**Taxi Sharing Application**

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**Abstract**

**Acknowledgments**

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# **Chapter 1: Introduction**

Taxi sharing, a method of transportation that is a cross between a bus and a taxi. Meaning a taxi will pick up multiple people, either at the same location or multiple along the way, then drop them off at their desired location so long as they are all in the same general area. To give some additional information, taxi sharing is more beneficial than traditional taxis as each patron pays a cheaper fee if the ride is shared with other passenger. Furthermore, the cab driver is paid by each individual passenger meaning that they end the day with a greater income.

The honours project for COMP4905 that was completed this semester was to design and develop a taxi sharing application for an Android device. The focus of the project was on research and design, to determine what applications already existed with this concept and to design an application that functions on multiple different device sizes for a wide range of individuals. A back-end communication system was implemented; however, there was minimal attention paid to it as it was not the focus of the project. This project was done in tandem with another student, Moh Gahelrasoul, with an even split in the division of labour. His task was to implement the driver portion of the application as well as to implement the back-end communications. The other half, which will be the focus of this report, was the passenger side of the application. It was decided at the beginning of development that the driver would not have a large variety of options associated with them, this will be further discussed later in the report. This was the reasoning behind the division of labour.

The motivation behind this project was to develop a taxi sharing application that would form the base of a future project. This app is to be further expanded and evolve into an autonomous vehicle taxi sharing application. Where driverless vehicles will be accessible to passengers to take them to and from their destinations for a fee. This motivation was the reasoning behind making the driver side minimal, as it will eventually be eliminated entirely. Further motivation for this project stems from a desire for knowledge off app development and design. To aid in creating a solid foundation of skills to be taken into future career paths. To continue, as stated above the purpose of this project was to create an application that will then be evolved in the future. The need for this to be studied stems from how technology is constantly advancing, especially with the discussion of self driving cars becoming more prevalent in today’s society. To have an autonomous vehicle that could transport small groups of people throughout cities and to their destinations would be the next logical step once the technology becomes realized. This concept would also aid alleviate the number of vehicles that would be on the roads, since every person that shares a ride with another would be one less vehicle out that day. Aiding in reducing the amount of pollution emitted in cities with this system in place. It is believed that while the problem being addressed by this project is not of the utmost importance to the world as a whole currently, it does not make it any less important to research and begin implementation. Especially due to the fact that there are a number of taxi sharing apps in circulation already, it is hoped that the future evolution of this project will set it above the apps already being used.

Finally, the work completed during this project was a full implementation of a taxi sharing system. The project consisted of two separate apps that share a back-end database and communication system. The passenger application was the focus of this project, the work completed for the system designed began as a large amount of research focusing on how taxi sharing works and what goes into creating a working system. It was the goal to determine what fields are necessary when designing an application similar to this, as the user fields would be necessary in creating the matching component of the application. Other than research, the main focus of the project was in the design of the application itself. Firstly, to get it to be visually appealing when using it. Secondly, and most importantly, to get it to function smoothly on Android devices. The manner in which the design was implemented makes it so the app will scale based on which Android device the app is installed on. This is especially important when it comes to the text visible on screen. The design allows for the apps text to mirror the users text size preference, if a user has their text default to large then the app will use this decision on load. With regards to the app itself, it is fully functional, it is possible to request a ride and be matched with a driver as well as other passengers. This information is displayed on the screens for all users to inspect. More detail will be given on the interactions and abilities of the users further into the report. The driver side application implemented by Mr. Gahelrasoul as mentioned above will be further expanded upon in his report, as well as the communication system.

The report will follow a basic layout, following this chapter the background will be discussed at length. Such as, what research went into development as well as the other apps that were used as either inspiration or research tools. The two chapters that follow the background discussion will further discuss the main goal of the project, delving into an in-depth discussion of the problem attempting to be implemented and the objectives of the application itself. As well as, how the project was implemented and carried out. This section will discuss in detail the process of the applications development such as how the application was completed from start to finish, as well as the testing which was conducted during development. Finishing with the results of the testing and how the findings were used to finalize the application. The final chapter will be a conclusion that will briefly summarize the information that was started throughout the report.

# **Chapter 2: Background**

# **Chapter 3: Main Contribution**

# **Chapter 4: Implementation**

# **Chapter 5: Conclusion**

# **References**