**DOMESTIC POSTAL SYSTEM**

**LITERATURE REVIEW**

1. **Introduction**

Postal systems represent essential infrastructure that facilitates communication, commerce, and connectivity within and between nations (Union, n.d.). This literature review explores key themes and findings related to postal systems, including their historical evolution, the advent of postal management systems, the digitization journey, and an overview of some web-based postal management solutions available in the market.

1. **History**

The history of postal systems dates back to ancient civilizations, where rudimentary methods of conveying messages and goods over long distances were established. Over time, postal systems became more formalized and structured, with the establishment of dedicated postal services in various regions (Britannica, History of postal system, n.d.). The development of modern postal systems accelerated during the Industrial Revolution, driven by advancements in transportation, communication, and logistics (Anna Otsetova, 2018). Postal systems played a vital role in nation-building, economic development, and social cohesion, facilitating the exchange of information, goods, and services across geographical boundaries (Britannica, Postal services in the developing countries, n.d.).

The history of the Post in Nigeria dates back to the 19th century. The first post office was established by the British Colonial Masters in 1852. It was considered to be a part of the British postal system. It was a branch of the London General Post Office and this was the situation till 1874. (1862) When the Post Office began its career as a full fledge Department, the Royal Niger Company (RNC) which was actively involved in economic activities in the country, set up its postal system in Akassa in 1887, Calabar in 1891, Burutu in 1897 and Lokoja in 1899 (Service, 2015).

1. **Review of Related work**

**(A. Mohd, August 2019)** Developed an Android-based application system for courier service management with a last-mile route tracking module. The application was designed to guide courier delivery personnel in finding their way to deliver parcels to customer's doorstep. The aim of the research was to develop a framework and android application that can help in building the platform for more intelligent parcel delivery system by combining the use of the current communication technologies such as GPS, Waze, Android tools and cloud services. It will help the courier service systems to intelligently manage the parcel delivery process and to deliver the parcels at a convenient time to the customers. The Web-based part of the application was design for system administrator and was developed using Node.js and PHP framework to provide the service together with MySQL database, Android-based mobile app was design for parcel delivery personnel and customer, it was developed on android studio environment using Extensible Markup Language (XML), Java programing language.

The research was designed to focus solely on managing parcel deliveries to customers, successfully addressing issues related to routing, undeliverable addresses, and absent recipients. However, the application did not address the problem of misrouted items, as sorting functionality was not integrated into the system.

**(Vignesh, October 2020)** Developed courier management system using cloud Computing to help businesses and its customers locate the movement of their couriers, The application aim was to solved the problems coursed by COVID 19 disruption on supply chains and logistics, which affected businesses in their B2B operations and reduced productivity. It aims to improved efficient pickup, delivery and transit of goods. The application was developed using HTML, PHP, and SQL and was deployed on Amazon Cloud web services in other achieved scaling, fault tolerant, high availability and load balancing. The research was designed to focus solely on managing pickup and deliveries services, however the application did not has the functionality of routing and sorting.

**(Khandaker Mohammad Mohi Uddina, June 2021)** Developed an efficient parcel carrying system aimed at reducing the cost and time required to send parcels from one location to another. The application was essentially created to connect individuals looking to send a parcel with those willing to transport it, allowing carriers to earn money easily. The application leverages the movement of people traveling for work, vacations, or visits to friends and relatives. By carrying a parcel to their destination while traveling, individuals can assist others and earn some money in the process. The application was developed using PHP framework Laravel, Ajax, Bootstrap and MySQL Data base. The application successfully reduced the time and cost required to delivered parcel in Bangladesh, however the application failed address the issue of carrier not going directly to his destination and carrier travelling with many parcels as routing and sorting functionality was not integrated into the system.

**(ACHARYA, October 2021).** Developed post office management system which was designed to automate post office transactions, the application simplifies the handling of money orders (MO), billings, customer accounts, electricity bill payments, sale of forms, Telephone bill payments, and postal transactions. The application is developed using Java programming language and SQL data base. The system aims to automates post office business processes, it successfully automated the sales of postal products, bill payment and some government services. However, it did not automate the core mandate of the post which is mail acceptance and deliveries.

**(semata gerald, November 2022).** Developed parcel monitoring and delivery system on public transport which helped Modern Coast Coaches Limited automated and managed their parcels and customer information, the application was designed in mobile- monitoring app and web-base for management and reporting of parcel delivery on public transport buses in Uganda. The application enabled users managed processes and delivery of packages and parcels from depot or transport hub to the customer, the application successfully automated the process from acceptance to delivery

**(Gupta, Garg, Garg, Gupta, & Gautam, 2022).** Developed a parcel delivery system in railways, The system was developed using IoT and machine learning to assist trains in checking and sorting parcels according to their destination address. The system consists of two phases. Scanning is the first step, followed by sorting. During the scanning process, the parcel will be passed through three scanners that will look for explosives, drugs, and any dangerous materials in the parcel and will trash it if any of the tests fail. When the scanning step is over, the parcel moves on to the sorting phase, where QR codes are used to retrieve the details of the parcels and sort them properly.

**(Nik Yasmin Nik Yusoff1, May 2023)** Developed Student Parcel Management System at Kelantan Matriculation College, the system was developed to help manage student information, package receipt and delivery information and related reports so that it is more systematic and efficient. It is web-based system that serves to record information on the receipt and delivery of student parcels at the college sent by postal service. The system aims to improve weaknesses in existing student package management methods where it is carried out manually using paper forms. The system was developed using Hypertext Preprocessor (PHP) and MySQL database. The system was

**(UPU, n.d.).** Developed International Postal system IPS is a powerful web-based application designed by Universal Postal Union to provide an operational module for processing inbound and outbound international mail, The application has an Electronic Data Interchange module that allows designated operators to exchange the latest versions of the UPU-standard EDI messages (item, dispatch and consignment level as well as electronic verification notes), it's also has an international accounting module and track and trace module.

**(Shoppy, n.d.)** The e-post office management system Android application automates Stamps, Postcards, Telegram, and fixed deposits. it allows customers to order the postal services quickly and comfortably. Besides this, the e-Services offer new flexibility through e-Packet, the pickup order for packages over the Internet as well as the online forwarding order and storage order.

**(Inspire, n.d.).** is a multi-channel communication platform that enables organizations to manage their postal communications efficiently. It offers features such as document composition, postal optimization, and digital delivery, helping businesses enhance customer engagement, reduce postage costs, and comply with postal regulations

**(smithsonian, n.d.)**. Neopost Postal Management offers a range of postal management solutions tailored to the needs of businesses, including mail processing, shipping, and logistics. Its web-based platform allows users to streamline postal operations, improve delivery accuracy, and reduce costs through automated processes and advanced tracking capabilities.

**(pitneybowes, n.d.)**. is a comprehensive software-as-a-service postal management solution that offers features such as address verification, mail processing, tracking, and reporting. It provides real-time visibility into mail and parcel movements, enabling users to track deliveries, manage inventory, and optimize postal workflows efficiently.

**(NIPOST, n.d.)** Integrated postal management system (IPMS) is a web-based application developed by the Nigerian postal service to automate its products and services, such as mail acceptance and delivery, Boxes, Speed post, and parcels, etc. the system has the following modules:

* Counter automation: this is the module where emails are accepted from customers.
* Mails: this is the module where mails are forwarded to their destination, i.e. outbound mails.
* MPC: in this module mail dispatch from other offices is accepted, i.e. inbound mail and forwarded to various delivery channels.
* Last Mile Delivery: in this module, mails are delivered to customers.

1. **Research Gap**

The research gap on the topic of the Domestic Postal System refers to the loopholes or disadvantages discovered in the design, development, and implementation of an integrated postal management system (IPMS). This research gap indicates a need for further development and analysis to enhance the effectiveness and efficiency of the postal processes. Integrating bar code generation and implementing sorting and bagging mechanisms in the IPMS offers potential advantages in enhancing overall postal processes, improving parcel visibility, and reducing item misrouting and pilfering.