

Ninth Wonder

White Paper

The Ninth Wonder project aimed to develop a comprehensive decentralized platform for travel enthusiasts and souvenir collectors.





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Abstract

In this paper, we present the Ninth Wonder platform and its client, a decentralized platform and software utilizing the blockchain technology known as Ethereum to record user transactions, hereafter referred to as the platform and the client.

The platform exist as the conglomerate of decentralized autonomous computing power on the Ethereum network, built upon a standard open source framework comprised of Ethereum smart contracts and front-end libraries. The core function of the platform is to act as the medium for smart contract executions between user client and blockchain to ensure proper data validation and data retention.

The client exist as the user-facing interface and top layer built on the Ethereum blockchain network. The initial client will be built upon the iOS framework powered by the Swift programming language and its libraries. The core function of the client is to filter, store, generate, and display user data in its user interface for user interaction.

We also introduce the Ninth Wonder eToken known as PIN as a mean of currency on the platform. The PIN token can be used as the means to initiate transactions and smart contract over the blockchain. The PIN can also be used on the Ninth Wonder platform to purchase and exchange goods and services. However, the eToken does not, and will not represent voting rights for consensus voting on the platform. The sole purpose of the PIN token is to be used as the currency of the platform as aforementioned.



Introduction

Global Travel & Tourism Industry Overview

According to World Travel & Tourism Council's latest annual research, in conjunction with Oxford Economics¹, global Travel & Tourism's contribution to world GDP has outpaced the global economy for the sixth consecutive year in 2016, rising to a total of 10.2% of world GDP, or \$7.6 trillion US dollars. The sector now supports 292 million people in employment, which is equivalent to 1 in 10 jobs on the planet today.

The outlook for the Travel & Tourism sector in 2017 remains robust and will continue to be at the forefront of wealth and employment creation in the global economy, despite the emergence of a number of challenging headwinds. Travel & Tourism forecasts over the next ten years also look extremely favourable with predicted growth rates of 3.9% annually.

As emerging markets such as South and Southeast Asia continue to outgrow their western counterparts at twice the rate of the latter, it seems that this sector has strong market potential in the foreseeing future.

GDP Contribution 2016

\$7.6TN
10.2% OF GDP

Jobs Supported 2016

1/10

Of All Jobs
Worldwide (292M)

Gift and Souvenir Industry Overview

As a subsector of the Travel & Tourism industry, the Gift and Souvenir industry is also a promising market with great potential.

¹ <https://www.wttc.org>



According to First Research², a well known industry research firm, the Gift and Souvenir industry is a \$21 billion market in the United States alone, with annual growth of more than 3% in the foreseeing years.

However, despite its strong growth and market potential, it's a highly fragmented and criticized market. It has often been criticized for creating both physical and environmental burdens to consumers and the environment. Such criticisms, if ignored, may become obstacle for future market growth. In order to sustain its current growth rate in the coming years, automation and digitalization is indispensable. At Ninth Wonder, we believe we are the leader to lead the revolution.

GDP Growth 2010–2016

2.5%

Global Economy

vs.

3.3%

Travel & Tourism

² <https://www.firstresearch.com/>



The Problem

As aforementioned, criticisms indicates two pressing issues in the Gift and Souvenir industry today: it's becoming both a personal and an environmental burden.

A Personal Burden

Charles Gordon, who wrote in the Canadian newsmagazine *Maclean's* once stated, "We live in a souvenir society, a world in which everything we do, everywhere we go, has to be commemorated." This attitude has encouraged the growth of gift and souvenir shops, which has expanded from limited operations in airports and near tourist destinations into a multimillion dollar industry of its own, with specialty stores opening up in shopping malls and retail centers around the country.

Today, the industry reported an estimated 85,700 establishments with more than 300,000 people employed in the United States, generating more than \$21 billion in annual sales. While its achievement is impressive, it also presents a problem. For over a decade, it has become a sort of consensus, or a common sense, to purchase gifts and souvenirs from the destination's local gift shops for friends and families, or solely for self collections, without considering the consequences and practicability of such action. Many travelers admitted that most purchased souvenirs usually end up being stored in sealed boxes in their storage units. These mementos are taking up too much of their personal space, yet no one is willing to get rid of them for obvious reasons.

An Environmental Burden

Every year tourists take home mementos from their favourite holiday destinations. These mementos are often bought from vendors on the



beach, in markets and in resorts. These transactions are, more often than not legal and therefore it may be the case that people buying these mementos are not aware of the impact their actions have on the environment locally, especially to destinations on the coasts.

According to data published by Defenders and Wildlife in 2012³, an estimated 14–30 million fish, 1.5 million live stony corals, 4 million pounds of coral skeleton, 65–110 thousand pounds of red and black coral, and 9–10 million of other invertebrates are removed each year from marine ecosystems across the world to supply the aquarium, curio/home décor, and coral jewelry industries. The marine curio trade is a global industry involving the sale of shells and dried marine animals such as sponges, seahorses, corals, and sea urchins. Marine curio trade has significant impact to local marine species populations, but it's only a tip of the iceberg when we take into account the number of unsustainable resources such as plastic and ores devoted to the souvenir manufacture.

There should be a better solution.

³ <https://www.defenders.org>



The Approach

As aforementioned, we believe the best solution to the problem is automation and digitalization. In this section, we will discuss existing products in the market today that has inspired us during the conceptual stage of the Ninth Wonder platform, as well as presenting our generic approach to solve the aforementioned problem.

Google Maps

In the core of the Ninth Wonder platform is a robust automated and digitized tracking system which seamlessly follows and keep track to user's route and data in the backend. Timeline, a new feature in Google Maps, provides great inspirations for such system. The Timeline feature utilizes data collected in the background of user's device, and displays user's trail of places visited in the past by arranging such data into a timeline view for user interaction. By enabling this feature, users can use this as their personal journal book to rediscover places and routes they have traveled in their timeline. If users are concerned about their privacy and personal information, they also have the ability to change or delete locations, dates, their entire location history, or simply disable this features altogether by not allowing their device to collect data in the background.

In short, Google Maps' Timeline feature is a great tool for automatic route tracking. It demonstrates how users benefit from an automated and digitized tracking platform, and we believe such tracking system will be an integral part of the Ninth Wonder platform.



Day One

One of the core features of the Ninth Wonder platform is digital journaling which can be attached to user's route and trail. Day One is a personal journaling app for the iOS and MacOS operating systems. It allows users to record once-in-a-lifetime events and everyday moments with automatic date, time, location, weather, and motion activity information stamps. When user creates new journal entry, the app automatically backup user data and use the aforementioned data to archive the journal in chronological orders. In addition, with user's permission, Day One can automatically search through the device's photo library, and provide photo suggestions to user's existing journal entries.

Day One is an exceptional everyday journaling app with modern features providing users with one of the best digital journaling experience in the market. We believe a journaling system similar to Day One is a crucial component towards building a comprehensive digital platform for users.

Social Media

Another core feature of the Ninth Wonder platform is the ability to share digital souvenirs and moments with friends and families on different social platforms. Social media services in the market today such as Facebook, Instagram, and Twitter target different niche market and serve specific target audiences. A typical user today often among different social media platforms to fulfill their specific social needs. For instance, a user may only connect with their colleague via LinkedIn while connecting with friends and families outside of work on Facebook. At Ninth Wonder, we believe it's important to allow user choose where and who to share their moments with. Hence we believe the ability to share moments and digital souvenirs on different social platform is an integral part of our product.



The Ninth Wonder Platform

The goal of the Ninth Wonder project is to develop a comprehensive digital platform for travelers satisfying their journaling and collection needs, in order to reduce personal and environmental burdens of physical souvenirs. When fully developed, the platform will consist of a map and timeline-view automated route tracking system with digital journaling integration, a digital badge collection system supported by the Ethereum blockchain, and integrations of social media services. All data generated on the platform will be stored on the Ethereum blockchain, and data will be filtered through the client for user interaction.

Ninth Wonder will assign unique virtual blockchain addresses to each supported real world destinations. When a user arrives at one of these destinations, the client will prompt the user to transfer an eToken to the virtual address. Once user confirms the transaction, the eToken will be transferred to the virtual address, and the client will pick up this transaction as well as its transaction date and time information. Once the transaction has been confirmed and broadcasted by the Ethereum network, the client will notify user that this destination has been activated on the map, or in other words, the user has successfully 'pinned' the destination.

Once destinations have been activated, more interaction will be available to users. For instance, upon activation on selected destinations, user will be prompt with an option to collect unique badges representing each destinations as their digital souvenirs, as well as an option to engrave a personal message along with a blockchain transaction to the virtual address to provide a complete travel collection and journaling experience. By collecting digital badges and engraving personal message on the Ninth Wonder platform, users can easily rediscover and share their moments and collections without carrying any personal or environmental burdens, resulting in a mutual beneficial relationship between individuals and our environment.

At Ninth Wonder, we believe that we are only 1% of the way to how technology will transform our lives and businesses. The foundation of acceleration for the next 99% will be coming into place with the



combination of the Ethereum blockchain technology, increased connectivity and transparency, and machine learning based on blockchain data. We believe this combination of transformational technology will challenge each of us to reimagine the border between physical and virtual world, resulting in new and innovative approaches to make our world a better place.

Appendix





eToken

eToken Contract as a basis for PIN Token (PIN)

PIN is a token issued within an eToken⁴ contract. The number of PIN tokens issued during the Crowdsale equals 4,375,000 (Four Millions Three Hundred Seventy Five Thousands). However, no further PIN will be generated after this phase of the project until product development has been completed. All the unsold tokens during this phase will be destroyed.

eToken is an Ethereum smart contract, written using Solidity⁵ programming language by Ambisafe⁶. It enables issuance of tokens in Ethereum network and provides a rich set of features:

1. Integrated exchange with Ether currency
2. Ability to set transaction fees
3. Allowances
4. Automatic ethereum network fee refunds
5. Account recovery for the lost key scenario
6. Implementation of ICAP⁷ for multi-layer transaction routing

eToken also implements EIP20⁸, also known as Standardized Contract API. EIP20 compatibility ensures that integration with exchanges and other services will be no harder than for any other Ethereum-based tokens.

⁴ <https://github.com/Ambisafe/etoken-docs/wiki>

⁵ <https://github.com/ethereum/wiki/wiki/The-Solidity-Programming-Language>

⁶ <https://www.ambisafe.co>

⁷ <https://github.com/ethereum/wiki/wiki/ICAP:-Inter-exchange-Client-Address-Protocol>

⁸ <https://github.com/ethereum/EIPs/issues/20>



System Architecture

System Architecture Overview

System Layers Breakdown

The Ninth Wonder platform consists of three (3) core layers of software responsible for different functions, as described below:

Ethereum Network	<ol style="list-style-type: none">1. Network infrastructure2. Transaction execution3. Consensus & enforcement of the contract logic4. Data persistence layer
eToken smart contract	<ol style="list-style-type: none">1. eToken issuance algorithm2. Transaction rules3. Account balance database
Client Software	<ol style="list-style-type: none">1. User interfaces2. anonymous Biometric information & GPS data3. Angular velocity sensor and motion sensor data4. Anonymous on-device machine learning5. Transaction creation6. Client based eToken conversion



Network-level Interaction Diagram



Ethereum network provides a medium for interaction between the blockchain and users. Users interact with the blockchain by sending transactions to the Ninth Wonder platform handling smart contract executions. All transactions are then validated by the smart contract logic and recorded in the blockchain. Once recorded, the client will apply filters to filter transaction details and store in the client's database for user interactions.

System-level Interaction Diagram



The eToken protocol supports two (2) primary account security models: user-side keys and hosted wallet. The Ninth Wonder platform resembles the hosted wallet model, as demonstrated in diagram below, to process user transactions. In this case, the Ninth Wonder platform is responsible



for key security and transactions are routed to specific Ethereum node using the ICAP⁹ protocol. Anonymous biometric information and GPS data will also be integrated into the authentication process in addition to user's private key, to ensure the user client has sufficient authorization for data transmission in the blockchain.

⁹ <https://github.com/ethereum/wiki/wiki/ICAP:-Inter-exchange-Client-Address-Protocol>