SMART RECEIVER BOX FOR HOME DELIVERY

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ABSTRACT
The internet has revolutionized the way we shop. Online shopping has become a popular shopping method ever since the internet has declared a takeover. Because of the numerous advantages and benefits. The convenience is the biggest perk.There are no lines to Wait in or shop assistants to wait on to help you with your purchases and You can do your shopping in minutes. Because of many advantages of online shopping more andmore people are getting attracted towards the online shopping. Advances in home delivery have the potential to promote e-commerce. By taking these trades into consideration we are come up with new system which will increase reliability in online shopping. This system will overcome one of the disadvantage ofonline shopping. In previous days when we were not able to present at home at the time of delivery, our parcel used to return back to courier office. Hence we are making a new device which will help to receive parcel in absence of buyer. This device is nothing but advance version of mailbox, which is based on new technology of electronics. Also it is connected to internet so it will compatible with arriving features of internet that we already aware of. It is provided with all security options, in order to improve reliability. Thus logistical challenges of home delivery are discussed and potential solution strategies for those issues are presented in this paper.

KEYWORDS: IoT, Home delivery, Secure Receiver Box.

INTRODUCTION

As the brisk development of internet, shopping online becomes the mainstream.This new shopping makes the customer convenient, but it also causes new trouble. This paper analyse those problems and propose the "Smart Receiver Box" system based on new secure technologies. This system resolves the problem of inefficiency and complexity in online delivery at home. Nowadays, there are many E-Commerce websites available but the threat of security and delivery of correct product at correct time issues in the traditional delivery system and has become the important subject of discussion amongst the concerned users. Thus if these threats of delivery with great privacy and security are not eliminated, users will not be able to function properly.It is declared after so many surveys that most of the buyer faces problem of the delivery when they are not at home and are unable to receive their parcel or order. An efficient and reliable system is essential for gaining customers loyalty and consequently obtaining profitability as home delivery is becoming key element in e-commerce. Although home delivery plays a crucial role in the distribution chain, limited attention has been paid to the issues associated with the home delivery in the transportation literature. A recent expectation is the work of Campbell and Salvelsberg[1],which examines consumer direct service problem faced by individual retailers providing home delivery. Thousands of delivery boys traversing the streets on their two wheelers and make delivery as soon as possible but if there is no one to receive the parcel at home at the time of delivery they need to come back or they will keep that parcel at centre office , such type of overhead can be avoided by this smart system.When the products are returned because of this problem,it scares business with heavy loss on shipment. This loss can be minimized with proper management of delivery.In thispaper attempts are being taken to discuss the overviews of delivery issue in absence of customer at home. We shall also discuss the particular step required to be taken to overcome this problem. After discussion we shall provide a guideline to be adopted to eliminate this issue of delivery. Recognizing key issues related to home delivery has implications for developing innovative strategies that may lead to more efficient and reliable home delivery systems, which is the major purpose of this study.

KEY ISSUES IN HOME DELIVERY AND SOLUTION STRATEGIES

The growth of e-commerce has forced online retailer and delivery companies to address many issues about how they organized and operate their home delivery systems and the level of customer services they are aiming to provide. Different products may have different delivery attributes, so an approach made for say, grocery delivery may not be essentially suitable for the delivery of large items. In this section, we delve into fundamental issues related to home delivery that need to be addressed in e-commerce environment.

- **'NOT-AT-HOME' PROBLEM**

The major factor for the success of home delivery operation is whether there is someone at the customer's home to receive the delivery. Several social and economic factors leading to homes being empty for longer periods in a day than used to be. Some of

these are inflexible working patterns, long commutes, increase in working woman, and the growth in single person households. This results in relatively high proportion of first time delivery failure, causing higher operating costs for carriers and lower customer satisfaction.

There are some causessuch as foods home delivery [2], in which prior arrangement for a time window for delivery are made between online retailer and their customer, although even this case may not guarantee that the customer will be at home at the time of delivery. However, this is not the norm for most of home deliveries. The reason is that this prearrangement of delivery time slots with customers would increases the inflexibility in carriers' fleet operation, leading to an extreme expensive delivery system for both retailers and carriers. If prearranging delivery times and days with customers does not prove attractive to companies' delivery e-commerce products, then there is likely to be a growing need for these companies to develop alternative delivery systems and strategies.

When the customer is not at home at the time of delivery, four alternatives for the carrier are conceivable:

1. Delivery at different date or time: this generates extra cost for carrier, but is currently being implemented as service in real world.
2. Prearranging delivery time : this would be unattractive for all parties involved, but it can be an additional option for customers willing to pay extra charges for it.
3. Establishment of secure reception box : such a facilities at or around customer's homes exists in some cases such as postal services, but are very limited in practise because of more security and privacy issues.
4. Delivery to local pick up point : from the points such as convenience stores and gas stations available for 24hrs, customers can pick up their goods up at any time of day convenient to the customer, or other 'last mile' companies make prearranged deliveries to customers.

HOME DELIVERY: HISTORICAL DEVELOPMENTS

Companiesthat are going to be most successful in the digital economy should be able to deliver their goods timely and reliably. Two recent surveys of trucking firms[3][4]shows that most traditional trucking firms are investing in advanced informationtechnologyin order to respond to the customer demands in the form of just in time distribution, door to door delivery, same day services. The distribution of goods to retail shops mostly involves the frequent delivery of packaged units, consisting of one or more boxes, pallets, or container, filledwith number of homogeneous goodsin contrast, e-commerce delivery has usually only one(relatively small)items for each address. Even though there are some level of bundling, it consists of e-commerce goods for one region, but the goods are not packaged together. Therefore requires a different services from that of traditional transportation.

In traditional store based systems, goods are typically distributed in sequence from the manufacturer, to the wholesaler, to the retailer, and finally to the customer, although the distribution of good varies, depending upon a type of business. A relatively large shares of the distribution of goods has occurredthrough distribution centres, owned by producers, wholesalers or logistics service providers. From a distribution point of view, retail shop function asan end point of distribution chain that provides a delivery. But as company and consumer can directly make a contact with each other, e-commerce has changed the shape of traditional supply chain. Products purchased online must be transported from a distribution centre to customer's home in less and at accurate time.

Table 1 represents the distinct characteristics of e-commerce delivery compared to those traditional delivery.

TABLE 1.Characteristic of e-commerce delivery

Attributes	Traditional Delivery	E-Commerce delivery
Distribution Chain	Producer-wholesaler-retailer-customer	Online retailer-customer
Shipment size	Larger	Small
Number of loads	High	Low
Delivery failure	Few	Many
Delivery frequency	Low	High
Delivery cost per each load	Small	High
Delivery time sensitivity	Low	High

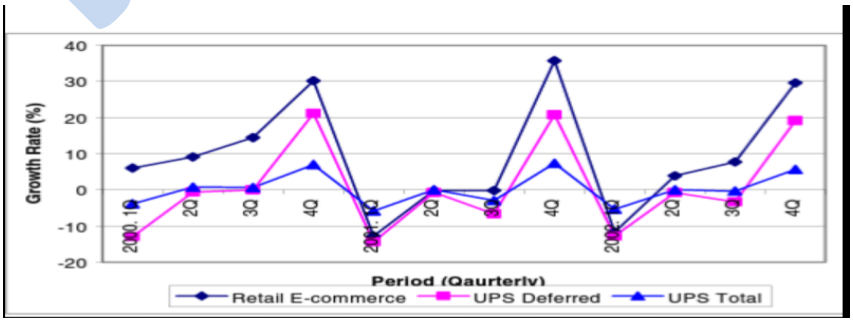


Figure 1. Relation between E-commerce and Home delivery

MAIN FACTORS WHICH AFFECT ONLINE SHOPPING

There are some factors which affects the online shopping by the Kotler who is great marketing writers

1. Convenience
2. Different products quality
3. Reliable Home delivery

METHODOLOGY

Project is divide into two main streams

1. Embedded implementation
2. IoT implementation

1. Embedded implementation
- Verification of order ID and OTP.
- Camera interfacing for lives video streaming.
- Product identification by scanning Barcode.

2. IoT implementation
- Receiving all information of product from respective company.
- Sending OTP and Acknowledgement to owner and delivery boy through internet.
- Video streaming.

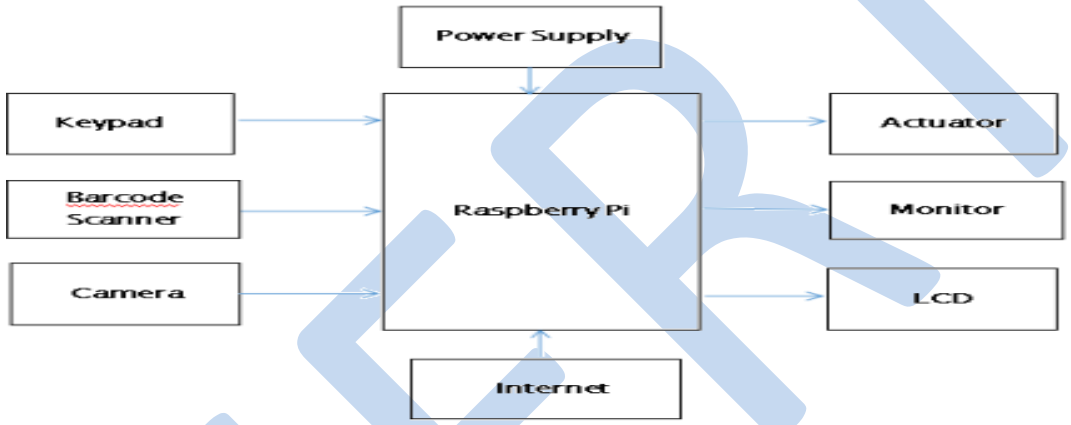
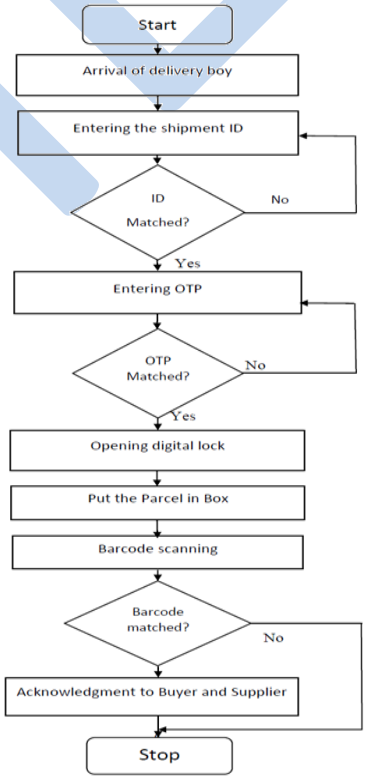


Figure 2. Block Diagram



CONSTRAINTS

Strategy which is provided in this paper to overcome 'not at home 'problem is surely reliable, secure,
Easy tohandle but along with advantages there are certain limitation also which are mentioned below:

1. A product with a particular size can only be deposited in box.
2. Customer Centric Company like amazon must provide barcode information along with shipment ID through e-mail for further verification procedure.
3. Delivery boy should drop parcel in proper position so that it can be scanned completely.

CONCLUSION

In this paper, we have investigated key issues associated with home delivery of e-commerce goods, and presented potential strategies that may lead to more efficient and reliable, more secure home delivery system. Home delivery services stimulates greater complexities in supply chain management. The delivery problem when customer is not at home at the time of delivery is the most critical factor, causes higher operating costs for carries and lower customer's satisfaction for home delivery services is eliminated by this new technology system. Advances in home delivery have the potential to expedite the growth of e-commerce.

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