THE ISSUE AT HAND

COVID-19 has caused an e-commerce boom, resulting in major online retailers turning to last mile couriers at an increasing rate in order to be able to fulfill demand. However, ever-increasing congestion in city centers has led to delays in package delivery times. In addition, some cities in Europe have begun implementing restrictions on vehicle access to city centers, a trend that will threaten the effectiveness of current delivery methods in these areas.

ABSTRACT

The rise of globalization has caused a tremendous rise in increased urbanization, ride-sharing services, and e-commerce coupled with underinvestment in urban infrastructure has made urban logistics difficult. As a result, urban roads are too congested during daytime hours, dramatically affecting and slowing down delivery trucks to the point where the average speed is at 7mph during peak hours. Curbscapes are not designed for large vehicles, making it difficult to find space to make deliveries. Additionally, many city roads are too small for large delivery vehicles with an incredibly high volume of deliveries. Last mile delivery for large delivery companies have become a tremendous issue further exacerbated by the breakdown in supply chain. The main question asked here is the following: how can we improve last mile supply chain delivery processes especially in the backdrop of COVID-19?

The goal of the Toyota Logistics team is to combat the mentioned inefficiencies that are occurring within urban logistics. To create a more efficient delivery system in urban areas, the Toyota Logistics team designed a new and innovative system. The system involves a network of autonomous electric delivery vehicles. When a customer or places an order, or a manufacturer needs to get their goods to the city, the process is initiated. More details of our system are included in our system component of this poster board. Once implemented, this system will provide solutions to some stakeholders, as it addresses their mission of quick urban deliveries and efficient urban logistics. The system the team is designing will alleviate those worries and provide them the solution they are looking for.

PROJECT OBJECTIVES

Our goal is to create a system that matches the following guidelines: shorter supply chains, greater precision, more flexibility, and less environmental impact on cities. The main emphasis here is to create a system that addresses the problems and issues of last mile delivery.