

AI-Based Paperless Container Delivery System; a Model for Smart Chittagong Port

**Lt Col Mostafa Arif-ur Rahman,
Major Md Wahidul Haque**

Abstract

Information Technology (IT) is transforming rapidly and solely igniting the 4th Industrial Revolution (4IR) and providing a lot of conveniences to increase productivity and efficiency. Similarly, seaports, being the major players of the supply chain have undergone many rapid developments with the introduction of containerization. Chittagong port continues to cope with the changing pattern of trade and aspires to be a smart port in line with Smart Bangladesh's Vision 2041. This research aims to evaluate the delay and security concerns of the paper-based container delivery process from the yard and suggest an AI-based paperless delivery system. A combination of both quantitative and qualitative methodology is used in this research. It is found that in a year, amongst 0.3 million container trailers, 36605 (approximately 10.2%) trailers were cleared in less than one hour and 62466 trailers (approximately 20.1%) took more than 12 hours. Based on this result, in-depth interviews of 19 people from five stakeholders were collected and thematic analysis with Atlas Ti was conducted. The result of the study shows that an RFID-based rewritable Smart Device System with specific database connectivity with three servers of two ministries can reduce the average time of delivery to less than one hour. It also shows that AI-based face recognition applications at the gate entry, exit, and delivery point can reduce forgery to zero level, meaning it can make 100% safe delivery. The outcome of this research is expected to make Chittagong Port's container delivery system approximately ten times more efficient and 100% secure. This will in turn reduce approximately 90% of container trailer-related traffic movement and jams inside and outside the port area and make the port safer and more secure.

Keywords

Artificial, Intelligence , port, Container,