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पेटेंट कार्यालय का एक प्रकाशन  
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(57) Abstract :  
 QUANTUM ENTANGLEMENT-DRIVEN SECURE COMMUNICATION FRAMEWORK FOR ENHANCED LONG-DISTANCE DATA TRANSMISSION  
 ABSTRACT This invention presents a quantum entanglement-driven secure communication framework for enhanced long-distance data transmission. The framework leverages the unique properties of quantum entanglement to ensure the confidentiality and integrity of data transmitted over vast distances. It comprises a quantum entanglement source that generates entangled photon pairs, a sender unit that encodes data using advanced quantum key distribution protocols, and a receiver unit that decodes the transmitted information while performing error correction. A secure communication protocol safeguards against data breaches and potential quantum computing threats. Additionally, a monitoring module utilizes machine learning techniques to ensure real-time analysis of quantum state fidelity and communication channel integrity. This innovative approach enhances data security, making it suitable for applications in sensitive fields such as finance, healthcare, and government communications, where secure long-distance transmission is paramount.

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