

(54) Title of the invention : OPTIMIZING SUPPLY CHAIN MANAGEMENT AND ENHANCING BRAIN CANCER DIAGNOSIS USING INTEGRATED BLOCKCHAIN, IOT, AND MACHINE LEARNING SYSTEMS WITH MRI IMAGING

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<p>(57) Abstract :</p> <p>This utility patent outlines a novel system that leverages blockchain technology, the Internet of Things (IoT), and machine learning to optimize supply chain management and enhance brain cancer diagnosis using MRI imaging. The integrated system addresses two critical domains: efficient supply chain operations and precise medical diagnostics. In supply chain management, the system employs blockchain for secure and transparent data transactions, ensuring traceability and accountability. IoT devices are used for real-time monitoring of goods, providing data on location, temperature, humidity, and other critical parameters. Machine learning algorithms analyze this data to predict potential disruptions, optimize logistics, and enhance decision-making processes, leading to cost savings and increased efficiency. For brain cancer diagnosis, the system utilizes advanced MRI imaging techniques combined with machine learning models to improve diagnostic accuracy. MRI images are securely stored and shared via blockchain, ensuring patient data integrity and privacy. Machine learning algorithms process these images, identifying patterns and anomalies that may indicate the presence of brain cancer. The integration of IoT devices allows for continuous monitoring of patient health metrics, facilitating timely interventions and personalized treatment plans. The synergy of blockchain, IoT, and machine learning within a unified framework provides a robust solution for both supply chain management and medical diagnostics. This dual-application system not only enhances operational efficiencies and reduces costs in supply chain processes but also significantly improves the accuracy and effectiveness of brain cancer diagnosis and treatment. The patent emphasizes the innovative convergence of these technologies to address complex challenges in logistics and healthcare, demonstrating substantial improvements in both fields.</p>	