**Introduction-**

One of the biggest challenges for countries in the current climate of COVID-19 is to get real-time visibility into what is happening. Governments and health organizations lack insight into the real-time status of the disease, the exact number of patients and the spread of cases around regions and countries. Similarly real-time visibility into the logistics network is challenging supply chain companies.

Due to COVID-19, a black swan event, supply chains are struggling with logistical bottlenecks

from restrictions on the flow of goods, increasing the importance of transportation and

negatively affecting freight capacity. Lockdowns of cities/countries and border crossings are causing disruptions for shippers as well as confusion around actual status at multiple locations. Limited labor workforces at warehouses and distribution centers, as well as at brokers and logistics service providers, are causing delays at pickup and delivery locations.

Some options or recommendations to improve supply chain-

Identify the use cases where real-time transportation visibility technology can help you create better insights in your current transportation network and provide predictive insights going forward to prepare for other supply chain disruptions. Utilize real-time transportation visibility platforms to get better visibility of bottlenecks at borders and in cities, as well as of inventory in transit to distribution centers (DCs) or to stores. Use technology tools such as real-time transportation visibility to predict when and where labor issues might occur, causing misalignment between transportation and the loading/unloading locations. This might cause rerouting of products direct to stores.

In this assignment, we will describe scenarios showing the value of real-time transportation visibility and how these technologies can help companies better protect themselves from issues around the network and gain better insight into estimated product delivery times such as milk whose self life is minimal.

**Conclusion-**

Given current conditions in 2020, restrictions on travel networks have created logistical bottlenecks, exacerbating inbound and outbound supply chain challenges. Self-isolation and

forced isolation announcements have led many people to engage in panic buying, leading to

empty shelves. This has placed strain on supply chains that are also struggling with logistical

bottlenecks due to restrictions on the flow of goods and lack of critical personnel.

Visibility to the flow of goods has increased in importance as out of stocks and overstocks have become increasingly unacceptable for retailers. Standard pricing, promotion and trade spending discussions, which typically comprise the majority of key account manager/retail buyer conversations, are taking a back seat to more basic, survival-mode supply concerns including how to get products to the consumer. The flow of goods is similarly affected as shipments are diverted from DCs direct to retail stores or from the store to the consumer’s home.

Some companies have referred to the term “turbocharge logistics flexibility.” This includes many different steps companies should take to understand potential lockdown areas and how companies can continue to enable deliveries in those areas. Real-time transportation visibility technology plays an important role in helping companies assess these situations by providing valuable insights and tools to analyze and predict scenarios. Some companies already have these solutions and can start assessing and predicting impacts on their shipments. Many companies are still implementing these technologies and looking at the different capabilities these solutions can provide.

In this assignment, we proposed a solution to effectively deliver products like milk whose self life is very less. These products has to be delivered fast, sanitized and safely. We proposed various modules and methods which can be implemented to make this possible.

**References-**

1. Hans-Jorg K. and Sabine Kuske, Communities of Autonomous Units for Pickup and Delivery Vehicle Routing, *International Symposium on Applications of Graph Transformations with Industrial Relevance*, pp. 281–296, 2008.
2. Dhananjay Kumar et al, Design and Development of a Portable Disinfectant Device, *Transactions of the Indian National Academy of Engineering (2020)*, 5:299–303,

https://doi.org/10.1007/s41403-020-00138-2

1. CAI Min and LUO Jianw, J*. Shanghai Jiao Tong Univ. (Sci.), 2020*, 25(4): 409-416 <https://doi.org/10.1007/s12204-020-2206-z>
2. Md. Salahuddin Ahamed and Hossen Asiful Mustafa, A Secure QR Code System for Sharing Personal Confidential Information, *International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2),* 11-12 July, 2019
3. Hormoz Marzbani et al, Autonomous Vehicles: Autodriver Algorithm and Vehicle Dynamics, *IEEE Transactions on Vehicular Technology,* VOL. 68, NO. 4, APRIL 2019