

AI-based logistics system overview and a workflow for digital freight forwarding in logistics.

Md Ariful Islam Mozumder*, Rashedul Islam Sumon*, Ziaullah Khan*, Shah Muhammad Imtiyaj Uddin*,
Muhammad Omair Khan* Hee Cheol Kim*

Department of Computer Engineering/Institute of Digital Anti-Aging Healthcare/u-HARC, Inje University, South Korea
arifulislamro@gmail.com, sumon39.cst@gmail.com, zkhan.msee19seecs@seecs.edu.pk, imtiyaj.dream@gmail.com,
mumairkhan690@gmail.com, heeki@inje.ac.kr

Abstract— In the realm of global business, logistics stands out as a cornerstone, and the ongoing development of Artificial Intelligence (AI) is shaping logistics into a secure and intelligent domain. The digitization of freight forwarding involves converting traditional logistic procedures into streamlined, digitized processes within the freight forwarding system. This paper provides a concise exploration of AI applications in logistics systems, delving into the transformative impact on supply chain management. Focusing on key components such as machine learning and predictive modeling, it offers a brief overview of AI's role in optimizing logistics processes and enhancing efficiency. Also, we will show a framework for digital freight forwarding in logistics considering AI applications with the explanation.

Keywords— Artificial intelligence, IoT, supply chain, logistics, and digital freight forwarding.



Md Ariful Islam Mozumder was born in Bangladesh 1992, received his BSc in Computer Science & Engineering from the World University of Bangladesh, and an MS degree in Artificial Intelligence from the Inje University South Korea in 2022. Currently, he is pursuing his Ph.D. in the Institute of Digital Anti-Aging Healthcare from Inje University. He has previously worked on multiple real-life projects related to computer vision and data sciences. His research interest aligns with Computer Vision, Artificial Intelligence, Metaverse, Signal Processing, Algorithms, Blockchain, and Medical Image Processing.



Rashedul Islam Sumon is pursuing his Master's in the Institute of Digital Anti-Aging Healthcare from Inje University. He has previously worked on multiple real-life projects related to computer vision, data sciences, Smart IoT systems, and text mining. His research interest aligns with Computer Vision, Artificial Intelligence, Medical Image Processing, Algorithms, and Natural Language Processing.



Ziaullah Khan is a Ph.D. student at the Institute of Digital Anti-aging and Healthcare at Inje University. His research interest area Machine Learning and deep Learning, includes Smart Logistics, Metaverse, and Natural Language Processing.



Shah Mohammad Imtiyaj Uddin is pursuing his Master's in the Institute of Digital Anti-Aging Healthcare from Inje University. He has previously worked on multiple real-life projects related to mobile applications, computer vision, data sciences, and user interface systems. His research interest aligns with Computer Vision, Artificial Intelligence, and mobile applications.



Muhammad Omair Khan is a Ph.D. student at the Institute of Digital Anti-aging and Healthcare at Inje University. His research interest's area Machine Learning, Deep Learning, including Image Processing, Logistics, and Natural Language Processing.



Moon-II Joo received a PhD degree in computer engineering from Inje University in 2018. He is currently working as a research professor at the Institute of digital anti-aging Healthcare, Inje University, Korea. His research interests are in software engineering, human-computer-computer interaction, smartphone programming, and component-based development.



Hee-Cheol Kim BSc at the Department of Mathematics, MSc at the Department of Computer Science at SoGang University in Korea, and Ph.D. in Numerical Analysis and Computing Science, at Stockholm University in Sweden. He is a professor and Head of the Department of the Institute. Digital Anti-aging Healthcare, Inje University, S: Korea. His research interests include Machine learning, Text mining, and Bio Informatics.