
A novel approach for enhancing the patent authentication and management process using blockchain technology

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Patent authentication and management (PAM) protects individual and organizational intellectual property rights across the world. Patents are territorial, and patent applications are handled by local intellectual property (IP) authorities. As a result, the inefficient and time-consuming nature of the PAM process occurs on a global scale. Because of data management problems in the patent procedure, there are conflicts and legal proceedings among the applicant parties. Blockchain provides decentralized, secured, and transparent systems with immutable records. As a result, it might be seen as an innovative approach to patent domain challenges. The purpose of this study is to demonstrate how blockchain technology may help improve the PAM processes. Interviews with relevant stakeholders and literature reviews were conducted to determine the procedures and constraints of the present system. A novel architecture and a prototype of a consortium blockchain-based system comprising smart contracts was designed to solve such restrictions and constraints. In the proposed model, the consensus procedure is carried out by the World Intellectual Property Organization and Regional IP Offices. Finally, it was tested in a simulated environment with generated actors and data. The current study established the reliability of patent data and the efficient real-time updating of records at a reasonable cost. As a result, the patents filed for this network have gained credibility among IP offices. With this method, it is simple to approve or reject patent applications without relying on a single IP office. This prototype model demonstrated a significant improvement in propagating evidence of first ownership and assisting in the reduction of a significant number of litigations. Furthermore, this research demonstrates the blockchain system's position as a distributed database, which aids in the cross-validation of reliable systems such as secure government document management processes.

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