IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 6, Issue 1, January 2026
Impact Factor: 7.67

TRACKIT as A Smart Asset Security Solution: An Empirical Study of IoT-Based Tracking Systems, Adoption Intention, and Economic Value Creation

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Abstract: *Asset theft represents a persistent economic and security challenge, particularly for vehicles and movable assets lacking embedded tracking mechanisms. This study presents a comprehensive empirical investigation of TrackIt, a compact and independent Internet of Things (IoT)–based asset tracking system utilizing GPS and GSM technologies. Moving beyond a purely technical evaluation, the research integrates perspectives from engineering, marketing, and economics to assess system effectiveness, user adoption intention, perceived value, and economic impact. A mixed-method approach was employed, combining system performance testing with a structured user survey analyzed using Structural Equation Modeling (SEM). Results indicate that system effectiveness significantly enhances perceived value, which in turn positively influences adoption intention. Economic analysis further demonstrates that large-scale deployment of low-cost independent trackers can substantially reduce theft-related financial losses. The study contributes to interdisciplinary literature by positioning IoT-based asset trackers as market-ready smart security solutions with measurable commercial and societal value.*

Keywords: IoT, asset tracking, GPS/GSM, perceived value, adoption intention, SEM, smart security systems

DOI: 10.48175/IJARSCT-30721