Ticket management system using Blockchain technology
Sistema de gestão de bilhetes com recurso à tecnologia *Blockchain*

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October 2023

Abstract

Resumo

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Chapter 1

Introduction

1.1 Context

Concerts and festivals play a big role in peoples life's, allowing them to create memorable experiences watching live performances from their favorite artists. Those are the kinds of memories that last for life, so every event organizer wants to guarantee that the whole process works seamlessly, from the end user to the entire background planning of the event.

The process of organizing an event starts with the event organizer, who is responsible for the whole planning of the event, from the venue to the artists, to the marketing and ticketing. The event organizer is the one who takes the risk of organizing the event, and the one who will profit from it, and can be a company, a group of people, or even a single person, whom will hire the artists, the venue, the security, the marketing, and the ticketing.

There is an issue with the ticketing process, which is the scalping. Scalping is the process of buying tickets in bulk, exploiting high demand, and reselling them at significantly inflated prices. This not only disadvantages people that genuinely want to attend but also undermines the integrity of the ticketing system. Traditional ticketing platforms often rely on centralized databases and intermediaries, providing opportunities for scalpers to manipulate the system and engage in fraudulent activities. Moreover, existing ticketing systems frequently encounter issues related to security, trust, and reliability. Centralized databases are vulnerable to cyber attacks, leading to unauthorized access, data breaches, and the manipulation of ticketing information. Trust in the authenticity of tickets and the reliability of transactions is compromised, creating a pressing need for innovative solutions that can address these inherent challenges.

That's where blockchain comes in. Blockchain technology, renowned for its decentralized and transparent nature, presents a compelling solution to revolutionize the ticketing industry. By leveraging blockchain, it becomes possible to create a secure and tamper-proof ledger of transactions, mitigating the risk of scalping and ensuring the integrity of the ticketing process. The use of smart

contracts further automates transactions, reducing the reliance on intermediaries, therefore extra costs, and enhancing operational efficiency. This allows the event organizer to have a more secure and reliable ticketing process, and the end user to have a more transparent and fair ticketing process.

1.2 Motivation

- fix ticket scalping
- remove intermediaries like marketing to reduce costs

1.3 Contributions

1.4 Objectives

- develop smart contracts
- app for users to manage their tickets
- authentication logic on tickets to verify ticket ownership
- develop dashboard to allow event organizers to deploy their events

1.5 Structure

Chapter 2

Background

[Brief introduction of the chapter]

2.1 Related work

There are many different ticket selling platforms that we use today. In Portugal, the main palce to check any kind of events that are available and their information is the *Everything is New website. This website shows the everything there is to know about each event, including where to buy the tickets. The most common online seller is Ticketline and the most common physical ones are Worten, Fnac and El Corte Inglés.*

[everything is new] [ticketline] [blueticket] [ticketmaster] [eventbrite]

2.2 Blockchain

/// Blockchain is a distributed ledger technology that allows for the creation of a decentralized network of nodes that can reach consensus on the state of the network without the need for a central authority. It is a peer-to-peer network where each node has a copy of the ledger and can validate transactions. The ledger is a chain of blocks that contain transactions. Each block contains a hash of the previous block, a timestamp and a nonce. The hash of a block is calculated using the hash of the previous block, the timestamp and the nonce. The nonce is a random number that is used to change the hash of the block. This is done to make it harder to find a valid hash. The hash of a block is used to validate the block. If the hash of a block is valid, the block is added to the chain. If the hash of a block is not valid, the block is discarded. The hash of a block is also used to validate the chain. If the hash of a block is not valid, the chain is discarded. The hash of a block is also used to validate the chain. If the hash of a block is not valid, the chain is discarded. The hash of a block is also used to validate the chain. If the hash of a block is not valid, the chain is discarded. The hash of a block is also used to validate the chain. If the hash of a block is not valid,

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2.3 Networks

2.4 NFTs

Bibliography

Appendix A

Appendix