(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :05/11/2025

(21) Application No.202541107020 A

(43) Publication Date : 28/11/2025

(54) Title of the invention : Method and System for Optimizing Supply Chain Logistics Using Artificial Intelligence

(51) International classification	:H04N 19/52, G01F 5/00, B65D 88/00, G10L 19/13, G01F 25/00
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	: :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**
1)Mr. Sathish Krishna Anumula,
Address of Applicant :Mr. Sathish Krishna Anumula, Senior Enterprise Architect, IBM Corporation, Hyderabad, RangaReddy, Telangana – 501511, sathishkrishna@gmail.com Telangana India
2)Dr. Sarita Singh ,
3)Ms. Nishita Patel
4)Dr.P.Rajeswari
5)Mr.R.Sai Mani Kumar,
6)Dr.P.Gopinadh Rao ,
7)E.Ahila Devi ,
8)Sudha Varalakshmi,
(72)**Name of Inventor :**
1)Mr. Sathish Krishna Anumula,
2)Dr. Sarita Singh ,
3)Ms. Nishita Patel
4)Dr.P.Rajeswari
5)Mr.R.Sai Mani Kumar,
6)Dr.P.Gopinadh Rao ,
7)E.Ahila Devi ,
8)Sudha Varalakshmi,

(57) Abstract :
Abstract This invention introduces an intelligent and adaptive framework designed to enhance the efficiency, accuracy, and sustainability of modern supply chain operations. The invention utilizes Artificial Intelligence (AI), machine learning, and predictive analytics to analyze large volumes of real-time and historical data from multiple sources, including market trends, inventory levels, transportation routes, and external environmental factors. Through continuous data processing and pattern recognition, the system dynamically forecasts demand, optimizes inventory management, and determines the most efficient transportation routes to reduce operational costs and lead times. The system's AI-driven optimization engine operates across all key supply chain components—procurement, production, warehousing, and distribution—creating a unified, self-learning ecosystem that can autonomously make informed decisions and adapt to changing business conditions. It provides real-time visibility into supply chain performance, enabling rapid responses to disruptions such as delays, demand fluctuations, or resource shortages. Additionally, the system integrates sustainability-focused algorithms that minimize fuel consumption, reduce carbon emissions, and promote eco-efficient logistics planning. A secure data management structure enhanced with blockchain technology ensures data integrity, transparency, and traceability throughout the supply chain network. The system's modular and scalable architecture allows it to be implemented across diverse industries and easily integrated with existing enterprise resource systems. Overall, this invention provides a transformative solution for optimizing global supply chain logistics by combining AI intelligence, automation, and sustainability. It enhances decision-making, streamlines operations, and promotes resilience against disruptions, ultimately empowering businesses to achieve higher efficiency, cost-effectiveness, and environmental responsibility in their supply chain management practices.

No. of Pages : 14 No. of Claims : 6