

## **Introduction.**

In recent years, with the increase of online takeaway users in China, the market size of online takeaway industry has grown dramatically. In 2020, the market size of China's online food delivery industry reached 664.62 billion yuan, an increase of 86.69 billion yuan compared with 2019, with a year-on-year growth of about 15.0%. At the same time, the market demand for takeout delivery business is also going up, and the demand for the quantity and efficiency of takeout delivery personnel is constantly rising. In addition, under the influence of the current global COVID-19 epidemic, manual delivery may increase the risk of epidemic transmission, which also grows the burden on the current takeaway delivery business.

When manual delivery cannot match the need of the existing market, the intelligent food delivering truck which is called “**San-song Food Truck**” (which is called SFT in the rest of this essay) comes into being, it can accurately and efficiently carry out the delivery task, hence it can reduce the personnel cost and significantly decrease the existing takeout delivery business which may occur the potential risk of epidemic transmission.

Therefore, in this essay which consists of Function, Maturity, Cost Benefits, Safety, Ethic and so on, I will discuss the possibility of intelligent food delivery trucks (SFT) replacing existing delivery workers.

## **Body.**

### **1. Function**

SFT can realize the integrated food delivery from restaurants to customers. Merchants put food into the food delivery truck, afterward, the food will be directly delivered to customers without third-party. Therefore, SFT can obviously reduce the personnel cost of delivery while decline the risk of transmission caused by COVID-19 and other infectious diseases, which is highly consistent with the current market demand and epidemic prevention policy.

At the same time, in order to provide a better dining experience to the guest, SFT also possesses the function of food insulation and preservation, which can help improve dining evaluation of the restaurant.

### **2. Maturity**

The current food delivery trucks in existing market can already achieve short-distance delivery services. In the future, with the constant maturation of the relevant technology, the delivery scope of SFT will continue to expand, until thoroughly catch up with the current manual delivery service.

In the meantime, with the booming development of the Internet catering industry and the gradual popularization of 5G network, many Chinese Internet enterprises (led by "MEITUAN Takeout") began to explore the possibility of fully intelligent delivery. So, it can be estimated that in 10 years or so, fully intelligent delivery will largely replace manual delivery, becoming the mainstream mode of the market.

### **3. Cost benefit**

According to the latest Chinese Employment Report of Food Delivery Workers, as of December 2018, there are about 7 million food delivery workers in China, and their average monthly salary is about 7,750 yuan. If we imagine that all these delivery workers are replaced by SFT, the cost benefit may exceed billion yuan per month, which is a dramatically shocking amount.

Take Fuzhou University, where I study, for example. Every day, about 10,000 students choose to order take-out food in the school, and there are about 100 staff in charge of take-out delivery in the school (so each delivery person is responsible for about 100 customers a day). Therefore, we can estimate that the cost of manual delivery in a month is about 800,000 yuan. And each SFT can be responsible for 300 customers a day under the condition of continuous work so that one SFT food truck can replace three human delivery workers. But we still need to consider the operating cost of SFT itself. So finally, we can estimate that compared with the mode of manual delivery, intelligent food truck delivery can reduce the cost of about 30-40% in Fuzhou University, where a month's economic benefit will reach about 300,000 yuan.

Therefore, the mode of intelligent food delivery trucks, compared with manual delivery, will have greater cost-effectiveness advantages.

### **4.Safety**

With the development of related technologies, the current intelligent food delivery truck has been able to achieve automatic driving, interactive delivery functions, but all are still in the beginning stage, so there are specific safety issues need to be considered.

Automatic driving: the SFT with intelligent traffic identification systems, with a full range of eight recognition camera, at the same time the SFT also carry the latest GPU and the FPGA chip, so it can do it at any time on the road around the situation to carry on the correct judgment, greatly reduces the current food delivery lots of problems of traffic accident.

Interactive food delivery: SFT is equipped with the latest interactive system, which can realize the integration of placing and picking up food while avoiding theft as much as possible. But frankly, the SFT still has the potential for sabotage, which is relevant to the Ethical & Legal issue I will address below.

### **5.Ethics & Law**

As intelligent food delivery trucks gradually replace the existing human delivery workers, it is bound to raise some ethical and legal issues.

Ethical aspects: As the employment report on China's food delivery industry noted above, there are currently 7 million food delivery drivers in China, who may lose their jobs as intelligent food

delivery trucks (such as SFT) become increasingly popular. But meanwhile, many mechanical engineers and algorithm programmers will join in this field to maintain and keep the intelligent delivery trucks running. This may break the existing employment structure of the food delivery industry and lead to a series of moral problems, which need to be solved through consultation between the enterprises in the online takeaway field and the national government.

Legal aspects: Due to the popularity of SFT, issues concerning road security and product's safety need to be considered. If SFT meets traffic accidents in the stage of autonomous driving and food theft occurs in the process of food distribution, all relevant issues need to be regulated by more perfect laws in the future.

## **Conclusion.**

Through the analysis of the above five aspects, the more advanced, safer and more in line with the market demand of intelligent food truck will flourish in the future, and it will gradually replace the existing manual delivery mode in the next ten years. At the same time, we can expect the intelligent food truck related technology to further improve, and the relevant laws and regulations based on the takeout industry are more and more perfect. Ultimately, SFT as the as the leading role in the field of intelligent takeout delivery will possess a broad market.

## **Reference.**

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