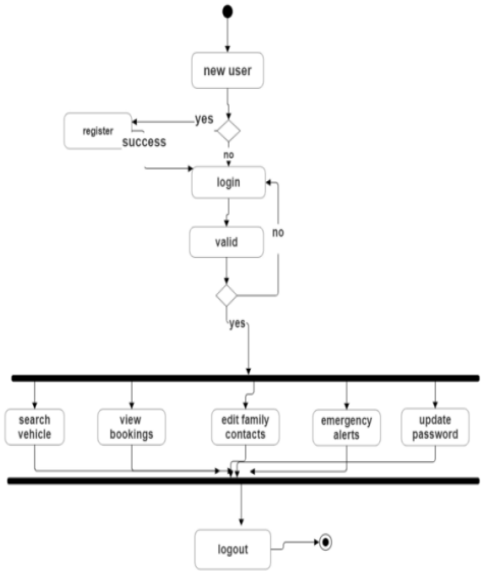

Fig 3 Activity Diagram of Passenger

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4. OUTPUT SCREENS

➢ **Passenger registration**

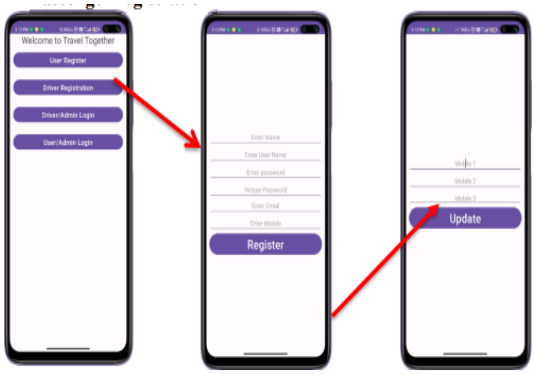

Fig 4 Passenger registration

Here, passenger provides his details for registration, if he is new user in app. Or else he will login in his account

➢ **Driver registration**

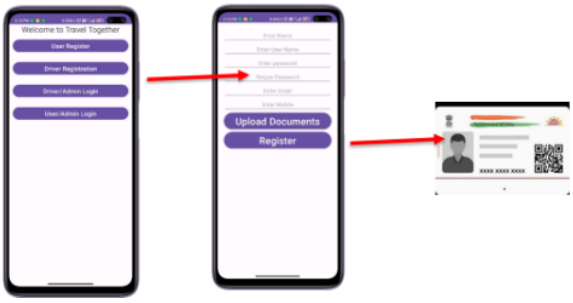

Fig 5 Driver registration

Here, Driver provides his details for registration if he is new driver in app. Or else he will login.

➢ **Driver login**

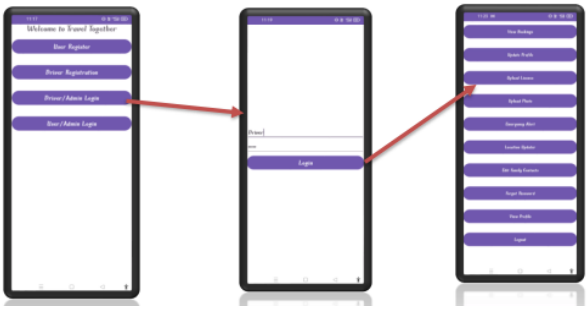

Fig 6 Driver login

Already existing driver login in his account to update his profile, set source and destination and cost, view bookings.

➢ **Passenger login**

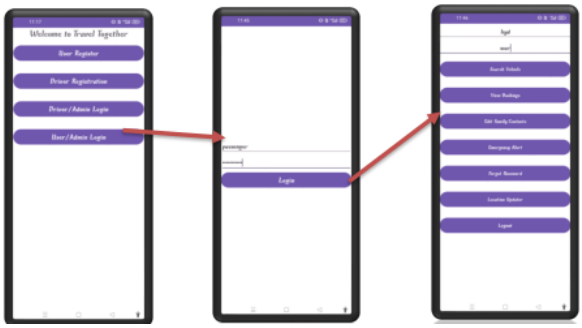

Fig 7 Passenger login

Already existing user/passenger login in his account with username and password to access the app.

➢ **Using emergency alert**

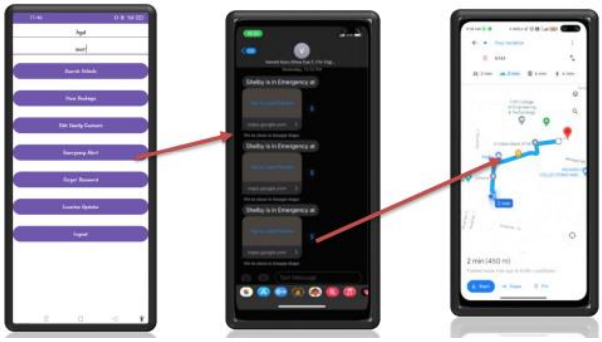

Fig 8 Passenger using emergency alert button

If in case the passenger suspects danger in the vehicle he/she can use emergency alert option to send his location to family members.

5. CONCLUSION

Opportunities exist to improve the quality of existing ride-sharing services and plan successful new ones. Future research efforts should focus towards studying ride-sharing users' trip purpose (i.e., work, university, shopping, etc.), investigating factors

associated to ride-sharing before and after implementation of the service, and perform cross-case studies between cities and countries of the same continent to compare findings

6. FUTURE ENHANCEMENTS

The future of carpooling, which until now has been on a declining trend in the industrialized countries, and its capacity to decarbonize mobility practices and to foster social cohesion, are important issues for the coming years. Without claiming to exhaust the subject, this article has proposed three avenues for research. They concern a better understanding of non-work carpooling, an analysis of the many dimensions of the digitalization of carpooling and, finally, the impact of the development of new consumption, work practices and perception of shared transport modes on the short, medium and long terms. All these topics merit further investigation. In particular, they require the analysis of a greater variety of social and spatial contexts in a literature dominated by urban contexts, work-related carpooling and a focus on higher educated individuals. Low-density areas call for special attention, because it is here that both the environmental and the social challenges of mobility will be the greatest in the coming years for public authorities since average distances, car ownership and car use are higher than in urban settings. Practices and motivations may also be different according to education and income. Finally, to arrive at a better understanding of the different forms of carpooling, the literature needs to seek a better balance in research between carpooling for work and for other purposes, with attention to the people who practice more than one form of carpooling.

Moreover, the literature should investigate the relationships between IT-based carpooling and casual carpooling (complementarity or substitution). Casual carpooling will probably continue to play a part for a few more years at least, in particular for everyday trips which rely heavily on personal networks. In any case, that is one of the many hypotheses that will need to be verified. Beyond the academic knowledge that will result from such studies, they will also provide information for public authorities, which sometimes have a tendency to make somewhat hasty links between carpooling and the decarbonization of travel, when research would suggest the need for greater prudence. In particular, the relationship between the different forms of carpooling, car ownership and car use need further investigation. Future research should also lead to a better understanding of the social dimensions of carpooling (in terms of accessibility, social cohesion and also discriminations), which are often passed over or considered self-evident by authorities. Finally, a better consideration of the consequences of the digitalisation of carpooling and the development of new lifestyles, especially teleworking and collaborative consumption, and of the impact of the pandemic on the perception and use of shared mobility will help policymakers to implement more appropriate policies.

7. REFERENCES

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