# पेटेंट कार्यालय
# शासकीय जर्नल

# OFFICIAL JOURNAL
# OF
# THE PATENT OFFICE


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| निर्गमन सं. 35/2025 | शुक्रवार | दिनांक: 29/08/2025 |
| ISSUE NO. 35/2025 | FRIDAY | DATE: 29/08/2025 |


पेटेंट कार्यालय का एक प्रकाशन
PUBLICATION OF THE PATENT OFFICE

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :09/08/2025

(21) Application No.202511075980 A
(43) Publication Date : 29/08/2025

(54) Title of the invention : MACHINE LEARNING-POWERED CLOUD SECURITY FRAMEWORK FOR E-COMMERCE PLATFORMS WITH INTEGRATED BEHAVIORAL ANALYTICS

(51) International classification :H04L0009400000, G06N0020000000, G06F0021550000, G06Q0030060100, G06F0016901000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :
The present invention relates to the development of the demand for strong and astute cybersecurity solutions has increased due to the quick growth of e-commerce platforms. In order to detect, prevent, and mitigate security threats in real time, this paper integrates advanced behavioral analytics into a machine learning-powered cloud security framework that is specifically tailored for e-commerce environments. In order to spot irregularities suggestive of fraud, intrusion, or account breach, the framework continuously monitors user behavior, transaction patterns, and network activity using supervised and unsupervised learning techniques. Scalability, quick deployment, and real-time analytics are guaranteed by utilizing cloud-based architecture, and contextual threat detection is improved by the behavioral analysis layer's comprehension of normal versus unusual user behavior. Proactive threat management, automatic reactions, and ongoing learning from changing attack vectors are all supported by the suggested system. The findings show notable gains in response times, false-positive reduction, and detection accuracy. A comprehensive, flexible, and scalable security solution designed for the ever-changing landscape of contemporary e-commerce platforms is provided by this integrated approach. FIG.1

No. of Pages : 13 No. of Claims : 4