Project Report

DAO - Decentralized Autonomous Organizations

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1. Introduction

Background

Blockchain technology and decentralized governance have gained significant attention in recent years. Decentralized Autonomous Organizations (DAOs) are at the forefront of this movement, allowing communities to make collective decisions transparently and securely. This project explores the concepts of DAOs and provides practical guidance on how to set up and manage them.

Objectives

The primary objectives of this project are as follows:

- To understand the fundamentals of DAOs and their governance mechanisms.
- To explore different approaches to DAO governance, including on-chain and hybrid solutions.
- To provide a hands-on guide for setting up a DAO using open-source tools.
- To demonstrate an on-chain governance example using Ethereum-based smart contracts.

Scope

The scope of this project encompasses the following key areas:

- Detailed explanations of DAO governance mechanisms.
- Description of tools and platforms for creating and managing DAOs.
- Step-by-step instructions for setting up a DAO environment.
- A practical example of on-chain governance implementation.

Methodology

This project relies on a combination of research, documentation analysis, and practical implementation. It leverages open-source resources and real-world examples to provide a comprehensive overview of DAOs and their governance.

2. About DAO

2.1 How to DAO

The "DAO" project offers valuable insights into launching and managing a DAO effectively. It discusses two primary methods of governance: on-chain and hybrid.

On-Chain Governance

- Utilizes blockchain-based voting.
- Examples include platforms like Tally.
- Offers simplicity but may incur higher gas costs.

Hybrid Governance

- Combines blockchain voting with tools like oracles or trusted multisigs.
- Examples include Snapshot with Chainlink or Gnosis Safe.
- Offers cost savings and added security.

The project also highlights essential tools for governance, including Snapshot, Tally, Gnosis Safe, OpenZeppelin, Zodiac, and OpenZeppelin Defender.

2.2 No Code Tools

The project introduces "no-code" tools for simplifying DAO setup without manual contract deployment. Tools like DAO Stack, Aragon, Colony, DAOHaus, and DAO Leaderboard are discussed.

3. Getting Started

3.1 Prerequisites

Before diving into the project, ensure you meet the following prerequisites:

- Python: Download Python
- Brownie: Install using the provided commands.
- Node.js & npm: Download Node.js
- Yarn: Install using the provided command.

3.2 Installation

Setting up the project environment involves the following steps:

1. Clone the repository: **git clone https://github.com/anshu51379/dao**
2. Install Hardhat: **yarn add hardhat**
3. For testnet deployment, create a **.env** file with your variables (avoid sharing private keys on GitHub).
4. Add **dotenv: .env** to your **brownie-config.yaml** file.

4. Usage

4.1 On-Chain Governance Example

The project includes a practical script in the **scripts** folder that guides you through the process of implementing on-chain governance. The script covers deploying essential contracts, proposing changes, voting, queuing, and executing proposals.

To run the script:

bashCopy code
```
anshu run scripts/governance_standard/deploy_and_run.py
```

For testnet deployment:

bashCopy code
```
anshu run scripts/governance_standard/deploy_and_run.py --network kovan
```

5. Contact Information

For any queries or further information, please feel free to contact:

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6. Acknowledgments

This project acknowledges the following valuable resources and contributions:

- Openzeppelin Governance Walkthrough
- Openzeppelin Governance Github
- Vitalik on DAOs
- Vitalik on On-Chain Governance
- Vitalik on Governance in General

Explore the openzeppelin javascript tests for a comprehensive suite of examples demonstrating the possibilities of governance.

7. Conclusion

In conclusion, this project offers a comprehensive exploration of Decentralized Autonomous Organizations (DAOs) and their governance mechanisms. It provides practical insights and hands-on guidance for setting up and managing DAOs, along with a real-world example of on-chain governance.

By understanding the principles outlined in this project, we can harness the power of DAOs to facilitate transparent and collective decision-making within communities.

Github Repository Link: https://github.com/anshu51379/dao

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