Implementation of Block Chain-Based Transparent Ticket Selling System with Anti-Scalping

En Liang Hung

Department of Communication Engineering, National Central University, Taiwan

Yen-Wen Chen

Department of Communication Engineering, National Central University, Taiwan

Abstract:

As the potential for blockchain technology in the ticketing system domain continues to gain attention. Existing blockchain-based ticketing systems still face challenges in ticket scalping by bots, immature secondary markets, and user experience. To address these challenges, this paper proposes an innovative ticket management system solution based on blockchain smart contracts. The ChainLink VRF is applied to generate on-chain random numbers for fair random draws, employs IPFS for off-chain data storage, and leverages TheGraph to efficiently monitor smart contract events. The main contributions of this paper lie in proposing an innovative ticket system design scheme based on blockchain smart contracts, which can effectively prevent ticket scalping and speculation. It also implements a complete smart contract system supporting various ticketing mechanisms to meet the needs of fair distribution in different scenarios. Moreover, it realizes an efficient on-chain secondary trading market and combats ticket scalping by enforcing transaction fees.

Keywords:

Blockchain; Smart contracts; ticketing system; ChainLink; IPFS.