

TrustQR: Smart QR + Blockchain for Fake Product Detection

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Abstract: *TrustQR is a blockchain-powered Android application developed using Java/XML, Firebase Real-time Database, Firebase Authentication, and Cloud Storage to ensure product authenticity and consumer trust. The system integrates SHA-256 encryption with decentralized data storage to secure product information against tampering or duplication. It features two modules: the Admin app, where authorized sellers generate encrypted QR codes for each product, and the Customer app, where users scan QR codes to instantly verify authenticity. Each verification is logged in real time on Firebase, maintaining transparency and traceability across the product's lifecycle.*

An AI-driven review analysis engine, powered by Natural Language Processing (NLP), detects fake or biased reviews and calculates user reputation scores to promote credible feedback. This hybrid system of block chain and artificial intelligence ensures trust, accountability, and secure digital verification. TrustQR provides a scalable, mobile-friendly, and tamper-proof solution for combating counterfeit products across industries such as healthcare, cosmetics, electronics, and retail..

Keywords: blockchain authentication, SHA-256 encryption, Smart QR verification, Firebase Real-time Database, AI-based fake review detection, NLP sentiment analysis, product authenticity

