IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Vol. 10, Issue 1, January 2021

DOI 10.17148/IJARCCE.2021.10132

Zero Contact Delivery for Faster and Safer Delivery Through IOT

Dr. Rekha N[1], Dhananjaya Kumar S[2], Prajwal A [3], Ravitej K[4], Yashasvi Bhat [5]

Associate Professor, Department of Telecommunication, KSIT, Bengaluru, India[1]

UG Student, Department of Telecommunication, KSIT, Bengaluru, India[2,3,4,5]

Abstract: As we know, the advancements in the Radio Frequency and Messaging technologies have made a platform to come up with various innovations reducing human effort. Since online shopping has become a part and parcel of common man's life, this is the right time to make use of existing technologies to simplify the procedure. The basic idea of the work is to introduce technology into our lives for monitoring issues which demand our personal presence. The aim is to provide a reliable and user friendly solution to problems incurred during online shopping. A stand alone box is designed which receives and stores the intended parcel so that the customer can retrieve it as and when required.

Keywords: SMART Locker, IOT network, Cloud, Sensors

I. INTRODUCTION

Intelligent and secure electronic locker systems for parcel delivery and collection. Enable your multi-family housing residents to collect parcels, with 24/7 access from any delivery source. The SMART locker is a modular and expandable solution developed especially for parcel collection. The functionality can be managed locally. Security of data is of primary concern and the system is fully compliant with all data protection standards. No resident data is stored locally thanks to the enterprise-level cloud-based control system. With the rise of e-commerce, there is an increasing need to manage online purchase deliveries effectively. Nowhere is this more apparent than within apartment complexes nationwide. During peak holiday times, parcel and package, deliveries can easily increase by a factor of five. As a multi-family housing unit owner or operator, this places an increasing demand on your staff to manage these packages until the time of collection. In addition to the time and effort it takes to manage this process, you are also taking responsibility for the package security.

SMART courier/locker is the newest delivery option available to customers whose appetite for online shopping is not only growing but also intertwines with the increased need for mobility. It is an easy solution for clients who do not want or cannot wait for the courier to address; they can organize their day schedule without considering their route and schedule. Lockers are located in 24/7 access places, so the parcel can be lifted at any time for 7 days. It is also a delivery solution for us, so our couriers do not have to return to the address several times to be able to deliver if at the first touch the customer was not found at the address or if he requested the delivery outside the courier working schedule.

The online shopping customer will have the SMART courier delivery option available on the partner's website and can option for this delivery solution by choosing the locker with the most convenient location. SMART Courier will introduce the drop off option, allowing customers to send packages or envelopes. The customer can choose the locker in the most convenient place to lift. Were we have already installed the first 10 near the entrance.

II. LITERATURE SURVEY

Common problems faced by customers while shopping online that glorious invention which allows people to buy things from the comfort of their homes. No more travelling to multiple stores to find the right product; no more having to deal with over-enthusiastic salespersons; no more standing in long lines at the checkout counter. The e-commerce boom has certainly changed the way we shop for the better. But, like everything else, the world of online shopping is not all roses. Despite all the efforts of e-commerce companies to alleviate them, there are a few problems that customers still have to face while shopping online. One of the major problems is delivery and logistics.

[1] With the increasing demand for express delivery, a courier needs to deliver many tasks in one day and it's necessary to deliver punctually as the customers expect. At the same time, they want to schedule the delivery tasks to minimize the total time of a courier's one-day delivery, considering the total travel time. However, most of scheduling research on express delivery focus on inter-city transportation, and they are not suitable for the express delivery to customers in

IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Vol. 10, Issue 1, January 2021

DOI 10.17148/IJARCCE.2021.10132

the “last mile”. To solve the issue above, this paper proposes a personalized service for scheduling express delivery, which not only satisfies all the customers’ appointment time but also makes the total time minimized

[2] In express delivery, couriers will generate a mass of trajectory logs when delivering shipments. To analyse these logs is of great value for the promotion of express delivery service. For any research based on trajectory data, map-matching plays an important role, so in this article, we design a map-matching service specially for courier trajectories. As far as we know, existing map-matching algorithms are designed mainly for cars or walks or ignoring means of transportation. Although these methods can be applied to courier trajectory map-matching, the accuracy of them can hardly be guaranteed as they ignore the characteristics of courier trajectories. To solve this problem, we design a new map-matching service based on a map-matching algorithm called Courier Trajectory Based Map-Matching (CTB-Matching), which is specially used to deal with courier trajectories. Courier trajectories have some characteristics different from traditional trajectories. Firstly, couriers must deliver shipments at different sites, so the trajectories seem more irregular, which is called as “fragmentation” problem. Secondly, unlike cars, couriers’ positioning information is mainly generated by Wi-Fi location system, which is not precise as Global Position System (GPS), so the location deviation problem should be considered.

[3] In this paper we propose a hybrid heuristic approach for public data delivery under ultra-large-scale smart-city settings. In this approach, public transportation vehicles are going into election process to be utilized as Mobile Couriers (MCs) that read public Access Points (APs) data loads and relay it back to a central processing base-station. We also introduce a cost-based fitness function for the MCs election in the smart-city project which form a real implementation for the Internet of Things (IoT) paradigm.

[4] The success of express courier services often depends on both how to assign service centres to consolidation terminals and how to extend their cut-off time (deadline) for direct home deliveries coordinated by service centres near customers. This study suggests an approach to design express courier service networks with respect to assignment of service centres to consolidation terminals and extension of their cut-off times. We propose an integer programming model and a genetic algorithm-based solution procedure that allows express couriers to maximize their incremental profit.

[5] To solve the problem of the inefficiency of China’s current terminal logistics system, this paper mainly contributes to the designing of a logistics distribution visualization system. According to the comparison of the usage of different smart phone operating systems, this project chose IOS as main developing environment, which is one of the most popular operating systems nowadays. The logistic system mainly consists of two parts, couriers’ distribution system and customer system, which has the function of courier route planning, dynamic tracking of the package and nearby courier and so on.

[6] A smart city is a developed urban area that excels in the area of economy, governance, people and life through strong human capital, social capital and ICT infrastructure. It is a new approach to managing the complexity of city life, increase efficiency, reduce expenses, and improve the quality of life of the citizens. This paper is on potential smart cities applications as applied to the domains of smart transport, smart tourism and recreation, smart health, ambient-assisted living, crime prevention and community safety, governance, monitoring and infrastructure, disaster management, environment management, refuse collection and sewer management, smart homes, and smart energy. These smart cities applications support the future vision of cities, which aim at exploiting ICTs, namely internet of things technologies (IoT), for value-added service delivery.

[7] Smart city is an emerging concept that aims to improve the quality of city life, to enhance the efficiency of urban operations and services as well as to create a sustainable economic growth of the city. Internet-of-Things (IoT) and big data have emerged as key enabling technologies for smart city services infrastructure. A major issue in the design of smart city services is the provision of Internet connectivity anywhere within the cities through some suitable network infrastructure.

[8] Nowadays, human has become too busy, and is unable to seek out time even to change the lights were not necessary this system is like, the road lightweights are switched on within the evening before the sun sets and that they square measure transitioned successive day morning once there's ample light on the roads. This project provides the simplest answer for wattage wastage. Conjointly the manual operation of the lighting system is totally eliminated. during this project the sensing elements square measure used that square measure lightweight Dependent resistance LDR sensor to point a day/night-time and also the small controller is employed which is able to generate standing of sunshine to the user by exploitation GSM module that acts as a group action half between backside and also the side half. The microcontroller Arduino board is employed as brain to manage the road lightweight system, wherever the programming

IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Vol. 10, Issue 1, January 2021

DOI 10.17148/IJARCCE.2021.10132

language used for developing the package to the microcontroller is C language. Finally, the system has been with success designed and enforced as epitome system.

[9] Global positioning system (GPS) technology has complimented geographic information systems (GISs) for a few years and is now well understood and accepted by the GIS community. The primary focus of GPS within the GIS arena has traditionally been based around GPS systems that collect, store and transfer data from a field system to an office-based GIS. With current developments in field computers (especially related to lightweight and low-cost devices that operate Microsoft's Windows CE operating system) there is a strong desire to take GIS directly into the field. This increased interest in field-GIS has a corresponding interest in the application of GPS within GIS.

[10] This paper provides an approach to use a continuous track and trace system based on GPS (Global Positioning System) technology in production networks. Therefore, the Institute for Logistics and service management (FOM Essen, Germany) operates a new GPS based track and trace system with the name GPS. LAB. The results of the first trials with the existing system in the context of production planning and supply chain event management are presented in this paper. In a special example the GPS track and trace system is used to identify delays in an inbound logistics process of a groupage freight depot to show the influence of the delay on the routing of last-mile transports. This could be labelled as a last mile event routing (LMER).

[11] Experiments are not only the teaching means to improve students' practical ability, but also the source to engage them in doing scientific research. Therefore, this paper constructs an authentic vehicle monitoring and dispatching experimental system for logistics distribution with the integrated information technology. The system consists of two parts, one is vehicle terminal system which transmits the information about vehicles and goods to monitoring centre system for formulating policy to make plans; and another is monitoring centre system, which not only monitors the vehicles status but also identifies distribution routes and dispatching plan by GIS and optimization technique.

III.METHODOLOGY

- Once the online order has been launched and the delivery option is chosen, expeditions are taken over by SMART Courier representatives, and in an average of 24 hours they are deposited in the e-BOX chosen by customers.
- The system automatically labels sender's package delivery by size (S, M, L) and when the AWB is drawn, a box is reserved in the SMART Courier system according to the size.
- As soon as dispatches are available in vending machines, the recipients receive a SMS or an email with a secret collection code (PIN) and other information needed to pick up expeditions.
- All that customers have to do is to enter the keypad screen, SMS / email PIN plus name and signature; the operations they have to perform at terminals are intuitive and easy to go.
- When leaving the SMART Courier warehouse, the system warns the lockers, so from the submission of the shipment, the system already has all the data about the package to be handed over, the identity of the courier and the password with which it opens and closes the E-Box.
- At the locker, the courier identifies with ID and password, logs in and selects the parcel delivery option.
- After handing over the parcel, the compartment closes, and the system automatically generates a unique collection code that is sent to the recipient via email and SMS.
- The courier cannot submit another referral in a compartment until the first deposit is perfectly secure. If the customer has wrongly selected the size of the package, the courier has the option to manually choose another compartment.
- Based on the SMS or email received, the customer can pick up the shipment from the chosen wardrobe: type the Unique collection code received, sign electronically on the touch screen, and pick up the expedition.
- The E-BOX option is based on an easy and intuitive operating mechanism and is perfectly secured by the Austrian company KEBA. The locks are installed in controlled areas and are provided with alarm and anti-burglary systems.

IV. CONCLUSION

This paper provides the brief idea about how the 'Zero Contact Delivery System for Faster and Safer Delivery Through IOT' works. This paper explains about the various features available for this project. This project ensures if the package is safely delivered to the customer at the specified time. It also helps the delivery executive to efficiently deliver a greater number of packages in a shorter span of time as the delivery executive does not have to contact the customer personally to make the delivery. In this present COVID-19 pandemic situation this system can be effectively implemented to further prevent the spread of virus.

IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Vol. 10, Issue 1, January 2021

DOI 10.17148/IJARCCE.2021.10132

REFERENCES

[1] SUN, Y., WEI, K., QIAO , Z., WEN, J., & JIANG, T. (2016). A PERSONALIZED SERVICE FOR SCHEDULING EXPRESS DELIVERY USING COURIER TRAJECTORIES. 2016 IEEE INTERNATIONAL CONFERENCE ON WEB SERVICES (ICWS).

[2] Wen, J., & Sun, Y. (2017). A Map-Matching Service Designed for Courier Trajectories. 2017 IEEE International Conference on Web Services (ICWS).

[3] Al-Turjman, F. (2016). Hybrid Approach for Mobile Couriers Election in Smart-Cities. 2016 IEEE 41st Conference on Local Computer Networks (LCN).

[4] Lee, H. J., Ko, H. J., Sohn, Y. H., & Ko, C. S. (2008). Profit-Based Network Design in Express Courier Services. 2008 3rd International Conference on Innovative Computing Information and Control.

[5] Yufeng, Z., & Jingyi, W. (2016). The visual distribution system of terminal logistics based on IOS. 2016 3rd International Conference on Systems and Informatics (ICSAI).

[6] Dlodlo, N., Gcaba, O., & Smith, A. (2016). Internet of things technologies in smart cities. 2016 IST-Africa Week Conference.

[7] Sadhukhan, P. (2018). An IoT based Framework for Smart City Services. 2018 International Conference on Communication, Computing and Internet of Things (IC3IoT).

[8] K. Nirosha, B. Durga Sri, Ch. Mamatha and B. Dhanalaxmi, Automatic Street Lights On/Off Application using IOT, International Journal of Mechanical Engineering and Technology, 2017, pp. 38–47.

[9] Harrington. A. "GIS and GPS: Technologies that work well together."

[10] Kandel, C.; Klumpp, M.; Keusgen, T., "GPS based track and trace for transparent and sustainable global supply chains" 2011 17th International Conference on Concurrent Enterprising (ICE), 20-22 June 2011.

[11] Xuping, W., Kai, Z., & Ami, L. (2018). Experimental Monitoring and Dispatching System for Logistics Distribution - Based on GIS, GPS and GPRS. 2008 International Conference on Computer Science and Software Engineering.