



RugFreeCoins Audit



Petoverse Token

Smart Contract Security Audit

April 11, 2022

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Audit details



Audited project
Petoverse Token



Contract Address
0x1E588c8B7d6Ae34D95CC468D212B7c720f3Ba98A



Client contact
Petoverse Token Team



Blockchain
Binance smart chain



Project website

Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at 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 us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the disclaimer below – please make sure to read it in full.

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Background

Rugfreecoins was commissioned by the Petoverse Team to perform an audit of the smart contract.

<https://bscscan.com/token/0x1e588c8b7d6ae34d95cc468d212b7c720f3ba98a>

The focus of this audit is to verify that the smart contract is secure, resilient, and working according to the specifications.

The information in this report should be used to understand the risk exposure of the smart contract, project feasibility, long-term sustainability, and as a guide to improving the security posture of the smart contract by remediating the issues that were identified.

About the project

Petoverse Token is a token built on the Binance Smart Chain that is with an innovative investment use case the main purpose of which is to seek out constant revenue sources, **auto staking protocol backed by Defi 3.0 yield farming** on BSC. Petoverse will bring an unparalleled, fixed APY of **2,087,120.50%, the highest of its kind** onto the BSC blockchain, while imposing profound ease, simplicity, and accessibility upon all Petoverse holders. Each transaction, purchase incurs 16% fee, and sale incurs a 18% fee

Features

- 3% of the buy and sales fees are directed to the Peto insurance which helps sustain and back the Staking Rewards provided by the Positive Rebase. Tokens will be swapped to BNB and sent to Peto insurance fund wallet.
- The sustainability fee of 2% when buying and 4% when selling for vault, which is allocated for game treasury is what allows Petoverse Token to hold the aforementioned promise. Tokens will be swapped into BNB and will be sent to the treasury wallet. This way, Petoverse Token will have enough funds to promote the coin and spend for future development without selling tokens as the traditional way.
- The additional component included under the sustainability section is a liquidity fee of 3% when buying and selling, which is a redistribution mechanism that ensures the trading pool always has sufficient liquidity.
- 8% of all Petoverse tokens traded are burnt in the Inferno Pit. The more that is traded, the more get put into the fire causing the fire pit to grow in size, larger and larger through self-fulfilling auto-compounding which in return acts to reduce the circulating supply of Petoverse and keeps the Petoverse stable.

Roadmap

Phase 1:

- Foundational Phase: Token Concept Development
- Foundational Phase: Game Concept Development
- Foundational Phase: Website Development
- Foundational Phase: Writing and Editing of Whitepaper
- Foundational Phase: Smart Contract Development
- Foundational Phase: Game Development
- Deploying Stage: Smart Contract Release
- Foundational Phase: Full Audit for Smart Contract
- Foundational Phase: NFT Concept Development
- Deploying Phase: Website Launch
- Deploying Phase: RugFreeCoins Audit
- Deploying Phase: RugDoc KYC
- Deploying Phase: Press Release Marketing about Project
- Fair Launch Presale
- Launch

Phase 2:

- Building Phase: Final Development of Game
- Building Phase: Final Development of NFTs
- Deploying Phase: Game Alpha Release
- Deploying Phase: Press Release Marketing about Game and NFTs
- Deploying Phase: Twitter Marketing
- Deploying Phase: YouTube Marketing
- CoinMarketCap Listing
- CoinGecko Listing
- CEX Listing
- Deploying Phase: \$PETOGEM Release
- Deploying Phase: NFT Marketplace
- 10,000 \$PETO holders
- 10 million Market Cap

Phase 3:

- Building Phase: P2E Function in Final Development
- Building Phase: Integration of Minted Items in the Blockchain
- Deploying Phase: P2E Function Available
- Certik Audit
- Deploying Phase: YouTube and Twitter Marketing Campaign
- Building Phase: Multiplayer and PvP Function in Final Development
- Deploying Phase: Multiplayer Zone Available
- Deploying Phase: PVP Available
- 15 million Market Cap
- 20,000 \$PETO holders

Phase 4:

- Building Phase: Petaverse Plaza and Metaverse in Final Development
- Deploying Phase: Petaverse Plaza Available
- Deploying Phase: Metaverse Available
- Deploying Phase: New Maps
- Next Phase Development
- Building Phase: Customized Merchandise
- Building Phase: Expansion of the Petaverse World
- 20 million Market Cap
- 25,000 \$PETO holders

Tokenomics

16% fee when buying

- 3% of trade goes to insurance fund in BNB
- 2% of trade goes to the vault in BNB for game treasury
- 8% trade goes to the Inferno wallet
- 3% of trade goes to the liquidity pool.

18% fee when selling

- 3% of trade goes to freedom insurance fund in BNB
- 4% of trade goes to the vault in BNB for game treasury
- 8% trade goes to the Inferno wallet
- 3% of trade goes to the liquidity pool.

Target market and the concept

Target market

- Anyone who's interested in the Crypto space with long-term investment plans.
- Anyone who's ready to earn a passive income by holding tokens.
- Anyone who's interested in trading tokens.
- Anyone who's interested in taking part with P2E game and earn rewards.
- Anyone who's interested in trading NFTs
- Anyone who's ready in receiving automatic staking and compound rewards every 15 minutes.
- Anyone who's interested in receiving fixed interest of 0.0283% per 15 minutes and 2,087,120.50% per year.
- Anyone who's interested in taking part with the future plans of the Petoverse token.
- Anyone who's interested in making financial transactions with any other party using Petoverse as the currency.

Core concept

Reward mechanism

3% of all trading fees are stored in the insurance fund which helps sustain and back the staking rewards provided by the positive rebase.

Petoverse fund is a separate wallet in the ecosystem. The Petoverse fund uses an algorithm that backs the Rebase Rewards and is supported by a portion of the buy and sell trading fees that accrue in the wallet.

In simple terms, the staking rewards (rebase rewards) which are distributed every 15 minutes at a rate of 0.0283% are backed by the Petoverse parameter, thus ensuring a high and stable interest rate for Petoverse holders.

Sustainable mechanism

The sustainability fee of 2% when buying and 4% selling for game treasury allocated for game development is what allows Petoverse to promote the token and use funds to further the development of the platform. Tokens will be swapped into BNB and will be sent to a vault wallet. This way, Petoverse will have access to the funds without selling tokens as the traditional way, which will enable them to consume funds without hurting the project.

The liquidity fee of 3% when buying and selling, is a redistribution mechanism that ensures the trading pool always has sufficient liquidity.

8% of Petoverse tokens from buying and selling traded are burnt in **inferno**. The more that is traded, the more get put into the fire causing the fire pit to grow in size, larger and larger through self-fulfilling Auto-Compounding, reducing the circulating supply and keeping the Petoverse table. Manual burn is scheduled to happen as per the concept.

Vision

Vision is to provide a magical experience to each user in every gameplay. We also aim to be the game of the year when our full game is released.

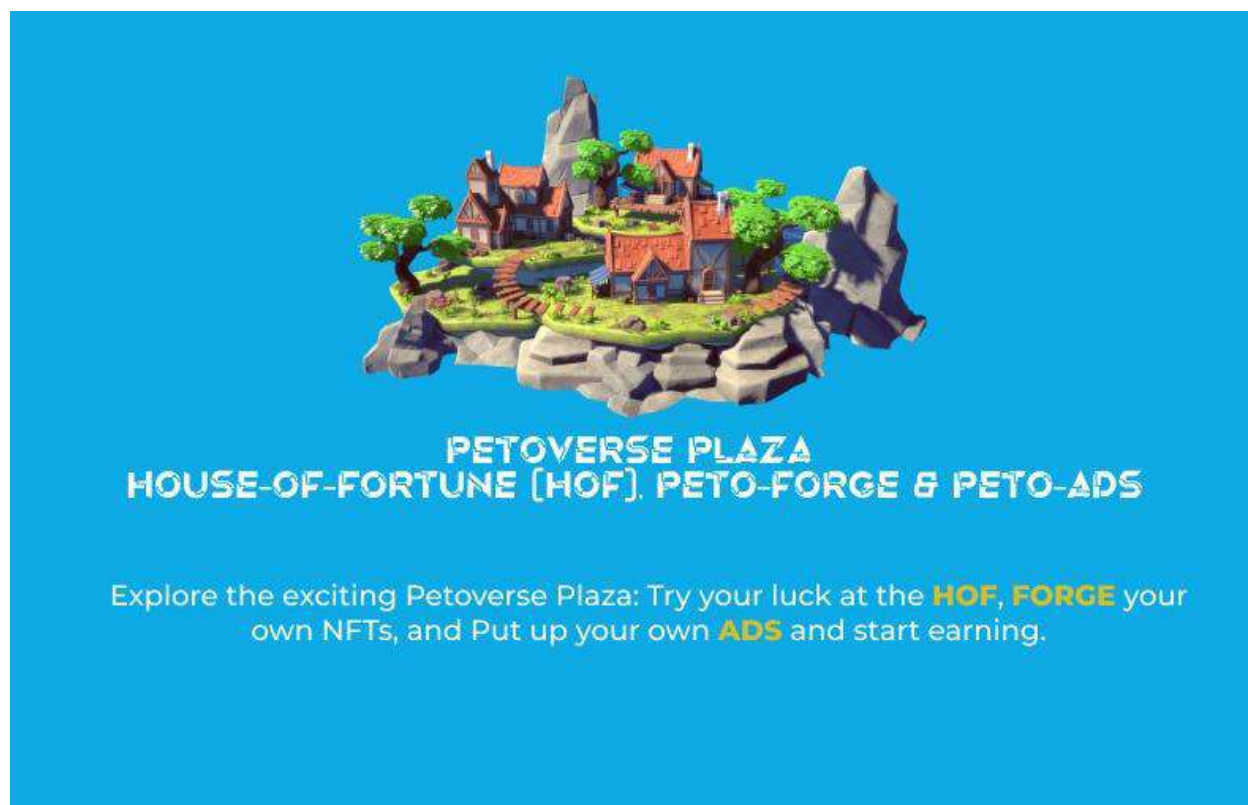
Mission

Mission is to bring our vision into reality! We aim to create a Virtual Reality World as a means to escape reality and interact with different kinds of people, in-game, from all over the world.

Metaverse

Petoverse is a virtual reality MMORPG universe within the MetaVerse world with a unique adventure featuring our lovely pets in their journey to travel around the Petoverse.

Petoverse Plaza: The heart of the game



The Petoverse Plaza will be the hub of the Metaverse world where the player's avatars are extensions of the player's minds and bodies. This will be the heart of the game as players can create guilds, form communities, create income, craft clothes, and mint or sell their items.

Here are the 5 places that are available within the City Plaza:

1. Marketplace

The transactional hub for all things in the game. This is where you can sell, buy, or auction your costume sets. The Marketplace will be the place to be if you want to buy or sell your items.

2. House Of Fortune (HOF)

The House Of Fortune (HOF) is where you can win awesome prizes like costume sets or money! There will be fun games that you can participate in at the HOF.

3. Tavern

This is where guilds can be formed and users able to commune. Ten to twenty members are allowed per guild where you can create and grow your community. All while chilling and relaxing your way through the space.

4. Fashion Mall

The players can buy fashion-related items in the Fashion Mall. Create and Experiment with your style in the Fashion Mall.

5. Peto-Forge

The player can mint all of their unique and cool items in the Peto-Forge. The items they mint will be forever integrated with the blockchain.



The Petaverse Plaza will also host another awesome feature called Peto-Ads. Peto-Ads is a way for Players to run ads in the Petaverse Plaza. This way, the gamer can be a businessmen or businesswomen and advertise their product within the Metaverse. Allowing you to garner attention to your product and grow your business; thus, increasing your income.

Petaverse Dungeon

This is one of the most fun parts of the Petaverse Metaverse, Petaverse also has a very exciting Dungeon that you and your friends can conquer. Every great hero will always face hardship in their conquest. But none of the conquests are as fun as this one.

1. The Undead's Palace



2. The Ancient Dungeon



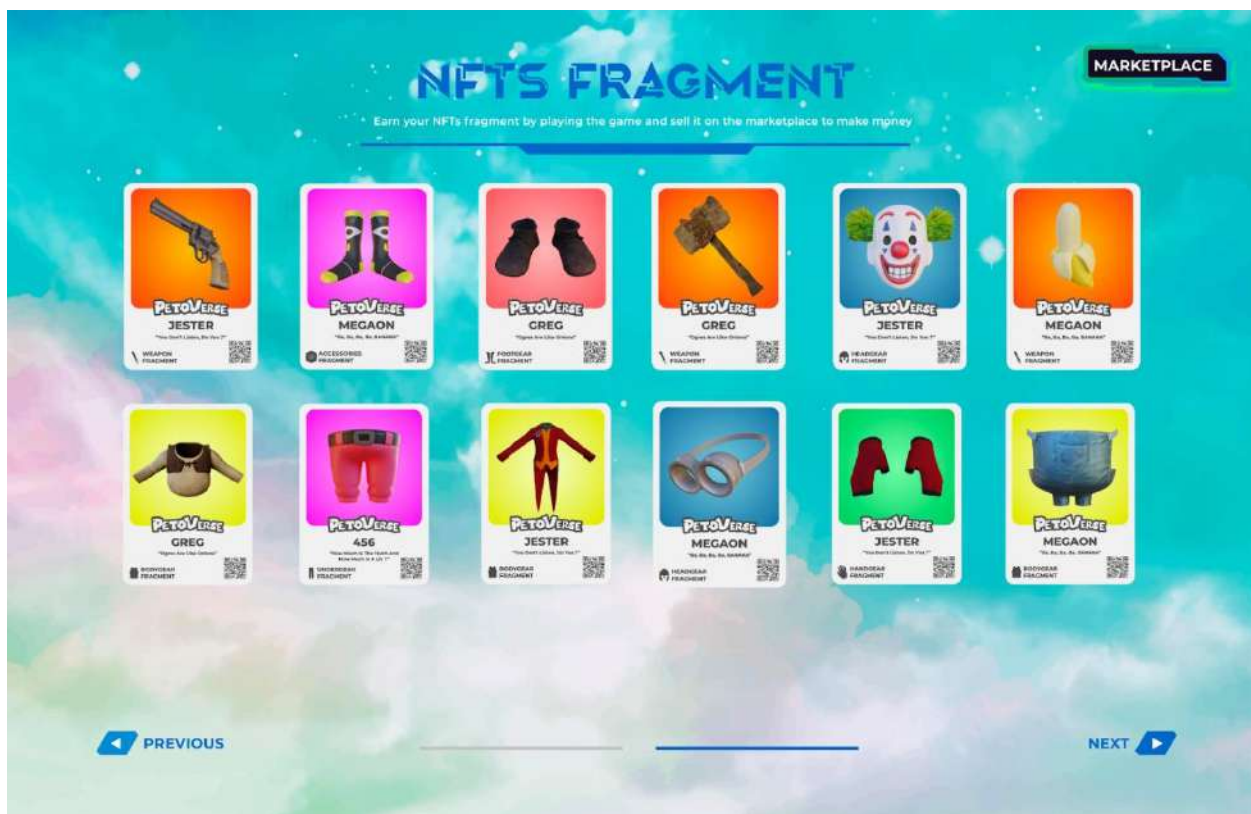
3. Tribe Forestry Jungle



4. Amazonia Forest



NFTs



The NFT has been growing and continues to do so at a very rapid rate. Petoverse is looking to capitalize on this ever-growing market while continuously adding more to Petoverse.

Petoverse will also have a vast variety of NFTs in our NFT marketplace. You can Mix and Match the NFTs and give flair to your costume. The NFTs in Petoverse will also be a source of income for you. You can buy and sell your NFTs for potential profits and earn even more money for yourself.

The ways you can utilize the NFTs in Petoverse are as follows:

- **Costume** – The players will have the freedom to mix and match all the NFT fragments based on the preferences the player has. The more stylish you make it, the more unique and fun it is.
- **Boost** – The complete set of NFT will serve as an in-game boost for the player. There are many kinds of boosts such as Revive, power-ups, etc. This will enhance the gameplay to the next level.
- **A key to starting to earn**

Potential to grow with score points

1.	Project efficiency	10/10
2.	Project uniqueness	10/10
3	Information quality	9/10
4	Service quality	10/10
5	System quality	9/10
6	Impact on the community	10/10
7	Impact on the business	10/10
8	Preparing for the future	9/10
Total Points		9.625/10

Contract details

Token contract details for 11th April 2022

Contract name	Petoverse
Contract address	0x1E588c8B7d6Ae34D95CC468D212B7c720f3Ba98A
Token supply	800,000
Token ticker	PETO
Decimals	5
Token holders	2
Transaction count	2
Auto liquidity receiver	0x00dead
Game treasury wallet	0x899c1ea464cb367a2ceddd354fd07559aad9200d
InfernoPit	0x00
Petro Insurance Fund Receiver	0x8fcfa51b56d2d320b7e2e4de5f0ef9c18cd26432
Contract deployer address	0xc5343208819F9Ef830e471E8Cf3d79cb994B7590
Contract's current owner address	0x176e72121395f7f9d05b6fc86d175eac8e2dafa1

Contract code function details







No	Category	Item	Result
1	Coding conventions	BRC20 Token standards	pass
		compile errors	pass
		Compiler version security	pass
		visibility specifiers	pass
		Gas consumption	pass
		SafeMath features	pass
		Fallback usage	pass
		tx.origin usage	pass
		deprecated items	pass
		Redundant code	pass
		Overriding variables	pass
2	Function call audit	Authorization of function call	pass
		Low level function (call/delegate call) security	pass
		Returned value security	pass
		Selfdestruct function security	pass
3	Business security	Access control of owners	pass
		Business logics	pass
		Business implementations	pass
4	Integer overflow/underflow		pass
5	Reentrancy		pass
6	Exceptional reachable state		pass
7	Transaction ordering dependence		pass
8	Block properties dependence		pass
9	Pseudo random number generator (PRNG)		pass
10	DoS (Denial of Service)		pass
11	Token vesting implementation		pass










12	Fake deposit		pass
13	Event security		pass








Contract description table










The below table represents the summary of the contracts and methods in the token contract. We scanned the whole contract and listed down all the Interfaces, functions, and implementations with their visibility and mutability.





















Contract	Type	Bases		
L	Function Name	Visibility	Mutability	Modifiers
SafeMathInt	Library			
L	mul	Internal 🔒		
L	div	Internal 🔒		
L	sub	Internal 🔒		
L	add	Internal 🔒		
L	abs	Internal 🔒		
SafeMath	Library			
L	add	Internal 🔒		
L	sub	Internal 🔒		
L	sub	Internal 🔒		
L	mul	Internal 🔒		
L	div	Internal 🔒		
L	div	Internal 🔒		
L	mod	Internal 🔒		









































IERC20	Interface			
L	totalSupply	External !		NO!
L	balanceOf	External !		NO!
L	allowance	External !		NO!
L	transfer	External !		NO!
L	approve	External !		NO!
L	transferFrom	External !		NO!
IPancake SwapPair	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!
IPancake SwapRouter	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!
L	removeLiquidityETHSupportingFeeOnTransferTokens	External !		NO!
L	removeLiquidityETHWithPermitSupportingFeeOnTransferTokens	External !		NO!
L	swapExactTokensForTokensSupportingFeeOnTransferTokens	External !		NO!
L	swapExactETHForTokensSupportingFeeOnTransferTokens	External !		NO!
L	swapExactTokensForETHSupportingFeeOnTransferTokens	External !		NO!



IPancake SwapFactory	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!
Ownable	Implementation			
L		Public !		NO!
L	owner	Public !		NO!
L	isOwner	Public !		NO!
L	renounceOwnership	Public !		onlyOwner
L	transferOwnership	Public !		onlyOwner
L	_transferOwnership	Internal 		
ERC20Detailed	Implementation	IERC20		
L		Public !		NO!
L	name	Public !		NO!

L	symbol	Public !		NO!
L	decimals	Public !		NO!
IPinkAntiBot	Interface			
L	setTokenOwner	External !		NO!
L	onPreTransferCheck	External !		NO!
Petoverse	Implementation	ERC20 Detailed, Ownable		
L		Public !		ERC20Detailed Ownable
L	rebase	Internal 		
L	transfer	External !		validRecipient
L	transferFrom	External !		validRecipient
L	_basicTransfer	Internal 		
L	_transferFrom	Internal 		
L	takeFee	Internal 		
L	addLiquidity	Internal 		swapping
L	swapBack	Internal 		swapping
L	withdrawAllToGameTreasury	External !		swapping onlyOwner
L	shouldTakeFee	Internal 		
L	shouldRebase	Internal 		

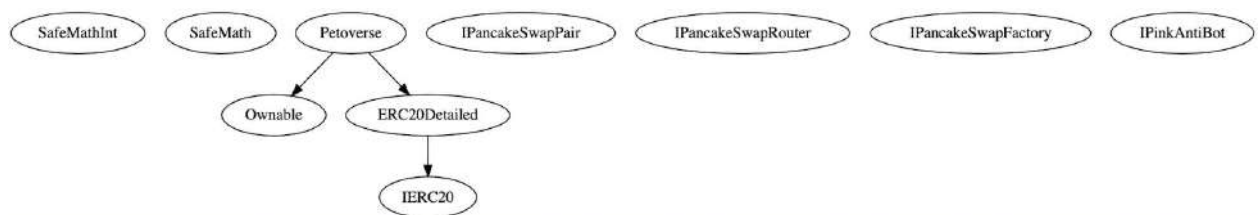
L	shouldAddLiquidity	Internal 		
L	shouldSwapBack	Internal 		
L	setAutoRebase	External 		onlyOwner
L	setAutoAddLiquidity	External 		onlyOwner
L	allowance	External 		NO 
L	decreaseAllowance	External 		NO 
L	increaseAllowance	External 		NO 
L	approve	External 		NO 
L	checkFeeExempt	External 		NO 
L	getCirculatingSupply	Public 		NO 
L	isNotInSwap	External 		NO 
L	manualSync	External 		NO 
L	setFeeReceivers	External 		onlyOwner
L	setFee	External 		onlyOwner
L	getLiquidityBacking	Public 		NO 
L	setWhitelist	External 		onlyOwner
L	setBotBlacklist	External 		onlyOwner
L	totalSupply	External 		NO 
L	balanceOf	External 		NO 
L	isContract	Internal 		
L	setAntiBotEnabled	External 		onlyOwner

L	setAntiBot	External !		onlyOwner
L		External !		NO!

Legend

Symbol	Meaning
	Function can modify state
	Function is payable

Inheritance Hierarchy



Security issue checking status

- **High severity issues**

No High severity issues found.

- **Medium severity issues**

No medium severity issues found

- **Low severity issues**

No low severity issues found

- **Centralization risk**

No Centralization issues found

Owner privileges

- ❖ The owner can withdraw tokens in contract by swapping them into BNB

```
ftrace | funcSig
function withdrawAllToGameTreasury() external swapping onlyOwner {
    uint256 amountToSwap = gonBalances[address(this)].div(
        gonsPerFragment
    );
    require(
        amountToSwap > 0,
        "There is no token deposited in token contract"
    );
    address[] memory path = new address[](2);
    path[0] = address(this);
    path[1] = router.WETH();
    router.swapExactTokensForETHSupportingFeeOnTransferTokens(
        amountToSwap,
        0,
        path,
        gameTreasuryReceiver,
        block.timestamp
    );
}
```

- ❖ The owner can enable/disable rebase

```
ftrace | funcSig
function setAutoRebase(bool _flag) external onlyOwner {
    if (_flag) {
        _autoRebase = _flag;
        _lastRebasedTime = block.timestamp;
    } else {
        _autoRebase = _flag;
    }
}
```

- ❖ The owner can enable/disable auto liquidity adding

```
ftrace | funcSig
function setAutoAddLiquidity(bool _flag↑) external onlyOwner {
    if(_flag↑) {
        autoAddLiquidity = _flag↑;
        lastAddLiquidityTime = block.timestamp;
    } else {
        autoAddLiquidity = _flag↑;
    }
}
```

- ❖ The owner can change all fee receiver wallet address

```
ftrace | funcSig
function setFeeReceivers(
    address _gameTreasuryReceiver↑,
    address _petoInsuranceFundReceiver↑,
    address _infernoPit↑
) external onlyOwner {
    gameTreasuryReceiver = _gameTreasuryReceiver↑;
    petoInsuranceFundReceiver = _petoInsuranceFundReceiver↑;
    infernoPit = _infernoPit↑;
}
```

- ❖ The owner can exclude wallet from fees (once excluded cannot include them again)

```
ftrace | funcSig
function setWhitelist(address _addr↑) external onlyOwner {
    _isFeeExempt[_addr↑] = true;
}
```

- ❖ The owner can add/remove contracts from blacklist

```
ftrace | funcSig
function setBotBlacklist(address _botAddress↑, bool _flag↑) external onlyOwner {
    require(isContract(_botAddress↑), "only contract address, not allowed exteranlly owned account");
    blacklist[_botAddress↑] = _flag↑;
}
```

- ❖ The owner can change pair address and pair contract

```
ftrace | funcSig
function setPairAddress(address _pairAddress↑) public onlyOwner {
    pairAddress = _pairAddress↑;
}

ftrace | funcSig
function setLP(address _address↑) external onlyOwner {
    pairContract = IPancakeSwapPair(_address↑);
}
```

- ❖ The owner can change all fees maximum up to 25%

```
ftrace | funcSig
function setFee(
    uint256 _liquidityFee↑,
    uint256 _gameTreasuryFee↑,
    uint256 _petoInsuranceFundFee↑,
    uint256 _infernoPitFee↑,
    uint256 _sellFee↑
) external onlyOwner {
    liquidityFee = _liquidityFee↑;
    gameTreasuryFee = _gameTreasuryFee↑;
    petoInsuranceFundFee = _petoInsuranceFundFee↑;
    infernoPitFee = _infernoPitFee↑;
    totalFee = liquidityFee
        .add(gameTreasuryFee)
        .add(petoInsuranceFundFee)
        .add(infernoPitFee);
    sellFee = _sellFee↑;
    require(totalFee.add(sellFee) <= 250, "Fee too high!");
}
```

- ❖ Owner can enable/disable pink anti bot and can change antibot address

```
ftrace | funcSig
function setAntiBotEnabled(bool _enable↑) external onlyOwner {
    antiBotEnabled = _enable↑;
}

ftrace | funcSig
function setAntiBot(IPinkAntiBot _antibot↑, bool withInitialize↑)
    external
    onlyOwner
{
    pinkAntiBot = _antibot↑;
    if (withInitialize↑) pinkAntiBot.setTokenOwner(owner());
}
```

Audit conclusion

RugFreeCoins team has performed in-depth testings, line by line manual code review, and automated audit of the smart contract. The smart contract was analyzed mainly for common smart contract vulnerabilities, exploits, manipulations, and hacks. According to the smart contract audit.

Smart contract functional Status: **PASSED**

Number of risk issues: **0**

Solidity code functional issue level: **PASSED**

Number of owner privileges: **7**

Centralization risk correlated to the active owner: **LOW**

Smart contract active ownership: **YES**