



# SMART CONTRACT SECURITY AUDIT OF **BET TO EARN**



**SMART CONTRACT AUDIT | SOLIDITY DEVELOPMENT & TESTING | PROJECT EVALUATION**

**RELENTLESSLY SECURING THE PUBLIC BLOCKCHAIN**

# Audit Introduction

<b>Auditing Firm</b>	InterFi Network
<b>Audit Architecture</b>	InterFi Echelon Auditing Standard
<b>Language</b>	Solidity
<b>Client Firm</b>	Bet to Earn
<b>Website</b>	<a href="https://bettotearn.io/">https://bettotearn.io/</a>
<b>Telegram</b>	<a href="https://t.me/bteBSC/">https://t.me/bteBSC/</a>
<b>Twitter</b>	<a href="https://twitter.com/bteBSC/">https://twitter.com/bteBSC/</a>
<b>Report Date</b>	July 03, 2022

## About Bet to Earn

Discover the new generation betting game experience with BETTOEARN.IO. We have the most user friendly & harmless betting game mechanism. BETTOEARN.IO is actually free 'play to earn' game and it is not providing real betting service. It is just gamified "guess to winner" prediction game. You never lose your life savings if you cannot predict "winner" prediction, but you can earn \$BTE token if you win as well. You must buy and keep your NFT in your wallet in order to join the game! You can make level up your NFT to increase your profit in the game!



# Audit Summary

InterFi team has performed a line-by-line manual analysis and automated review of smart contracts. Smart contracts were analyzed mainly for common contract vulnerabilities, exploits, and manipulation hacks. According to the audit:

- ❖ Bet to Earn's solidity source code has **LOW RISK SEVERITY**
- ❖ Bet to Earn's smart contract has an **ACTIVE OWNERSHIP**
- ❖ Bet to Earn's smart contract utilizes upgradeable contracts. Contract upgradeability allows greater contract modification. Centralization risk related to contract upgradability is **HIGH**
- ❖ Important owner privileges – **SET TAXES, SET TIERS, SET SHARES, SET DUMP PROTECTION, BURN FROM, CHANGE BUYBACK SETTINGS**

Be aware that smart contracts deployed on the blockchain aren't resistant to internal exploit, external vulnerability, or hack. For a detailed understanding of risk severity, source code vulnerability, exploitability, and audit disclaimer, kindly refer to the audit.

📄 Contract address: **0x984fdE60EC6592724508DD5e5ce6cC311FAF556c**

🔗 Blockchain: **Binance Smart Chain**

✅ Verify the authenticity of this report on InterFi's GitHub: <https://github.com/interfinetwork>



# Table Of Contents

## **Audit Information**

Audit Scope.....	5
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## **Echelon Audit Standard**

Audit Methodology .....	6
Risk Classification .....	8
Centralization Risk.....	9

## **Smart Contract Risk Assessment**

Static Analysis.....	10
Software Analysis.....	16
Manual Analysis.....	21
SWC Attacks .....	25
Risk Status & Radar Chart.....	27

## **Audit Summary**

Auditor's Verdict .....	28
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## **Legal Advisory**

Important Disclaimer .....	29
About InterFi Network.....	30



# Audit Scope

InterFi was consulted by Bet to Earn to conduct the smart contract security audit of their solidity source codes. The audit scope of work is strictly limited to the mentioned solidity file(s) only:

❖ Bettotearn.sol

## **Solidity Source Code On Blockchain (Verified Contract Source Code)**

<https://bscscan.com/address/0x984fde60ec6592724508dd5e5ce6cc311faf556c#code>

Contract Name: Bettotearn

Compiler Version: v0.8.15

Optimization Enabled: Yes with 200 runs

## **Solidity Source Code On InterFi GitHub**

<https://github.com/interfinetwork/audited-codes/blob/main/BettoEarn.sol>

## **SHA-1 Hash**

Solidity source code is audited at hash #bb9a335de1008f00f90bdf5fdf2a6d0a7493aa93



# Audit Methodology

The scope of this report is to audit the smart contract source code of Bet to Earn. InterFi has scanned contracts and reviewed codes for common vulnerabilities, exploits, hacks, and back-doors. Due to being out of scope, InterFi has not tested contracts on testnet to assess any functional flaws. Below is the list of commonly known smart contract vulnerabilities, exploits, and hacks:

## Category

---

### Smart Contract Vulnerabilities

- ❖ Re-entrancy
- ❖ Unhandled Exceptions
- ❖ Transaction Order Dependency
- ❖ Integer Overflow
- ❖ Unrestricted Action
- ❖ Incorrect Inheritance Order

..... ❖ Typographical Errors .....

❖ Requirement Violation

❖ Gas Limit and Loops

❖ Deployment Consistency

❖ Repository Consistency

❖ Data Consistency

❖ Token Supply Manipulation

❖ Access Control and Authorization

❖ Operations Trail and Event Generation

❖ Assets Manipulation

❖ Ownership Control

❖ Liquidity Access

### Source Code Review



## **InterFi's Echelon Audit Standard**

The aim of InterFi's "Echelon" standard is to analyze smart contracts and identify the vulnerabilities and the hacks. Kindly note, InterFi does not test smart contracts on testnet. It is recommended that smart contracts are thoroughly tested prior to the audit submission. Mentioned are the steps used by InterFi to audit smart contracts:

1. Solidity smart contract source code reviewal:
  - ❖ Review of the specifications, sources, and instructions provided to InterFi to make sure we understand the size, and scope of the smart contract audit.
  - ❖ Manual review of code, which is the process of reading source code line-by-line to identify potential vulnerabilities.
2. Static, Manual, and Software analysis:
  - ❖ Test coverage analysis is the process of determining whether the test cases are covering the code and how much code is exercised when we run those test cases.
  - ❖ Symbolic execution is analyzing a program to determine what inputs cause each part of a program to execute.
3. Best practices review, which is a review of the smart contracts to improve efficiency, effectiveness, clarify, maintainability, security, and control based on the established industry and academic practices, recommendations, and research.
4. Specific, itemized, actionable recommendations to help you take steps to secure your smart contracts

## **Automated 3P frameworks used to assess the smart contract vulnerabilities**

- ❖ Consensys Tools
- ❖ SWC Registry
- ❖ Solidity Coverage
- ❖ Open Zeppelin Code Analyzer
- ❖ Solidity Code Compiler



# Risk Classification

Smart contracts are generally designed to manipulate and hold funds denominated in ETH/BNB. This makes them very tempting attack targets, as a successful attack may allow the attacker to directly steal funds from the contract. Below are the typical risk levels of a smart contract:

**Vulnerable:** A contract is vulnerable if it has been flagged by a static analysis tool as such. As we will see later, this means that some contracts may be vulnerable because of a false positive.

**Exploitable:** A contract is exploitable if it is vulnerable and the vulnerability could be exploited by an external attacker. For example, if the “vulnerability” flagged by a tool is in a function that requires owning the contract, it would be vulnerable but not exploitable.

**Exploited:** A contract is exploited if it received a transaction on the main network which triggered one of its vulnerabilities. Therefore, a contract can be vulnerable or even exploitable without having been exploited.

Risk severity	Meaning
<b>! High</b>	This level vulnerabilities could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.
<b>! Medium</b>	This level vulnerabilities are hard to exploit but very important to fix, they carry an elevated risk of smart contract manipulation, which can lead to high-risk severity
<b>! Low</b>	This level vulnerabilities should be fixed, as they carry an inherent risk of future exploits, and hacks which may or may not impact the smart contract execution.
<b>! Informational</b>	This level vulnerabilities can be ignored. They are code style violations and informational statements in the code. They may not affect the smart contract execution





# Centralization Risk

Centralization risk is the most common cause of decentralized finance hacks. When a smart contract has an active contract ownership, the risk related to centralization is elevated. There are some well-intended reasons to be an active contract owner, such as:

- ❖ Contract owner can be granted the power to `pause()` or `lock()` the contract in case of an external attack.
- ❖ Contract owner can use functions like, `include()`, and `exclude()` to add or remove wallets from fees, swap checks, and transaction limits. This is useful to run a presale, and to list on an exchange.

Authorizing a full centralized power to a single body can be dangerous. Unfortunately, centralization related risks are higher than common smart contract vulnerabilities. Centralization of ownership creates a risk of rug pull scams, where owners cash out tokens in such quantities that they become valueless. **Most important question to ask here is, how to mitigate centralization risk?** Here's InterFi's recommendation to lower the risks related to centralization hacks:

- ❖ Smart contract owner's private key must be carefully secured to avoid any potential hack.
- ❖ Smart contract ownership should be shared by multi-signature (multi-sig) wallets.
- ❖ Smart contract ownership can be locked in a contract, user voting, or community DAO can be introduced to unlock the ownership.






## **Bet to Earn's Centralization Status**

- ❖ Bet to Earn's smart contract has an **active ownership**.
- ❖ Smart contract ownership is set to **0x950b1fa2224f26b7e989274589eba516d88c197e** at the time of the audit.



# Static Analysis

## Symbol      Meaning

	Function can modify state
	Function is payable
	Function is locked
	Function can be accessed
	Important functionality

```

| **Bettoearn** | Implementation | Initializable, ERC20Upgradeable, ERC20PermitUpgradeable,
ERC20CappedUpgradeable, ERC20BurnableUpgradeable, OwnableUpgradeable, AccessControlUpgradeable |||
| L | initialize | Public ! |  | initializer |
| L | <Receive Ether> | External ! |  |NO ! |
| L | _mint | Internal  |  | |
| L | _revokeRole | Internal  |  | |
| L | initializeProject | External ! |  | onlyOwner |
| L | _transfer | Internal  |  | |
| L | getDynamicSellTax | Public ! | |NO ! |
| L | _takeTax | Private  |  | |
| L | _getTotalTax | Private  | | |
| L | _getTierTaxes | Private  | | |
| L | _shouldSwapBack | Private  | | |
| L | _swapBack | Private  |  | swapping |
| L | _buyBack | Private  |  | |
| L | approveNFT | Public ! |  |NO ! |
| L | checkUser | External ! |  |NO ! |
| L | register | Internal  |  | |
| L | _getUserId | Public ! | |NO ! |
| L | _getUserWallet | Public ! | |NO ! |
| L | disableDumpProtection | External ! |  | onlyOwner |
| L | removeSniperTax | External ! |  | onlyOwner |
| L | enableTrading | External ! |  | onlyOwner |
| L | triggerSwapBack | External ! |  | onlyOwner |
| L | recoverBNB | External ! |  | onlyOwner |
| L | recoverBEP20 | External ! |  | onlyOwner |
| L | setIsWhitelisted | External ! |  | onlyOwner |
| L | setIsCEX | External ! |  | onlyOwner |
| L | setIsMarketMaker | External ! |  | onlyOwner |
| L | tierTaxStatus | External ! |  | onlyOwner |
| L | setTaxes | External ! |  | onlyOwner |

```



```

| L | setTiers | External ! | ● | onlyOwner |
| L | setShares | External ! | ● | onlyOwner |
| L | setSwapBackSettings | External ! | ● | onlyOwner |
| L | setTransferGas | External ! | ● | onlyOwner |
| L | setWallets | External ! | ● | onlyOwner |
| L | updateWallet | External ! | ● | onlyOwner |
| L | setBuyBackSettings | External ! | ● | onlyOwner |
| L | setNFT | External ! | ● | onlyOwner |
|||||
| **IPancakeSwapV2Router01** | Interface | |||
| L | factory | External ! | |NO ! |
| L | WETH | External ! | |NO ! |
| L | addLiquidity | External ! | ● |NO ! |
| L | addLiquidityETH | External ! | 🚫 |NO ! |
| L | removeLiquidity | External ! | ● |NO ! |
| L | removeLiquidityETH | External ! | ● |NO ! |
| L | removeLiquidityWithPermit | External ! | ● |NO ! |
| L | removeLiquidityETHWithPermit | External ! | ● |NO ! |
| L | swapExactTokensForTokens | External ! | ● |NO ! |
| L | swapTokensForExactTokens | External ! | ● |NO ! |
| L | swapExactETHForTokens | External ! | 🚫 |NO ! |
| L | swapTokensForExactETH | External ! | ● |NO ! |
| L | swapExactTokensForETH | External ! | ● |NO ! |
| L | swapETHForExactTokens | External ! | 🚫 |NO ! |
| L | quote | External ! | |NO ! |
| L | getAmountOut | External ! | |NO ! |
| L | getAmountIn | External ! | |NO ! |
| L | getAmountsOut | External ! | |NO ! |
| L | getAmountsIn | External ! | |NO ! |
|||||
| **IPancakeSwapV2Router02** | Interface | IPancakeSwapV2Router01 |||
| L | removeLiquidityETHSupportingFeeOnTransferTokens | External ! | ● |NO ! |
| L | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External ! | ● |NO ! |
| L | swapExactTokensForTokensSupportingFeeOnTransferTokens | External ! | ● |NO ! |
| L | swapExactETHForTokensSupportingFeeOnTransferTokens | External ! | 🚫 |NO ! |
| L | swapExactTokensForETHSupportingFeeOnTransferTokens | External ! | ● |NO ! |
|||||
| **IPancakeSwapV2Pair** | Interface | |||
| L | name | External ! | |NO ! |
| L | symbol | External ! | |NO ! |
| L | decimals | External ! | |NO ! |
| L | totalSupply | External ! | |NO ! |
| L | balanceOf | External ! | |NO ! |
| L | allowance | External ! | |NO ! |
| L | approve | External ! | ● |NO ! |
| L | transfer | External ! | ● |NO ! |
| L | transferFrom | External ! | ● |NO ! |
| L | DOMAIN_SEPARATOR | External ! | |NO ! |
| L | PERMIT_TYPEHASH | External ! | |NO ! |
| L | nonces | External ! | |NO ! |

```



```

| L | permit | External ! | ● |NO! |
| L | MINIMUM_LIQUIDITY | External ! | |NO! |
| L | factory | External ! | |NO! |
| L | token0 | External ! | |NO! |
| L | token1 | External ! | |NO! |
| L | getReserves | External ! | |NO! |
| L | price0CumulativeLast | External ! | |NO! |
| L | price1CumulativeLast | External ! | |NO! |
| L | kLast | External ! | |NO! |
| L | mint | External ! | ● |NO! |
| L | burn | External ! | ● |NO! |
| L | swap | External ! | ● |NO! |
| L | skim | External ! | ● |NO! |
| L | sync | External ! | ● |NO! |
| L | initialize | External ! | ● |NO! |
|||||
| **IPancakeSwapV2Factory** | Interface | |||
| L | feeTo | External ! | |NO! |
| L | feeToSetter | External ! | |NO! |
| L | getPair | External ! | |NO! |
| L | allPairs | External ! | |NO! |
| L | allPairsLength | External ! | |NO! |
| L | createPair | External ! | ● |NO! |
| L | setFeeTo | External ! | ● |NO! |
| L | setFeeToSetter | External ! | ● |NO! |
|||||
| **SafeMathUpgradeable** | Library | |||
| L | tryAdd | Internal 🔒 | | |
| L | trySub | Internal 🔒 | | |
| L | tryMul | Internal 🔒 | | |
| L | tryDiv | Internal 🔒 | | |
| L | tryMod | Internal 🔒 | | |
| L | add | Internal 🔒 | | |
| L | sub | Internal 🔒 | | |
| L | mul | Internal 🔒 | | |
| L | div | Internal 🔒 | | |
| L | mod | Internal 🔒 | | |
| L | sub | Internal 🔒 | | |
| L | div | Internal 🔒 | | |
| L | mod | Internal 🔒 | | |
|||||
| **IERC165Upgradeable** | Interface | |||
| L | supportsInterface | External ! | |NO! |
|||||
| **ERC165Upgradeable** | Implementation | Initializable, IERC165Upgradeable |||
| L | __ERC165_init | Internal 🔒 | ● | onlyInitializing |
| L | __ERC165_init_unchained | Internal 🔒 | ● | onlyInitializing |
| L | supportsInterface | Public ! | |NO! |
|||||
| **EIP712Upgradeable** | Implementation | Initializable |||

```



```

| L | __EIP712_init | Internal | 🔒 | 🔴 | onlyInitializing |
| L | __EIP712_init_unchained | Internal | 🔒 | 🔴 | onlyInitializing |
| L | _domainSeparatorV4 | Internal | 🔒 | | |
| L | _buildDomainSeparator | Private | 🔒 | | |
| L | _hashTypedDataV4 | Internal | 🔒 | | |
| L | _EIP712NameHash | Internal | 🔒 | | |
| L | _EIP712VersionHash | Internal | 🔒 | | |
|||||
| **ECDSAUpgradeable** | Library | |||
| L | _throwError | Private | 🔒 | | |
| L | tryRecover | Internal | 🔒 | | |
| L | recover | Internal | 🔒 | | |
| L | tryRecover | Internal | 🔒 | | |
| L | recover | Internal | 🔒 | | |
| L | tryRecover | Internal | 🔒 | | |
| L | recover | Internal | 🔒 | | |
| L | toEthSignedMessageHash | Internal | 🔒 | | |
| L | toEthSignedMessageHash | Internal | 🔒 | | |
| L | toTypedDataHash | Internal | 🔒 | | |
|||||
| **StringsUpgradeable** | Library | |||
| L | toString | Internal | 🔒 | | |
| L | toHexString | Internal | 🔒 | | |
| L | toHexString | Internal | 🔒 | | |
|||||
| **CountersUpgradeable** | Library | |||
| L | current | Internal | 🔒 | | |
| L | increment | Internal | 🔒 | 🔴 | |
| L | decrement | Internal | 🔒 | 🔴 | |
| L | reset | Internal | 🔒 | 🔴 | |
|||||
| **ContextUpgradeable** | Implementation | Initializable |||
| L | __Context_init | Internal | 🔒 | 🔴 | onlyInitializing |
| L | __Context_init_unchained | Internal | 🔒 | 🔴 | onlyInitializing |
| L | _msgSender | Internal | 🔒 | | |
| L | _msgData | Internal | 🔒 | | |
|||||
| **AddressUpgradeable** | Library | |||
| L | isContract | Internal | 🔒 | | |
| L | sendValue | Internal | 🔒 | 🔴 | |
| L | functionCall | Internal | 🔒 | 🔴 | |
| L | functionCall | Internal | 🔒 | 🔴 | |
| L | functionCallWithValue | Internal | 🔒 | 🔴 | |
| L | functionCallWithValue | Internal | 🔒 | 🔴 | |
| L | functionStaticCall | Internal | 🔒 | | |
| L | functionStaticCall | Internal | 🔒 | | |
| L | verifyCallResult | Internal | 🔒 | | |
|||||
| **IERC20PermitUpgradeable** | Interface | |||
| L | permit | External | ! | 🔴 | NO! |

```



```

| L | nonces | External ! | |NO! |
| L | DOMAIN_SEPARATOR | External ! | |NO! |
|||||
| **ERC20PermitUpgradeable** | Implementation | Initializable, ERC20Upgradeable,
IERC20PermitUpgradeable, EIP712Upgradeable |||
| L | __ERC20Permit_init | Internal 🗝️ | 🔴 | onlyInitializing |
| L | __ERC20Permit_init_unchained | Internal 🗝️ | 🔴 | onlyInitializing |
| L | permit | Public ! | 🔴 |NO! |
| L | nonces | Public ! | |NO! |
| L | DOMAIN_SEPARATOR | External ! | |NO! |
| L | _useNonce | Internal 🗝️ | 🔴 | |
|||||
| **IERC20MetadataUpgradeable** | Interface | IERC20Upgradeable |||
| L | name | External ! | |NO! |
| L | symbol | External ! | |NO! |
| L | decimals | External ! | |NO! |
|||||
| **ERC20CappedUpgradeable** | Implementation | Initializable, ERC20Upgradeable |||
| L | __ERC20Capped_init | Internal 🗝️ | 🔴 | onlyInitializing |
| L | __ERC20Capped_init_unchained | Internal 🗝️ | 🔴 | onlyInitializing |
| L | cap | Public ! | |NO! |
| L | _mint | Internal 🗝️ | 🔴 | |
|||||
| **ERC20BurnableUpgradeable** | Implementation | Initializable, ContextUpgradeable,
ERC20Upgradeable |||
| L | __ERC20Burnable_init | Internal 🗝️ | 🔴 | onlyInitializing |
| L | __ERC20Burnable_init_unchained | Internal 🗝️ | 🔴 | onlyInitializing |
| L | burn | Public ! | 🔴 |NO! |
| L | burnFrom | Public ! | 🔴 |NO! |
|||||
| **IERC20Upgradeable** | Interface | |||
| L | totalSupply | External ! | |NO! |
| L | balanceOf | External ! | |NO! |
| L | transfer | External ! | 🔴 |NO! |
| L | allowance | External ! | |NO! |
| L | approve | External ! | 🔴 |NO! |
| L | transferFrom | External ! | 🔴 |NO! |
|||||
| **ERC20Upgradeable** | Implementation | Initializable, ContextUpgradeable, IERC20Upgradeable,
IERC20MetadataUpgradeable |||
| L | __ERC20_init | Internal 🗝️ | 🔴 | onlyInitializing |
| L | __ERC20_init_unchained | Internal 🗝️ | 🔴 | onlyInitializing |
| L | name | Public ! | |NO! |
| L | symbol | Public ! | |NO! |
| L | decimals | Public ! | |NO! |
| L | totalSupply | Public ! | |NO! |
| L | balanceOf | Public ! | |NO! |
| L | transfer | Public ! | 🔴 |NO! |
| L | allowance | Public ! | |NO! |
| L | approve | Public ! | 🔴 |NO! |

```



```

| L | transferFrom | Public ! | 🔴 | NO ! |
| L | increaseAllowance | Public ! | 🔴 | NO ! |
| L | decreaseAllowance | Public ! | 🔴 | NO ! |
| L | _transfer | Internal 🔒 | 🔴 | |
| L | _mint | Internal 🔒 | 🔴 | |
| L | _burn | Internal 🔒 | 🔴 | |
| L | _approve | Internal 🔒 | 🔴 | |
| L | _spendAllowance | Internal 🔒 | 🔴 | |
| L | _beforeTokenTransfer | Internal 🔒 | 🔴 | |
| L | _afterTokenTransfer | Internal 🔒 | 🔴 | |
|||||
| **Initializable** | Implementation | |||
| L | _disableInitializers | Internal 🔒 | 🔴 | |
| L | _setInitializedVersion | Private 🔒 | 🔴 | |
|||||
| **OwnableUpgradeable** | Implementation | Initializable, ContextUpgradeable |||
| L | __Ownable_init | Internal 🔒 | 🔴 | onlyInitializing |
| L | __Ownable_init_unchained | Internal 🔒 | 🔴 | onlyInitializing |
| L | owner | Public ! | 🔴 | NO ! |
| L | renounceOwnership | Public ! | 🔴 | onlyOwner |
| L | transferOwnership | Public ! | 🔴 | onlyOwner |
| L | _transferOwnership | Internal 🔒 | 🔴 | |
|||||
| **IAccessControlUpgradeable** | Interface | |||
| L | hasRole | External ! | 🔴 | NO ! |
| L | getRoleAdmin | External ! | 🔴 | NO ! |
| L | grantRole | External ! | 🔴 | NO ! |
| L | revokeRole | External ! | 🔴 | NO ! |
| L | renounceRole | External ! | 🔴 | NO ! |
|||||
| **AccessControlUpgradeable** | Implementation | Initializable, ContextUpgradeable,
IAccessControlUpgradeable, ERC165Upgradeable |||
| L | __AccessControl_init | Internal 🔒 | 🔴 | onlyInitializing |
| L | __AccessControl_init_unchained | Internal 🔒 | 🔴 | onlyInitializing |
| L | supportsInterface | Public ! | 🔴 | NO ! |
| L | hasRole | Public ! | 🔴 | NO ! |
| L | _checkRole | Internal 🔒 | 🔴 | |
| L | _checkRole | Internal 🔒 | 🔴 | |
| L | getRoleAdmin | Public ! | 🔴 | NO ! |
| L | grantRole | Public ! | 🔴 | onlyRole |
| L | revokeRole | Public ! | 🔴 | onlyRole |
| L | renounceRole | Public ! | 🔴 | NO ! |
| L | _setupRole | Internal 🔒 | 🔴 | |
| L | _setRoleAdmin | Internal 🔒 | 🔴 | |
| L | _grantRole | Internal 🔒 | 🔴 | |
| L | _revokeRole | Internal 🔒 | 🔴 | |

```



# Software Analysis

## Function Signatures

```

16279055 => isContract(address)
17513587 => removeSniperTax()
39509351 => increaseAllowance(address,uint256)
50743540 => _getTierTaxes(uint256)
b119490e => initialize(string,string,uint256)
4e6ec247 => _mint(address,uint256)
2c95bd23 => _revokeRole(bytes32,address)
64a43d39 => initializeProject()
30e0789e => _transfer(address,address,uint256)
78f633af => getDynamicSellTax()
56cdd3bc => _takeTax(address,address,uint256)
9d7a1d76 => _getTotalTax(address,address,uint256)
1aa9129a => _shouldSwapBack(bool)
cdd8861d => _swapBack()
db91e384 => _buyBack()
3dc11957 => approveNFT()
c1562547 => checkUser()
1aa3a008 => register()
18ceab19 => _getUserId(address)
2491dae0 => _getUserWallet(uint256)
20ffb2d7 => disableDumpProtection()
8a8c523c => enableTrading()
456d401a => triggerSwapBack()
5b5a0571 => recoverBNB(bool)
69f76980 => recoverBEP20(IERC20Upgradeable,address)
09ec923a => setIsWhitelisted(address,bool)
ab261a40 => setIsCEX(address,bool)
974f7a51 => setIsMarketMaker(address,bool)
dba9d4c2 => tierTaxStatus(bool)
e9dae5ed => setTaxes(uint256,uint256,uint256)
ebc64f7a => setTiers(Tiers[])
f03b6ffc => setShares(uint256,uint256,uint256,uint256)
df20fd49 => setSwapBackSettings(bool,uint256)
c7e066ba => setTransferGas(uint256)
79399e61 => setWallets(string,Wallets[])
b91f39a4 => updateWallet(uint256,address)
047e724d => setBuyBackSettings(uint256,uint256)
f56e9c66 => setNFT(address)
c45a0155 => factory()
ad5c4648 => WETH()
e8e33700 => addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256)
f305d719 => addLiquidityETH(address,uint256,uint256,uint256,address,uint256)
baa2abde => removeLiquidity(address,address,uint256,uint256,uint256,address,uint256)
02751cec => removeLiquidityETH(address,uint256,uint256,uint256,address,uint256)

```





```

2195995c =>
removeLiquidityWithPermit(address,address,uint256,uint256,uint256,address,uint256,bool,uint8,bytes3
2,bytes32)
ded9382a =>
removeLiquidityETHWithPermit(address,uint256,uint256,uint256,address,uint256,bool,uint8,bytes32,byt
es32)
38ed1739 => swapExactTokensForTokens(uint256,uint256,address[],address,uint256)
8803dbee => swapTokensForExactTokens(uint256,uint256,address[],address,uint256)
7ff36ab5 => swapExactETHForTokens(uint256,address[],address,uint256)
4a25d94a => swapTokensForExactETH(uint256,uint256,address[],address,uint256)
18cbafe5 => swapExactTokensForETH(uint256,uint256,address[],address,uint256)
fb3bdb41 => swapETHForExactTokens(uint256,address[],address,uint256)
ad615dec => quote(uint256,uint256,uint256)
054d50d4 => getAmountOut(uint256,uint256,uint256)
85f8c259 => getAmountIn(uint256,uint256,uint256)
d06ca61f => getAmountsOut(uint256,address[])
1f00ca74 => getAmountsIn(uint256,address[])
af2979eb =>
removeLiquidityETHSupportingFeeOnTransferTokens(address,uint256,uint256,uint256,address,uint256)
5b0d5984 =>
removeLiquidityETHWithPermitSupportingFeeOnTransferTokens(address,uint256,uint256,uint256,address,u
int256,bool,uint8,bytes32,bytes32)
5c11d795 =>
swapExactTokensForTokensSupportingFeeOnTransferTokens(uint256,uint256,address[],address,uint256)
b6f9de95 => swapExactETHForTokensSupportingFeeOnTransferTokens(uint256,address[],address,uint256)
791ac947 =>
swapExactTokensForETHSupportingFeeOnTransferTokens(uint256,uint256,address[],address,uint256)
06fdde03 => name()
95d89b41 => symbol()
313ce567 => decimals()
18160ddd => totalSupply()
70a08231 => balanceOf(address)
dd62ed3e => allowance(address,address)
095ea7b3 => approve(address,uint256)
a9059cbb => transfer(address,uint256)
23b872dd => transferFrom(address,address,uint256)
3644e515 => DOMAIN_SEPARATOR()
30adf81f => PERMIT_TYPEHASH()
7ecebe00 => nonces(address)
d505accf => permit(address,address,uint256,uint256,uint8,bytes32,bytes32)
ba9a7a56 => MINIMUM_LIQUIDITY()
0dfe1681 => token0()
d21220a7 => token1()
0902f1ac => getReserves()
5909c0d5 => price0CumulativeLast()
5a3d5493 => price1CumulativeLast()
7464fc3d => kLast()
6a627842 => mint(address)
89afcb44 => burn(address)
022c0d9f => swap(uint256,uint256,address,bytes)

```



```

bc25cf77 => skim(address)
fff6cae9 => sync()
485cc955 => initialize(address,address)
017e7e58 => feeTo()
094b7415 => feeToSetter()
e6a43905 => getPair(address,address)
1e3dd18b => allPairs(uint256)
574f2ba3 => allPairsLength()
c9c65396 => createPair(address,address)
f46901ed => setFeeTo(address)
a2e74af6 => setFeeToSetter(address)
884557bf => tryAdd(uint256,uint256)
a29962b1 => trySub(uint256,uint256)
6281efa4 => tryMul(uint256,uint256)
736ecb18 => tryDiv(uint256,uint256)
38dc0867 => tryMod(uint256,uint256)
771602f7 => add(uint256,uint256)
b67d77c5 => sub(uint256,uint256)
c8a4ac9c => mul(uint256,uint256)
a391c15b => div(uint256,uint256)
f43f523a => mod(uint256,uint256)
e31bdc0a => sub(uint256,uint256,string)
b745d336 => div(uint256,uint256,string)
71af23e8 => mod(uint256,uint256,string)
01ffc9a7 => supportsInterface(bytes4)
02aecff4 => __ERC165_init()
15a8d1d0 => __ERC165_init_unchained()
56e98003 => __EIP712_init(string,string)
c2040734 => __EIP712_init_unchained(string,string)
7b134b4c => _domainSeparatorV4()
112794f2 => _buildDomainSeparator(bytes32,bytes32,bytes32)
c8f1ecd8 => _hashTypedDataV4(bytes32)
56ffb8c9 => _EIP712NameHash()
2274784a => _EIP712VersionHash()
5e2ffa14 => _throwError(RecoverError)
c6edd8a7 => tryRecover(bytes32,bytes)
19045a25 => recover(bytes32,bytes)
628f98cc => tryRecover(bytes32,bytes32,bytes32)
bf2fe7fd => recover(bytes32,bytes32,bytes32)
4d78da76 => tryRecover(bytes32,uint8,bytes32,bytes32)
c2bf17b0 => recover(bytes32,uint8,bytes32,bytes32)
918a15cf => toEthSignedMessageHash(bytes32)
92bd87b5 => toEthSignedMessageHash(bytes)
7df7a71c => toTypedDataHash(bytes32,bytes32)
6900a3ae => toString(uint256)
8fba8d5c => toHexString(uint256)
63e1cbea => toHexString(uint256,uint256)
ad04a8d1 => current(Counter)
e2bee435 => increment(Counter)
854ec98e => decrement(Counter)

```



```

440d212a => reset(Counter)
f08d647e => __Context_init()
ab96f671 => __Context_init_unchained()
119df25f => _msgSender()
8b49d47e => _msgData()
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)
946b5793 => verifyCallResult(bool,bytes,string)
2f08c5ed => __ERC20Permit_init(string)
45996d9d => __ERC20Permit_init_unchained(string)
35d11de3 => _useNonce(address)
62d4a8c7 => __ERC20Capped_init(uint256)
8d7f8997 => __ERC20Capped_init_unchained(uint256)
355274ea => cap()
0fa5741a => __ERC20Burnable_init()
f57c5ec1 => __ERC20Burnable_init_unchained()
42966c68 => burn(uint256)
79cc6790 => burnFrom(address,uint256)
678bd718 => __ERC20_init(string,string)
46753fdb => __ERC20_init_unchained(string,string)
a457c2d7 => decreaseAllowance(address,uint256)
6161eb18 => _burn(address,uint256)
104e81ff => _approve(address,address,uint256)
1532335e => _spendAllowance(address,address,uint256)
cad3be83 => _beforeTokenTransfer(address,address,uint256)
8f811a1c => _afterTokenTransfer(address,address,uint256)
8129fc1c => initialize()
5cd8a76b => initializeV2()
4caf63ac => _disableInitializers()
862f7c53 => _setInitializedVersion(uint8)
0142eb11 => __Ownable_init()
5ce29e24 => __Ownable_init_unchained()
8da5cb5b => owner()
715018a6 => renounceOwnership()
f2fde38b => transferOwnership(address)
d29d44ee => _transferOwnership(address)
91d14854 => hasRole(bytes32,address)
248a9ca3 => getRoleAdmin(bytes32)
2f2ff15d => grantRole(bytes32,address)
d547741f => revokeRole(bytes32,address)
36568abe => renounceRole(bytes32,address)

```





# Manual Analysis

Function	Description	Available	Status
<b>Total Supply</b>	provides information about the total token supply	Yes	Passed
<b>Balance Of</b>	provides account balance of the owner's account	Yes	Passed
<b>Transfer</b>	executes transfers of a specified number of tokens to a specified address	Yes	Passed
<b>Approve</b>	allow a spender to withdraw a set number of tokens from a specified account	Yes	Passed
<b>Allowance</b>	returns a set number of tokens from a spender to the owner	Yes	Passed
<b>Buy Back</b>	is an action in which the project buys back its tokens from the existing holders usually at a market price	Yes	Passed
<b>Burn</b>	executes transfers of a specified number of tokens to a burn address	Yes	Passed
<b>Mint</b>	executes the creation of a specified number of tokens and adds it to the total supply	Yes	! Low
<b>Contract Fees</b>	executes fee collection from swap events and/or transfer events	Yes	Passed
<b>Transfer Ownership</b>	executes transfer of contract ownership to a specified wallet	Yes	Passed
<b>Renounce Ownership</b>	executes transfer of contract ownership to a dead address	Yes	Passed



## Notable Information

- ❖ Smart contract utilizes upgradeable contracts. Contract upgradeability allows greater contract modification. Centralization risk related to contract upgradability is high.

```
contract Bettoearn is
    Initializable, ERC20Upgradeable, ERC20PermitUpgradeable,
    ERC20CappedUpgradeable, ERC20BurnableUpgradeable,
    OwnableUpgradeable, AccessControlUpgradeable {
```

```
using SafeMathUpgradeable for uint256;
```

- ❖ Smart contract utilizes `AccessControlUpgradeable` to grant and revoke role. Authorized wallets can modify some of the “write contract” functions. When ownership is transferred, previous authorizations should be nullified.

```
function grantRole(bytes32 role, address account) public virtual override
onlyRole(getRoleAdmin(role)) {
    _grantRole(role, account);
    function revokeRole(bytes32 role, address account) public virtual override
onlyRole(getRoleAdmin(role)) {
    _revokeRole(role, account);
```

- ❖ Smart contract can **mint** tokens after initial contract creation/deployment. Maximum cap is sent to limit token mint.

```
function cap() public view virtual returns (uint256) {
    return _cap;
    function _mint(address account, uint256 amount) internal virtual override {
        require(ERC20Upgradeable.totalSupply() + amount <= cap(), "ERC20Capped: cap exceeded");
        super._mint(account, amount);
```

- ❖ Smart contract owner can **change swapback settings**.

```
function setSwapBackSettings(bool status, uint256 amount) external onlyOwner {
    swapEnabled = status;
    swapThreshold = amount * 10**decimals();
```



- ❖ Smart contract owner can **burn user assets**. Allowance requirements must be met to use `burnFrom()`.

```
function burnFrom(address account, uint256 amount) public virtual {
    _spendAllowance(account, _msgSender(), amount);
    _burn(account, amount);
}
```

- ❖ Smart contract utilizes `SafeMathUpgradeable` to avoid common smart contract vulnerabilities.

```
string private _name = "BettoEarn";
library SafeMath {
    function add(uint256 a, uint256 b) internal pure returns (uint256) {
        uint256 c = a + b;
        require(c >= a, "SafeMath: addition overflow");
    }
    function sub(uint256 a, uint256 b) internal pure returns (uint256) {
        return sub(a, b, "SafeMath: subtraction overflow");
    }
    function mul(uint256 a, uint256 b) internal pure returns (uint256) {
        uint256 c = a * b;
        require(c / a == b, "SafeMath: multiplication overflow");
        return c;
    }
    function div(uint256 a, uint256 b) internal pure returns (uint256) {
        return div(a, b, "SafeMath: division by zero");
    }
    function mod(uint256 a, uint256 b) internal pure returns (uint256) {
        return mod(a, b, "SafeMath: modulo by zero");
    }
}
```

- ❖ Smart contract owner can call `receive()`, it is executed on a call to the contract with empty call data. This is the function that is executed on plain ether transfers such as `send()`, and `transfer()`. Make sure the contract can receive token through a regular transaction, and does not throw an exception.

```
receive() external payable {}
```

- ❖ Smart contract utilizes **sniper tax** to charge extra-ordinary tax for some blocks after launch-block. Sniper tax can be disabled at owner's peril.

```
if (sniperTaxEnabled) { return 99; }
```

```
function removeSniperTax() external onlyOwner {
    sniperTaxEnabled = false;
}
```



- ❖ Smart contract owner can **set tax tiers**.

```
function tierTaxStatus(bool value) external onlyOwner {
    tierTaxEnabled = value;
```

- ❖ Smart contract owner can **change transaction fees**. Maximum fee limits are set to allow the value change within the set parameters.

```
function setTaxes(uint256 newBuyTax, uint256 newSellTax, uint256 newTransferTax) external
onlyOwner {
    require(newBuyTax <= 10 && newSellTax <= 20 && newTransferTax <= 10);
```

- ❖ Smart contract owner can **set NFT contract**.

```
function setNFT(address _nft) external onlyOwner {
    nft = _nft;
```



.....

## Smart Contract Security Audit





# SWC Attacks

SWC ID	Description	Status
SWC-101	Integer Overflow and Underflow	Passed
SWC-102	Outdated Compiler Version	Passed
SWC-103	Floating Pragma	Passed
SWC-104	Unchecked Call Return Value	Passed
SWC-105	Unprotected Ether Withdrawal	Passed
SWC-106	Unprotected SELF-DESTRUCT Instruction	Passed
SWC-107	Re-entrancy	Passed
SWC-108	State Variable Default Visibility	Passed
SWC-109	Uninitialized Storage Pointer	Passed
SWC-110	Assert Violation	Passed
SWC-111	Use of Deprecated Solidity Functions	Passed
SWC-112	Delegate Call to Untrusted Callee	Passed
SWC-113	DoS with Failed Call	Passed
SWC-114	Transaction Order Dependence	Passed
SWC-115	Authorization through tx.origin	Passed
SWC-116	Block values as a proxy for time	Passed
SWC-117	Signature Malleability	Passed
SWC-118	Incorrect Constructor Name	Passed

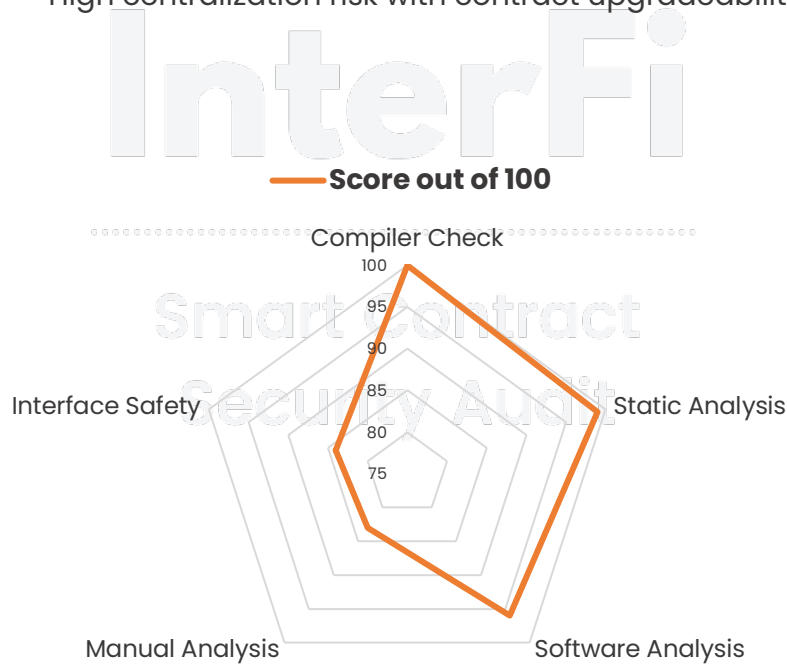


<b>SWC-119</b>	Shadowing State Variables	<b>Passed</b>
<b>SWC-120</b>	Weak Sources of Randomness from Chain Attributes	<b>Passed</b>
<b>SWC-121</b>	Missing Protection against Signature Replay Attacks	<b>Passed</b>
<b>SWC-122</b>	Lack of Proper Signature Verification	<b>Passed</b>
<b>SWC-123</b>	Requirement Violation	<b>Passed</b>
<b>SWC-124</b>	Write to Arbitrary Storage Location	<b>Passed</b>
<b>SWC-125</b>	Incorrect Inheritance Order	<b>Passed</b>
<b>SWC-126</b>	Insufficient Gas Griefing	<b>Passed</b>
<b>SWC-127</b>	Arbitrary Jump with Function Type Variable	<b>Passed</b>
<b>SWC-128</b>	DoS With Block Gas Limit	<b>Passed</b>
<b>SWC-129</b>	Typographical Error	<b>Passed</b>
<b>SWC-130</b>	Right-To-Left-Override control character (U+202E)	<b>Passed</b>
<b>SWC-131</b>	Presence of unused variables	<b>! Informational</b>
<b>SWC-132</b>	Unexpected Ether balance	<b>Passed</b>
<b>SWC-133</b>	Hash Collisions With Multiple Variable Length Arguments	<b>Passed</b>
<b>SWC-134</b>	Message call with the hardcoded gas amount	<b>Passed</b>
<b>SWC-135</b>	Code With No Effects (Irrelevant/Dead Code)	<b>! Informational</b>
<b>SWC-136</b>	Unencrypted Private Data On-Chain	<b>Passed</b>



# Risk Status & Radar Chart

Risk Severity	Status
High	No high severity issues identified
Medium	No medium severity issues identified
Low	1 low severity issue identified
Informational	2 informational severity issues identified
Centralization Risk	Active contract ownership identified.
	High centralization risk with contract upgradeability



# Auditor's Verdict

InterFi team has performed a line-by-line manual analysis and automated review of smart contracts. Smart contracts were analyzed mainly for common contract vulnerabilities, exploits, and manipulation hacks. According to the audit:

- ❖ Bet to Earn's smart contract source code has **LOW RISK SEVERITY**
- ❖ Bet to Earn's smart contract has an **ACTIVE OWNERSHIP**
- ❖ Bet to Earn's smart contract utilizes upgradeable contracts. Contract upgradeability allows greater contract modification. Centralization risk related to contract upgradability is **HIGH**

# InterFi

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## Note for stakeholders

# Smart Contract Security Audit

- ❖ Be aware that active smart contract owner privileges constitute an elevated impact on smart contract safety and security.
- ❖ If the smart contract is not deployed on any blockchain at the time of the audit, the contract can be modified or altered before blockchain development. Verify contract's deployment status in the audit report.
- ❖ Make sure that the project team's KYC/identity is verified by an independent firm.
- ❖ Always check if the contract's liquidity is locked. A longer liquidity lock plays an important role in the project's longevity. It is recommended to have multiple liquidity providers.
- ❖ Examine the unlocked token supply in the owner, developer, or team's private wallets. Understand the project's tokenomics, and make sure the tokens outside of the LP Pair are vested or locked for a longer period.



# Important Disclaimer

InterFi Network provides contract development, testing, auditing and project evaluation services for blockchain projects. The purpose of the audit is to analyze the on-chain smart contract source code and to provide a basic overview of the project. **This report should not be transmitted, disclosed, referred to, or relied upon by any person for any purpose without InterFi's prior written consent.**

InterFi provides the easy-to-understand assessment of the project, and the smart contract (otherwise known as the source code). The audit makes no statements or warranties on the security of the code. It also cannot be considered as enough assessment regarding the utility and safety of the code, bug-free status, or any other statements of the contract. While we have used all the data at our disposal to provide the transparent analysis, it is important to note that you should not rely on this report only – we recommend proceeding with several independent audits and a public bug bounty program to ensure the security of smart contracts. **Be aware that smart contracts deployed on a blockchain aren't resistant to external vulnerability, or a hack. Be aware that active smart contract owner privileges constitute an elevated impact on smart contract safety and security. Therefore, InterFi does not guarantee the explicit security of the audited smart contract.**

The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.

**This report should not be considered as an endorsement or disapproval of any project or team.**

The information provided in this report does not constitute investment advice, financial advice, trading advice, or any other sort of advice and you should not treat any of the report's content as such. Do conduct your due diligence and consult your financial advisor before making any investment decisions.



# About InterFi Network

InterFi Network provides intelligent blockchain solutions. InterFi is developing an ecosystem that is seamless and responsive. Some of our services: Blockchain Security, Token Launchpad, NFT Marketplace, etc. **InterFi's mission is to interconnect multiple services like Blockchain Security, DeFi, Gaming, and Marketplace under one ecosystem that is seamless, multi-chain compatible, scalable, secure, fast, responsive, and easy to use.**

InterFi is built by a decentralized team of UI experts, contributors, engineers, and enthusiasts from all over the world. Our team currently consists of 6+ core team members, and 10+ casual contributors. **InterFi provides manual, static, and automatic smart contract analysis, to ensure that project is checked against known attacks and potential vulnerabilities.**

To learn more, visit <https://interfi.network>

To view our audit portfolio, visit <https://github.com/interfinetwork>

To book an audit, message <https://t.me/interfiaudits>





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