

CMPE 483 Blockchain Programming

Homework-2, Fall 2023

Introduction

In this project, I have implemented a autonomous decentralized governance token contract called "MyGov" and then deployed to the sepolia test network.

Erc20 interface was used for the implementation of the contract. Total amount of my government token in circulation is 20 million. Anyone who owns at least 1 MyGov token is MyGov member and members of this token could carry out some activities like "submitting a survey", "project proposal", "voting for project", "taking survey", "voting for project payment".

I have build a web based user interface with using web3.js for the MyGov DAO project. Anyone having a metamask account could be able to use the web browser interface (but this works only locally in localhost) to interact with my MyGov smart contract.

I used javascript and html when preparing the web interface. I did not use any js framework and prepared the project alone.

MyGov Contract Web User Interface

This web-based user interface interacts with the MyGov smart contract deployed on the Ethereum blockchain using the Web3.js library. The application provides users with a seamless experience to engage with various functionalities of the MyGov contract

Note: Ensure you have MetaMask or another Ethereum wallet provider installed to interact with the MyGov smart contract. You must also have some balance in your Sepolia eth account to perform some actions.

You could see the my contract from the sepolia network :

addres of the contract : 0xeCB3F760e64eCDf5260746118cEafFdA259De19a

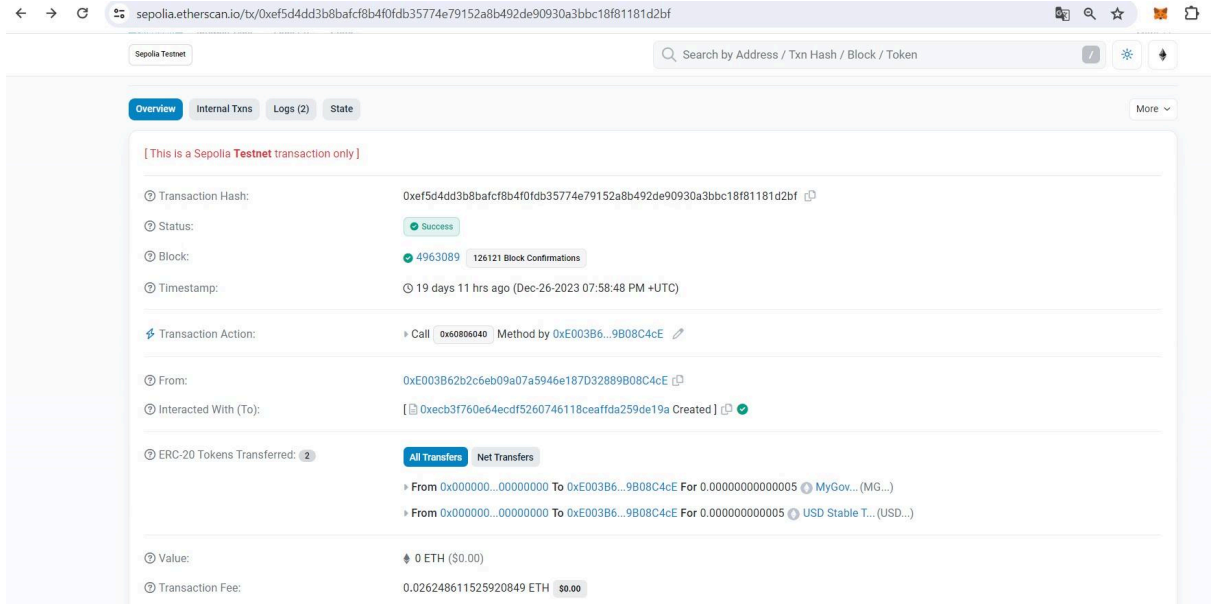
<https://sepolia.etherscan.io/tx/0xef5d4dd3b8bafcf8b4f0fdb35774e79152a8b492de90930a3bbc18f81181d2bf>

<https://sepolia.etherscan.io/address/0xecb3f760e64ecdf5260746118ceaffda259de19a>

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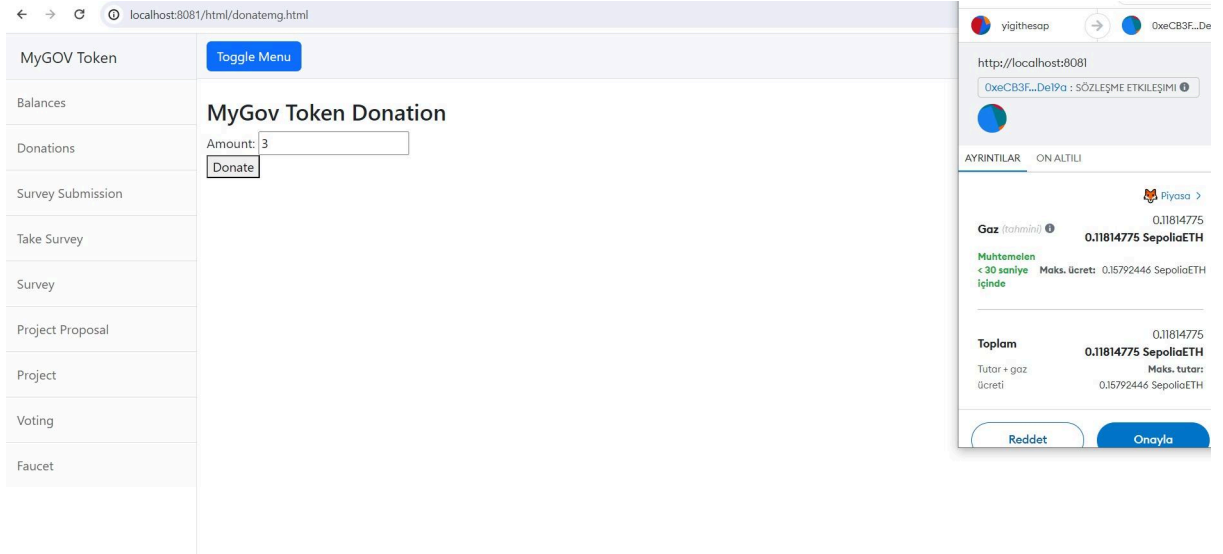
Sample Web Pages

Deploying My Smart Contract to Sepolia Test Network



The screenshot shows a transaction on the Sepolia Testnet. The transaction hash is 0xef5d4dd3b8bafcf8b4f0fdb35774e79152a8b492de90930a3bbc18f81181d2bf. The status is 'Success' with 4963089 block confirmations. The transaction occurred 19 days 11 hours ago. The transaction action is a 'Call' to the method 0xe003b6...9b08c4cE. The transaction value is 0 ETH (\$0.00) and the transaction fee is 0.026248611525920849 ETH (\$0.00).

shown here : how to donate mygov token to the smart contract



The screenshot shows a web application for donating MyGov tokens. The application has a sidebar with a 'MyGov Token' section and a 'Toggle Menu' button. The main content area is titled 'MyGov Token Donation' and contains a form with an 'Amount' field set to 3 and a 'Donate' button. The application is running on localhost:8081/html/donatemg.html. On the right, there is a sidebar with a 'yigithesap' logo and a 'Piyasa' section showing the current price of SepoliaETH as 0.11814775.

shown here : how to donate usd token (usd token donation) to the smart contract

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localhost:8081/html/donateusd.html

MyGOV Token	<div>Toggle Menu</div>
Balances	
Donations	<div><div>USD Token Donation</div><div>Amount: 2</div><div>Donate</div></div>
Survey Submission	USD Donation successful. Transaction hash: 0x0bb1649c2143b3065ba8ee44259f7215946fbbd1aff855bdc8665bf3211a888
Take Survey	
Survey	
Project Proposal	
Project	
Voting	
Faucet	

shown here: token donations (donation balances of contract)

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localhost:8081/html/donations.html

MyGOV Token	<div>Toggle Menu</div>
Balances	
Donations	<div><div>MyGov Token Donations</div><div>Show MYGOV Donation Balance</div><div>Donation Balance : 32</div></div>
Survey Submission	
Take Survey	<div><div>USD Token Donations</div><div>Show USD Donation Balance</div><div>Donation Balance : 182</div></div>
Survey	
Project Proposal	
Project	
Voting	
Faucet	

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shown here: survey info , total survey number, survey owner and survey results

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🌐 localhost:8081/html/surveyresult.html

MyGOV Token	<div>Toggle Menu</div>
Balances	<div>Total Survey Amount</div>
Donations	<div><div>Get Number of Surveys</div><div>Get Block TimeStamp</div></div>
Survey Submission	<div>Total Survey Amount : 5</div>
Take Survey	<div><div>Survey Info Retrieval</div></div>
Survey	<div><div>Enter Survey ID: 3</div><div>Get Survey Info</div></div>
Project Proposal	<div><div>Survey Info for Survey ID 3:</div><div>IPFS Hash: yenisurvey</div><div>Survey Deadline: 1705277372</div><div>Number of Choices: 4</div><div>At Most Choices: 2</div></div>
Project	<div><div>Survey Owner Retrieval</div></div>
Voting	<div><div>Enter Survey ID: 3</div><div>Get Survey Owner</div></div>
Faucet	<div><div>Survey Results</div></div>

shown here: survey submission

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🌐 localhost:8081/html/surveysubmit.html

MyGOV Token	<div>Toggle Menu</div>
Balances	<div>Survey Submission</div>
Donations	<div>Survey IPFS Hash: <div></div></div>
Survey Submission	<div>Survey Deadline: <div>Enter survey deadline in</div></div>
Take Survey	<div>Number of Choices: <div>Enter number of choice</div></div>
Survey	<div>At Most Choices: <div>Enter maximum choices</div></div>
Project Proposal	<div><div>Submit Survey</div></div>
Project	<div>MyGov Token Balance: 49960</div>
Voting	<div>USD Stable Coin Balance: 4999816</div>
Faucet	

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shown here: taking a survey

← → ↻ 📄 localhost:8081/html/takesurvey.html

MyGOV Token

Toggle Menu

Balances

Donations

Survey Submission

Take Survey

Survey

Project Proposal

Project

Voting

Faucet

Take Survey

Survey ID:

Choices (comma-separated):

Take Survey

Survey taken successfully.

shown here: propose a project

← → ↻ 📄 localhost:8081/html/projectpropose.html

MyGOV Token

Toggle Menu

Balances

Donations

Survey Submission

Take Survey

Survey

Project Proposal

Project

Voting

Faucet

Project Proposal

Submitting Project Proposal costs 5 MyGov tokens and 50 USD stable coin.

String IPFS Hash:

Voting Deadline:

Payment Amounts:

(comma-separated)

Payschedule

(comma-separated)

Submit Project Proposal

MyGov Token Balance: 49960

USD Stable Coin Balance: 4999816

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shown here : get number of proposal, get number of funded projects, reserve project grant, get project owner

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localhost:8081/html/projects.html

MyGOV Token

Toggle Menu

Balances

Donations

Survey Submission

Take Survey

Survey

Project Proposal

Project

Voting

Faucet

Project Proposal

Total Project Proposal Number

Get Number of Proposal

Get Block TimeStamp

Total Proposal Amount : 3

Total Funded Project Number

Get Number of Funded Projects

Funded Project Number : 0

Reserve Project Grant

Project ID:

Reserve Project Grant

Project Owner Retrieval

Enter Project ID:

Get Project Owner

Owner of Project ID : 0xe003b62b2c6eb09a07a5946e187d32889b08c4ce

Project Info Retrieval

shown here : vote for project proposal, vote for project payment, project voting results , delegate vote

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localhost:8081/html/voting.html

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MyGOV Token

Toggle Menu

Home

Time

Balances

Donations

Survey Submission

Take Survey

Survey

Project Proposal

Project

Voting

Faucet

Vote for Project Proposal

Project ID:

Vote (true/false):

Vote

Vote for project proposal successful. Transaction hash: 0xa242c8d1549fdcaf889df905aade5278f7aca142e1b1fe8b0e57ca4ad236c951

Vote for Project Payment

Project ID:

Vote (true/false):

Vote

Vote for project ppayment successful. Transaction hash: 0x34750aebababaea06946c4438e93ba31b205e1e3ba28ab1d8211d5c9865bc7da1

Project Voting Results

Enter Project ID:

Get Project Results

Project Yes Votes 2 is as follows : 1
Project No Votes 2 is as follows : 0
Project NextPaymentIndex 2 is as follows : 0
Project IsFunded 2 is as follows : false

Delegate Vote

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🔍 localhost:8081/html/voting.html

MyGOV Token

Toggle Menu

Balances

Donations

Survey Submission

Take Survey

Survey

Project Proposal

Project

Voting

Faucet

Vote for Project Proposal

Project ID:

Vote (true/false):

Vote

Vote for Project Payment

Project ID:

Vote (true/false):

Vote

Project Voting Results

Enter Project ID:

Get Project Results

Delegate Vote

Member Address:

Project ID:

Delegate Vote

shown here : get project owner, get project info, get project results

Project

Voting

Faucet

Reserve Project Grant

Project ID:

Reserve Project Grant

Project Owner Retrieval

Enter Project ID:

Get Project Owner

Owner of Project ID : 0xe003b62b2c6eb09a07a5946e187d32889b08c4ce

Project Info Retrieval

Enter Project ID:

Get Project Info

Proposal Info for Project ID :
IPFS Hash: denemeprojesi
Project Deadline: 1705276852
Payment Amounts: 4,4
Payment Schedule: 1705276252,1705276152

Project Results

Enter Project ID:

Get Project Results

Project Yes Votes 1 is as follows : 2
Project No Votes 1 is as follows : 0
Project NextPaymentIndex 1 is as follows : 0
Project IsFunded 1 is as follows : false

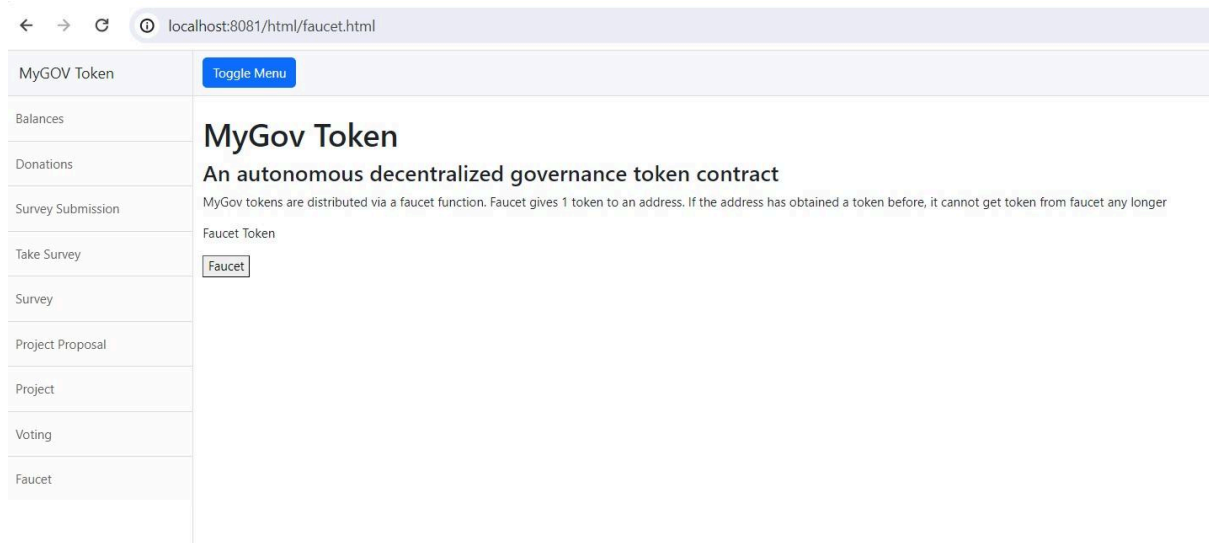
Withdraw Project Payment

Project ID:

Withdraw Project Payment

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shown here : faucet mygov token



Conclusion

As a result, in this project, the mygov governance token smart contract code was written and its web interface was prepared. In general, html and javascript codes were used for the web. The smart contract was written in solidity programming language and deployed on the Sepolia test network. I think the blockchain programming course was very useful to me, thank you to the professor.