**ABSTRACT**

This abstract presents an AI-driven approach to fortify fraud detection and prevention mechanisms within e-commerce websites. In response to the escalating threat of fraudulent activities, this system harnesses the capabilities of Artificial Intelligence (AI) to proactively identify and mitigate risks. By analyzing vast datasets in real-time, AI algorithms adeptly discern patterns indicative of fraudulent behavior, enabling swift intervention to safeguard the integrity of transactions. Leveraging machine learning techniques, the system continually refines its understanding of evolving fraud tactics, adapting to new threats with precision and agility. Behavioral analysis forms a cornerstone of this framework, scrutinizing user interactions and transactional patterns to detect anomalies and flag potential fraud. Through advanced data visualization tools, stakeholders gain actionable insights into emerging trends and suspicious activities, empowering informed decision-making. By integrating AI-powered fraud prevention measures, e-commerce platforms bolster their security posture, fostering trust and confidence among users while mitigating financial losses. This innovative approach signifies a paradigm shift in combating fraud within the digital marketplace, underscoring the transformative potential of AI in safeguarding the interests of businesses and consumers alike.