Smart Contract Security Audit V1

King Of The Universe Space Club Smart Contract

20/7/2022



https://t.me/SFI_ANN

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Background

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

Project Information

• Platform: Ethereum

• Contract Address: 0x7b4ec452B2377A1c44466582f7Be78A1E8aF9806

• Code:

https://etherscan.io/address/0x7b4ec452b2377a1c44466582f7be78a1e8af9806#code

NFT Information

• Name: King Of The Universe Space Club

• MAX Supply: 5555

• Holders:

• Total transactions:

Contracts address deployed to test net (Ethereum)

King Of The Universe Space Club smart contract on ETH test net to test every function by the auditor.

https://rinkeby.etherscan.io/address/0xa461e34581c65df04f32e12b069376da963ee1c8

Executive Summary

According to our assessment, the customer's solidity smart contract is "WELL SECURED". The team has fixed the low-level issues.

| Well Secured | √ |
|--------------|----------|
| Secured | |
| Poor Secured | |
| Insecure | |

Automated checks are with remix IDE. All issues were performed by the team, which included the analysis of code functionality, manual audit found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the audit overview section. The general overview is presented in the Project Information section and all issues found are located in the audit overview section.

Team found 0 critical, 0 high, 0 medium, 3 low, 0 very low-level issues and 0 note in all solidity files of the contract

The files:

KingOfTheUniverseSpaceClub.sol

File and Function Level Report

File in Scope:

| Contract Name | SHA 256 hash | Contract Address |
|---------------|--|--|
| LoC'lub col | cfda63d07e34b5bbd9fd1f2 b53b01e20d0bfecd025c68fc ca0a4b86e24b918e7 | 0x7b4ec452B2377A1c44466582f7Be78A1E8a F9806 |

• Contract: KingOfTheUniverseSpaceClub

Inherit: ERC721A, Ownable, ReentrancyGuardObservation: All passed including security check

Test Report: passedScore: passed

• Conclusion: passed

| Function | Test Result | Type / Return Type | Score |
|--------------------|----------------|-----------------------|--------|
| name | ✓ | Read / public | Passed |
| symbol | √ | Read / public | Passed |
| cost | √ | Read / public | Passed |
| supportsInterface | √ | Read / public | Passed |
| maxMintAmountPerTx | √ | Read / public | Passed |
| balanceOf | √ | Read / public | Passed |
| Owner | √ | Read / public | Passed |
| provenance | √ | Read / public | Passed |
| tokenOfOwner | √ | Read / public | Passed |
| getApprovedForAll | √ | Read / public | Passed |
| hiddenMetadataUri | √ | Read / public | Passed |
| getApproved | √ | Read / public | Passed |

| ownerOf | √ | Read / public | Passed |
|-----------------------------|----------|-----------------|--------|
| tokenURI | √ | Read / public | Passed |
| totalSupply | √ | Read / public | Passed |
| maxSupply | √ | Read / public | Passed |
| revealed | √ | Read / public | Passed |
| paused | √ | Read / public | Passed |
| whitelistMintEnabled | √ | Read / public | Passed |
| maxMintAmountPerAddr ess | √ | Read / public | Passed |
| merkleRoot | √ | Read / public | Passed |
| totalMintedByAddress | √ | Read / public | Passed |
| uriPrefix | √ | Read / public | Passed |
| uriSuffix | √ | Read / public | Passed |
| whitelistClaimed | √ | Read / public | Passed |
| whitelistMint | √ | Write / payable | Passed |
| mint | √ | Write / public | Passed |
| approve | √ | Write / public | Passed |
| safeTransferFrom | √ | Write / public | Passed |
| safeTransferFrom | √ | Write / public | Passed |
| setPaused | √ | Write / public | Passed |
| withdraw | √ | Write / payable | Passed |
| setRevealed | √ | Write / public | Passed |
| transferOwnership | √ | Write / public | Passed |
| setApprovalForAll | √ | Write / public | Passed |
| transferFrom | √ | Write / public | Passed |
| setMerkleRoot | √ | Write / public | Passed |
| setHiddenMetadataUri | √ | Write / public | Passed |

| renounceOwnership | √ | Write / public | Passed |
|--------------------------------|-------------|----------------|--------|
| mintForAddress | √ | Write / public | Passed |
| setMaxMintAmountPerA ddress | √ | Write / public | Passed |
| setMaxMintAmountPerTx | > | Write / public | Passed |
| setCost | √ | Write / public | Passed |
| setProvenanceHash | √ | Write / public | Passed |
| setWhitelistMintEnabled | √ | Write / public | Passed |
| setUriPrefix | √ | Write / public | Passed |
| setUriSuffix | √ | Write / public | Passed |

Issues Checking Status

| No. | Issue Description | Checking Status | |
|-----|---|--------------------|--|
| 1 | Compiler warnings. | Passed | |
| 2 | Race conditions and Reentrancy. Cross-function race conditions. | Passed | |
| 3 | Possible delays in data delivery. | Passed | |
| 4 | Oracle calls. | Passed | |
| 5 | Design Logic. | Passed | |
| 6 | Timestamp dependence. | Passed | |
| 7 | Integer Overflow and Underflow. Passed | | |
| 8 | DoS with Revert. Passed | | |
| 9 | DoS with block gas limit. Passed with Notes | | |
| 10 | Methods execution permissions. | Passed | |
| 11 | Economy model. If application logic is based on an incorrect economic model, the application would not function correctly and participants would incur financial losses. This type of issue is most often found in bonus rewards systems, Staking and Farming contracts, Vault and Vesting contracts, etc. | | |
| 12 | The impact of the exchange rate on the logic. | Passed | |
| 13 | Private user data leaks. Passed | | |
| 14 | Malicious Event log. Passed | | |
| 15 | Scoping and Declarations. Passed | | |
| 16 | Uninitialized storage pointers. | Passed | |
| 17 | Arithmetic accuracy. | Passed | |

Severity Definitions

| Risk Level | Description | |
|---------------|--|--|
| Critical | Critical vulnerabilities are usually straightforward to exploit and can lead to tokens loss etc. | |
| High | High-level vulnerabilities are difficult to exploit; however, they also have significant impact on smart contract execution, e.g. public access to crucial functions | |
| Medium | Medium-level vulnerabilities are important to fix; however, they can't lead to tokens lose | |
| Low | Low-level vulnerabilities are mostly related to outdated, unused etc. code snippets, that can't have significant impact on execution | |
| Note | Lowest-level vulnerabilities, code style violations and info statements can't affect smart contract execution and can be ignored. | |

Audit Findings

Critical:

No Critical severity vulnerabilities were found.

High:

No High severity vulnerabilities were found.

Medium:

No Medium severity vulnerabilities were found

Low:

#Missing zero address validation

Description

When the owner wants to mint NFTs for investors, he has to check for the zero address to make, he didn't mint for the zero address. Otherwise, the mint function will act like burn function.

Remediation

Use the require statement to check for zero addresses, require to check if the contract is paused or not, and check the amount + total mint <= Max Supply.

Status: Closed. Fixed in version 2.

#Pragam version not fixed

Description

It is a good practice to lock the solidity version for a live deployment (use the newest 0.8.15 instead of >=0.8.9 <0.9.0). contracts should be deployed with the same compiler version and flags that they have been tested the most with. Locking the pragma helps ensure that contracts do not accidentally get deployed using, for example, the latest compiler which may have higher risks of undiscovered bugs. Contracts may also be deployed by others and the pragma indicates the compiler version intended by the original authors.

Remediation

Remove the >=0.8.9 <0.9.0 sign to lock the pragma version and replace it with the newest compiler.

Status: Closed. Fixed in version 2.

#Owner privileges (In the period when the owner isn't renounced)

Description

The owner can mint the NFT to any address.

The owner can pause and un pause the contract.

The owner can change the price and the max supply.

The owner can open and close the whitelist stage.

Remediation

Make these functions internal in next version or the team should announce the investors before doing anything to give them time if they want to do anything.

P.S: This issue is common to the majority of NFT smart contracts.

Status: Acknowledged.

Very Low:

No Very Low severity vulnerabilities were found.

Notes:

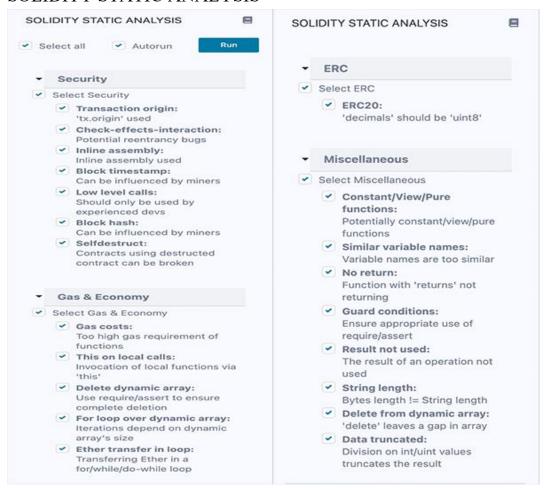
No Notes vulnerabilities were found.

Automatic Testing

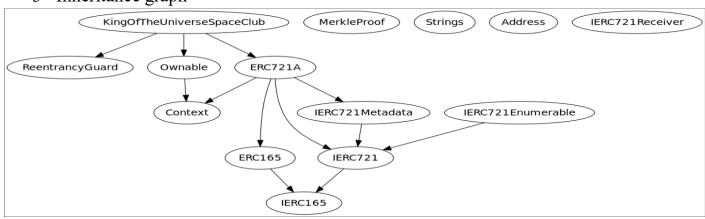
1- Check for security



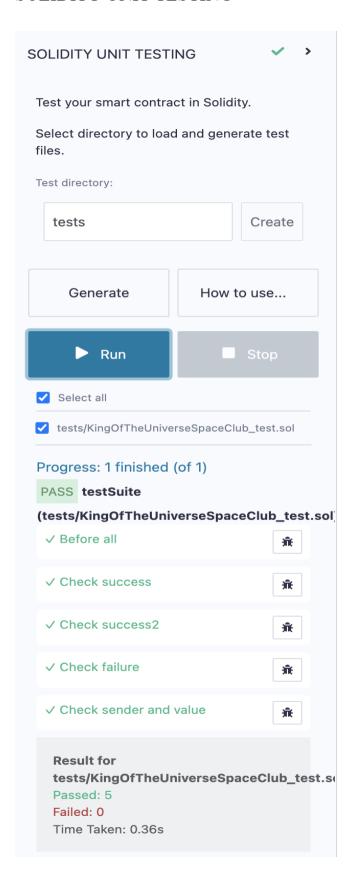
2- SOLIDITY STATIC ANALYSIS



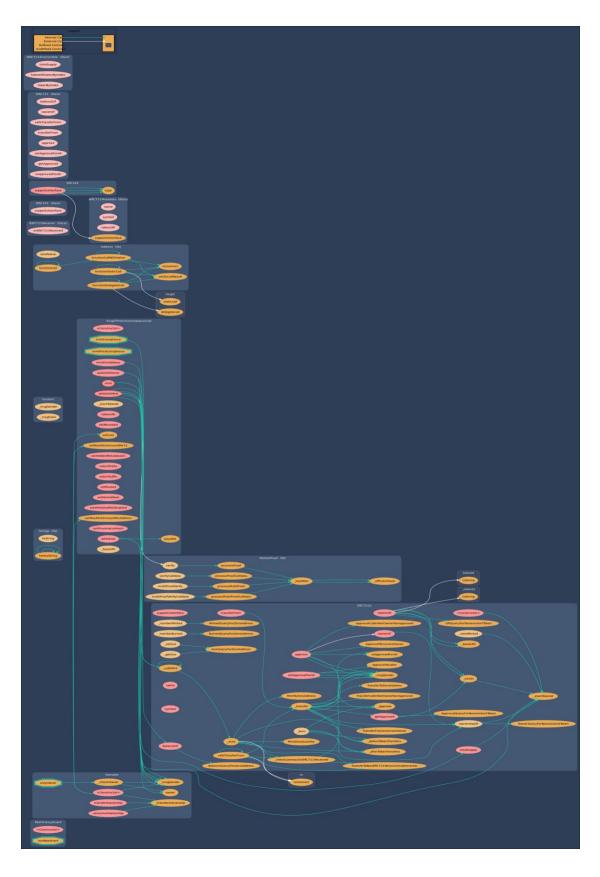
3- Inheritance graph



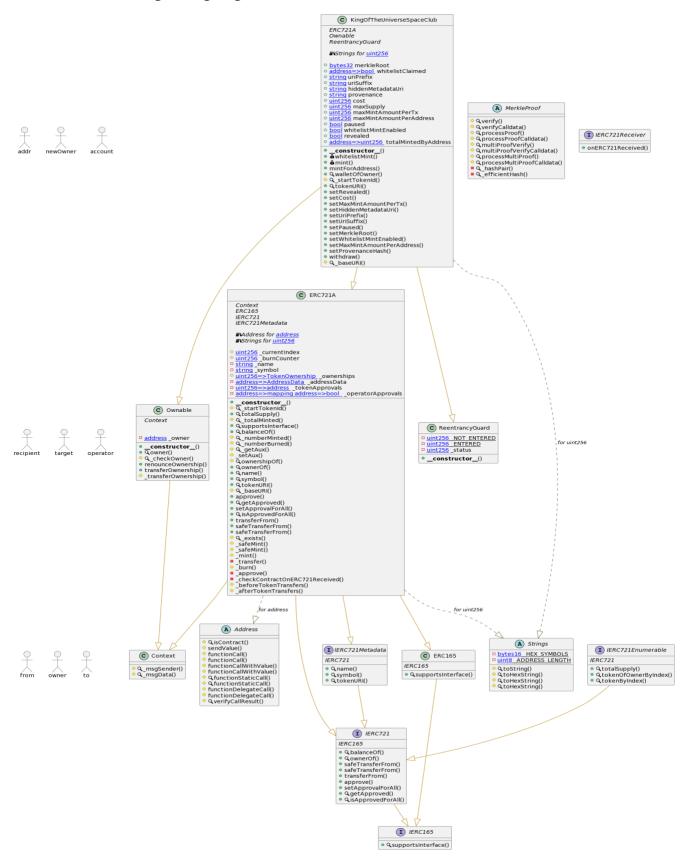
4- SOLIDITY UNIT TESTING



5- Call graph



Unified Modeling Language (UML)



Functions signature

```
Sighash | Function Signature
_____
10969523 => setProvenanceHash(string)
16279055 => isContract(address)
86333816 => multiProofVerify(bytes32[],bool[],bytes32,bytes32[])
5a9a49c7 => verify(bytes32[],bytes32,bytes32)
7ffe9d8c => verifyCalldata(bytes32[],bytes32,bytes32)
62702a6b => processProof(bytes32[],bytes32)
53b0f85f => processProofCalldata(bytes32[],bytes32)
862aac96 => multiProofVerifyCalldata(bytes32[],bool[],bytes32,bytes32[])
ea5d3eb6 => processMultiProof(bytes32[],bool[],bytes32[])
32712d22 => processMultiProofCalldata(bytes32[],bool[],bytes32[])
00a4cf28 => _hashPair(bytes32,bytes32)
41ed615b => _efficientHash(bytes32,bytes32)
41ed615b => _efficientHash(bytes32,bytes32)
6900a3ae => toString(uint256)
8fba8d5c => toHexString(uint256)
63e1cbea => toHexString(uint256,uint256)
1bb0c665 => toHexString(address)
119df25f => _msgSender()
8b49d47e => _msgData()
8da5cb5b => owner()
53a72975 => _checkOwner()
715018a6 => renounceOwnership()
f2fde38b => transferOwnership(address)
d29d44ee => transferOwnership(address)
24a084df => sendValue(address, uint256)
a0b5ffb0 => functionCall(address,bytes)
241b5886 => functionCall(address, bytes, string)
2a011594 => functionCallWithValue(address, bytes, uint256)
d525ab8a => functionCallWithValue(address, bytes, uint256, string)
c21d36f3 => functionStaticCall(address, bytes)
dbc40fb9 => functionStaticCall(address, bytes, string)
ee33b7e2 => functionDelegateCall(address,bytes)
57387df0 => functionDelegateCall(address,bytes,string)
946b5793 => verifyCallResult(bool, bytes, string)
150b7a02 => onERC721Received(address,address,uint256,bytes)
01ffc9a7 => supportsInterface(bytes4)
70a08231 => balanceOf(address)
6352211e => ownerOf(uint256)
b88d4fde => safeTransferFrom(address,address,uint256,bytes)
42842e0e => safeTransferFrom(address,address,uint256)
23b872dd => transferFrom(address,address,uint256)
095ea7b3 => approve(address, uint256)
a22cb465 => setApprovalForAll(address,bool)
081812fc => getApproved(uint256)
e985e9c5 => isApprovedForAll(address,address)
18160ddd => totalSupply()
2f745c59 => tokenOfOwnerByIndex(address,uint256)
4f6ccce7 => tokenByIndex(uint256)
06fdde03 => name()
95d89b41 => symbol()
c87b56dd => tokenURI(uint256)
98995f77 => startTokenId()
```

```
736bf591 \Rightarrow totalMinted()
4d388a98 => _numberMinted(address)
6ba1b8d0 => _numberBurned(address)
f4a540c5 => _getAux(address)
4ff8c452 => _setAux(address,uint64)
 140364a1 => ownershipOf(uint256)
 743976a0 => _baseURI()
743976a0 => _baseURI()
f8e76cc0 => _exists(uint256)
b3e1c718 => _safeMint(address,uint256)
6a4f832b => _safeMint(address,uint256,bytes)
de0d9900 => _mint(address,uint256,bytes,bool)
30e0789e => _transfer(address,address,uint256)
9b1f9e74 => _burn(uint256)
f272404d => _approve(address,uint256,address)
d88343e2 => _checkContractOnERC721Received(address,address,uint256,bytes)
ef435773 => _beforeTokenTransfers(address,address,uint256,uint256)
08c018f7 => _afterTokenTransfers(address,address,uint256,uint256)
d2cab056 => whitelistMint(uint256,bytes32[])
 d2cab056 => whitelistMint(uint256,bytes32[])
 a0712d68 => mint(uint256)
 efbd73f4 => mintForAddress(uint256,address)
 438b6300 => walletOfOwner(address)
 e0a80853 => setRevealed(bool)
 44a0d68a => setCost(uint256)
b071401b => setMaxMintAmountPerTx(uint256)
 4fdd43cb => setHiddenMetadataUri(string)
 7ec4a659 => setUriPrefix(string)
 16ba10e0 => setUriSuffix(string)
 16c38b3c => setPaused(bool)
 7cb64759 => setMerkleRoot(bytes32)
b767a098 => setWhitelistMintEnabled(bool)
 5697f53e => setMaxMintAmountPerAddress(uint256)
```

3ccfd60b => withdraw()

Automatic general report

```
Files Description Table
| File Name | SHA-1 Hash |
|-----|
| /Users/macbook/Desktop/smart contracts/KingOfTheUniverseSpaceClub.sol |
50e00fdf803aa4c70d93c8232446d66479adf488 |
Contracts Description Table
| Contract |
               Type Bases
| **Function Name** | **Visibility** | **Mutability** |
**Modifiers** |
| Constructor> | Public | NO |
| **MerkleProof** | Library | |||
| L | verify | Internal 🖺 | | |
| L | verifyCalldata | Internal 🖺 | | | |
| L | processProof | Internal A | | |
| L | processProofCalldata | Internal 🖺 | | | |
| L | multiProofVerify | Internal 🖺 | | |
| L | multiProofVerifyCalldata | Internal A | | | |
| L | processMultiProof | Internal A | | |
| L | processMultiProofCalldata | Internal 🖺 |
L | hashPair | Private 🖺 | | |
| L | efficientHash | Private 🖺 | | |
| **Strings** | Library | |||
| L | toString | Internal A |
| L | toHexString | Internal A | | |
| **Context** | Implementation | |||
| L | msgData | Internal 🖺 | | |
| **Ownable** | Implementation | Context | | |
| Constructor> | Public | | NO | |
| L | owner | Public | | NO | |
| L | checkOwner | Internal 🖺 |
                         | L | renounceOwnership | Public | | onlyOwner | L | transferOwnership | Public | onlyOwner |
| L | sendValue | Internal A | O | |
```

```
| L | functionCall | Internal A | O
| L | functionCall | Internal A | O
| L | functionStaticCall | Internal A | | |
| L | functionStaticCall | Internal
| L | functionDelegateCall | Internal 🖺
| L | verifyCallResult | Internal 🖺 | | |
| **IERC721Receiver** | Interface | ||
| L | onERC721Received | External | | ●
| **IERC165** | Interface | ||
| L | supportsInterface | External | | NO | |
| **ERC165** | Implementation | IERC165 |||
| L | supportsInterface | Public | | NO | |
| **IERC721** | Interface | IERC165 |||
| L | balanceOf | External | | NO | |
| L | ownerOf | External | | NO| |
| L | safeTransferFrom | External | | ●
| L | safeTransferFrom | External | | | NO | |
| L | transferFrom | External ] | O NOW |
| L | approve | External | | NO | NO |
| L | setApprovalForAll | External | | | | | | | | | | | | | |
| L | getApproved | External | | NO | |
| L | isApprovedForAll | External | | NO | |
| **IERC721Enumerable** | Interface | IERC721 |||
| L | totalSupply | External | | | NO | |
| L | tokenOfOwnerByIndex | External | | | NO| |
| L | tokenByIndex | External | | | NO | |
| **IERC721Metadata** | Interface | IERC721 |||
| L | name | External | | NO| |
| L | symbol | External | | | NO|
| L | tokenURI | External | | NO| |
| **ERC721A** | Implementation | Context, ERC165, IERC721, IERC721Metadata |||
| L | startTokenId | Internal 🖺 | | |
| L | totalSupply | Public | | NO | |
| supportsInterface | Public | | NO | |
| L | balanceOf | Public |  | NO | |
| L | _numberMinted | Internal 🖺 | | |
| L | ownershipOf | Internal 🖺 | | |
| L | ownerOf | Public | | NO | |
| L | name | Public | | NO | |
| L | symbol | Public | | NO | |
```

```
L | tokenURI | Public | | NO | |
 L | baseURI | Internal 🖺 | | |
L | approve | Public | | NO | |
 L | getApproved | Public | | NO | |
| L | setApprovalForAll | Public | | | NO | |
| L | isApprovedForAll | Public | | NO| | L | transferFrom | Public | | | NO| |
| L | _exists | Internal 🖺 |
                        L | safeMint | Internal 🖺 | 🔘 | |
| L | mint | Internal A | D | |
| L | _transfer | Private 🖺 | 🔘 | |
| L | _burn | Internal 🖺 | 🔘 _ | |
| L | _approve | Private 🖺 | 🔘 | |
| L | _checkContractOnERC721Received | Private 🖺 | 🔘 | |
| L | beforeTokenTransfers | Internal 🖺 | 🔘 | |
| L | afterTokenTransfers | Internal A | D | |
| **KingOfTheUniverseSpaceClub** | Implementation | ERC721A, Ownable,
ReentrancyGuard | | |
| L | mint | Public | | @ | mintCompliance mintPriceCompliance |
| L | mintForAddress | Public | | ● | mintCompliance onlyOwner |
 L | walletofowner | Public | | NO | |
| L | tokenURI | Public | | NO | |
 L | setRevealed | Public | | onlyOwner |
 L | setCost | Public | | OnlyOwner |
 L | setMaxMintAmountPerTx | Public | | OnlyOwner |
 | L | setUriPrefix | Public | | onlyOwner | L | setUriSuffix | Public | onlyOwner |
| L | setPaused | Public | | OnlyOwner |
 L | setMerkleRoot | Public | | onlyOwner |
| L | setMaxMintAmountPerAddress | Public | | OnlyOwner |
| L | withdraw | Public | | OnlyOwner nonReentrant |
| L | _baseURI | Internal 🖺 | | | |
Legend
| Symbol | Meaning |
|:----|
  Function can modify state |
  Function is payable |
```

Conclusion

The contracts are written systematically. Team found no critical issues. So, it is good to go for production.

Since possible test cases can be unlimited and developer level documentation (code flow diagram with function level description) not provided, for such an extensive smart contract protocol, we provide no such guarantee of future outcomes. We have used all the latest static tools and manual observations to cover maximum possible test cases to scan Everything.

Security state of the reviewed contract is "Well Secured".

- √ No volatile code.
- ✓ No many high severity issues were found.
- ✓ Low (or very low) level issues have been fixed.

Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as of the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against the team on the basis of what it says or doesn't say, or how team produced it, and it is important for you to conduct your own independent investigations before making any decisions. team go into more detail on this in the below disclaimer below – please make sure to read it in full.

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