In Singapore, traffic congestion and motorist accidents have always been a pressing, unresolved issue. The road lethality rate in Singapore is 1.49 per 100,000 citizens (Budget Direct Insurance, 2023), an alarming trend that is higher than that of Japan, UK, Australia and Canada. It underscores the severity of the issue and calls for immediate action.

We first introduce our method of tackling the issue of road safety at hand. Starting off, we conducted data extraction on multiple comprehensive datasets from LTA and Singstat, which are the main drivers of data collection in Singapore. Utilising static data sets, we moved on to critically analyse these information through concrete graphical analysis and correlation mapping.

Through drawing relationships between the various variables affecting traffic congestion and road safety, we identified two primary root causes of road safety threats, namely unprecedented road closures, as well as the ingrained impatience of Singaporean drivers to ‘beat red lights’ (John, 2020). Since a significant proportion of road users are attributed to drivers, we further narrowed down our target audience to be vehicle-users, who are mainly drivers.

As such, we advanced upon developing our solution to specifically target Singaporean road drivers. Here, we introduce the TransportGPT application, to specifically address the root causes we have identified. TransportGPT aims to increase road safety and reduce traffic congestion in a cost-effective and convenient way. It incorporates innovative AI features using real-time data tracking, analysis and Large Language Models (LLM) to improve the efficiency of road flow.

The next part dives into the five main features of TransportGPT that supports its multi-pronged approach towards tackling the issue.

Firstly, TransportGPT will regularly update the users of the application of the details of the nearest road incident via notifications. These incidents include but are not limited to road works and accidents that would break regular traffic flow.

Secondly, TransportGPT contains the same information as shown on the VMS located across Singapore. This would provide drivers with the information on certain road closures beforehand, thereby allowing them to better plan their travels on the road in advance, to avoid traffic congestion.

Thirdly, TransportGPT recommends the speed ranges of each road before users start on them, according to planned routes. Drawing from previous data, the application determines a speed band that is more likely to be safer for both drivers and pedestrians, based on the type of incident that calls for increased road alertness.

Additionally, TransportGPT improves the convenience of road travels by finding alternative routes that are well connected between the start and end of the drivers’ journeys.

Lastly, TransportGPT will send notifications to users when their travelling speed is faster than the average travelling speed of other drivers. This is to maintain safe speeds on the road.

In conclusion, TransportGPT aims to enhance road safety through cutting-edge technology. To achieve ‘All for a Safer Road for All’, it is pivotal for us to consider a wide-scale usage of the application, in conjunction with the existing measures and infrastructure implemented on SIngapore roads today.

Budget Direct Insurance. *Road accident statistics in Singapore 2024*. (2023, April). https://www.budgetdirect.com.sg/car-insurance/research/road-accident-statistics-in-singapore

John. (2020, 18 May). *The 5 Most Common Causes for Road Accidents in Singapore.* Motorists for Smart Drivers. https://www.motorist.sg/article/173/the-5-most-common-causes-for-road-accidents-in-singapore