$ZETHT Token

Mint Your Testnet Token Instantly
via MetaMask

WHITEPAPER

Abstract

This decentralized application allows users to mint a testnet token called **ZETHT** directly to their Ethereum wallet using MetaMask and a deployed smart contract on the **Sepolia testnet**. Built as a final project for Harvard University's **CS50x** course, this dApp demonstrates a complete Web3 stack with wallet integration, contract interaction, and token minting.

Purpose

The goal of this project is to allow users to mint a custom ERC-20 token (**ZETHT**) directly to their wallet using a frontend connected to an Ethereum testnet. The platform is designed as an educational tool for students and developers exploring blockchain technology, smart contracts, and Web3 interfaces.

Tech Stack

- Frontend: React.js, TailwindCSS, DaisyUI

- Smart Contracts: Solidity with OpenZeppelin

- Blockchain Network: Ethereum Sepolia Testnet

- **Development Tools**: Hardhat, Hardhat Ignition

- **Web3 Integration**: ethers.js

- Deployment: Vercel

How It Works

1. **Connect MetaMask**
   The user connects their wallet to the dApp by clicking the **“Connect Wallet”** button.

2. **Switch to Sepolia Testnet**
   Users must manually switch to the **Sepolia testnet** in MetaMask. Instructions for switching networks are available in the GitHub repository, but are **not shown in the video**.

3. **Get Testnet ETH**
   Users need Sepolia ETH to mint tokens.
   A faucet link is provided only in the GitHub README and **not shown in the video demo**.

4. **Mint Token (User-Initiated)**
   Once connected the user clicks **“Mint Token”** and approves the transaction in MetaMask. The **ZETHT token** is minted directly to their wallet.

5. **View Transaction**
   After minting, the dApp displays a **transaction hash** with a direct link to **SepoliaScan**.

6. **Add Token to Wallet**
   MetaMask prompts the user to **add the ZETHT token** to their wallet automatically.

Token Details – $ZETHT

Token Name: ZETHT

Network: Ethereum Sepolia Testnet

Token Type: ERC-20

Usage: Educational only

Availability: Minted via frontend (testnet only)

Wallet Compatibility: MetaMask

ZETHT is a testnet-only token created for educational purposes and holds no monetary value.

Audience

This project was developed for educational purposes, mainly targeting:

Students of **CS50x – Harvard University**

Contact

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