



Cyberscope

# Audit Report

## **Pinocchio Inu**

April 2023

Network    BSC

Address    0x1A448533a800A905A8c060cD2dAe3f11b255E70c

Audited by    © cyberscope

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## Review

|                  |   |
|------------------|---|
| Contract Name    | BABYTOKEN   |
| Compiler Version | v0.8.4+commit.c7e474f2  |
| Optimization     | 200 runs  |
| Explorer         | <a href="https://bscscan.com/address/0x1a448533a800a905a8c060cd2dae3f11b255e70c">https://bscscan.com/address/0x1a448533a800a905a8c060cd2dae3f11b255e70c</a> |
| Address          | 0x1a448533a800a905a8c060cd2dae3f11b255e70c  |
| Network          | BSC   |
| Symbol           | PINO  |
| Decimals         | 18  |
| Total Supply     | 420,000,000,000,000   |

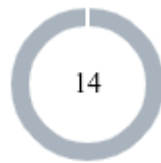
## Audit Updates

|               |             |
|---------------|-------------|
| Initial Audit | 24 Apr 2023 |
|---------------|-------------|

## Source Files

|               |  |
|---------------|--|
| Filename      | SHA256   |
| BABYTOKEN.sol | 6f8bb40aade0a7b56d07b8c6976c2bdb08604c981b070a8fb6e69c9381883ce1 |

## Findings Breakdown



|                       |    |
|-----------------------|----|
| ● Critical            | 0  |
| ● Medium              | 0  |
| ● Minor / Informative | 14 |

| Severity              | Unresolved | Acknowledged | Resolved | Other |
|-----------------------|------------|--------------|----------|-------|
| ● Critical            | 0          | 0            | 0        | 0     |
| ● Medium              | 0          | 0            | 0        | 0     |
| ● Minor / Informative | 14         | 0            | 0        | 0     |

# Analysis

● Critical ● Medium ● Minor / Informative ● Pass

| Severity | Code | Description                        | Status |
|----------|------|------------------------------------|--------|
| ●        | ST   | Stops Transactions                 | Passed |
| ●        | OCTD | Transfers Contract's Tokens        | Passed |
| ●        | OTUT | Transfers User's Tokens            | Passed |
| ●        | ELFM | Exceeds Fees Limit                 | Passed |
| ●        | ULTW | Transfers Liquidity to Team Wallet | Passed |
| ●        | MT   | Mints Tokens                       | Passed |
| ●        | BT   | Burns Tokens                       | Passed |
| ●        | BC   | Blacklists Addresses               | Passed |

# Diagnostics

● Critical ● Medium ● Minor / Informative

| Severity | Code | Description                                | Status     |
|----------|------|--|------------|
| ●        | PVC  | Price Volatility Concern                   | Unresolved |
| ●        | RSML | Redundant SafeMath Library                 | Unresolved |
| ●        | RSK  | Redundant Storage Keyword                  | Unresolved |
| ●        | IDI  | Immutable Declaration Improvement          | Unresolved |
| ●        | L04  | Conformance to Solidity Naming Conventions | Unresolved |
| ●        | L05  | Unused State Variable                      | Unresolved |
| ●        | L07  | Missing Events Arithmetic                  | Unresolved |
| ●        | L09  | Dead Code Elimination                      | Unresolved |
| ●        | L12  | Using Variables before Declaration         | Unresolved |
| ●        | L14  | Uninitialized Variables in Local Scope     | Unresolved |
| ●        | L15  | Local Scope Variable Shadowing             | Unresolved |
| ●        | L16  | Validate Variable Setters                  | Unresolved |
| ●        | L17  | Usage of Solidity Assembly                 | Unresolved |
| ●        | L20  | Succeeded Transfer Check                   | Unresolved |

## PVC - Price Volatility Concern

|             |                     |
|-------------|---------------------|
| Criticality | Minor / Informative |
| Location    | BABYTOKEN.sol#L2931 |
| Status      | Unresolved          |

### Description

The contract accumulates tokens from the taxes to swap them for ETH. The variable `swapTokensAtAmount` sets a threshold where the contract will trigger the swap functionality. If the variable is set to a big number, then the contract will swap a huge amount of tokens for ETH.

It is important to note that the price of the token representing it, can be highly volatile. This means that the value of a price volatility swap involving Ether could fluctuate significantly at the triggered point, potentially leading to significant price volatility for the parties involved.

```
function setSwapTokensAtAmount(uint256 amount) external onlyOwner {
    require(
        amount > totalSupply() / 10**5,
        "BABYTOKEN: Amount must be greater than 0.001% of total supply"
    );
    swapTokensAtAmount = amount;
}
```

### Recommendation

The contract could ensure that it will not sell more than a reasonable amount of tokens in a single transaction. A suggested implementation could check that the maximum amount should be less than a fixed percentage of the total supply. Hence, the contract will guarantee that it cannot accumulate a huge amount of tokens in order to sell them.



## RSML - Redundant SafeMath Library

|             |                     |
|-------------|---------------------|
| Criticality | Minor / Informative |
| Location    | BABYTOKEN.sol       |
| Status      | Unresolved          |

### Description

SafeMath is a popular Solidity library that provides a set of functions for performing common arithmetic operations in a way that is resistant to integer overflows and underflows.

Starting with Solidity versions that are greater than or equal to 0.8.0, the arithmetic operations revert to underflow and overflow. As a result, the native functionality of the Solidity operations replaces the SafeMath library. Hence, the usage of the SafeMath library adds complexity, and overhead and increases gas consumption unnecessarily.

```
library SafeMath {...}
```

### Recommendation

The team is advised to remove the SafeMath library. Since the version of the contract is greater than `0.8.0` then the pure Solidity arithmetic operations produce the same result.

If the previous functionality is required, then the contract could exploit the `unchecked { ... }` statement.

Read more about the breaking change at

<https://docs.soliditylang.org/en/v0.8.16/080-breaking-changes.html#solidity-v0-8-0-breaking-changes>.

## RSK - Redundant Storage Keyword

|             |                                    |
|-------------|------------------------------------|
| Criticality | Minor / Informative                |
| Location    | BABYTOKEN.sol#L2150,2154,2165,2173 |
| Status      | Unresolved                         |

### Description

The contract uses the `storage` keyword in a view function. The `storage` keyword is used to persist data on the contract's storage. View functions are functions that do not modify the state of the contract and do not perform any actions that cost gas (such as sending a transaction). As a result, the use of the `storage` keyword in view functions is redundant.

Map `storage` map

### Recommendation

It is generally considered good practice to avoid using the `storage` keyword in view functions because it is unnecessary and can make the code less readable.

## IDI - Immutable Declaration Improvement

|                    |                                    |
|--------------------|------------------------------------|
| <b>Criticality</b> | Minor / Informative                |
| <b>Location</b>    | BABYTOKEN.sol#L2871,2892,2904,2905 |
| <b>Status</b>      | Unresolved                         |

### Description

The contract is using variables that initialize them only in the constructor. The other functions are not mutating the variables. These variables are not defined as `immutable`.

```
rewardToken  
dividendTracker  
uniswapV2Router  
uniswapV2Pair
```

### Recommendation

By declaring a variable as immutable, the Solidity compiler is able to make certain optimizations. This can reduce the amount of storage and computation required by the contract, and make it more gas-efficient.

## L04 - Conformance to Solidity Naming Conventions

|                    |  |
|--------------------|--|
| <b>Criticality</b> | Minor / Informative  |
| <b>Location</b>    | BABYTOKEN.sol#L1150,1534,1538,1547,1605,1610,1912,1944,1949,1993,2016,2017,2034,2305,2325,2326,2327,2328,2387,2394,2406,2420,2591,2823 |
| <b>Status</b>      | Unresolved   |

### Description

The Solidity style guide is a set of guidelines for writing clean and consistent Solidity code. Adhering to a style guide can help improve the readability and maintainability of the Solidity code, making it easier for others to understand and work with.

The followings are a few key points from the Solidity style guide:

1. Use camelCase for function and variable names, with the first letter in lowercase (e.g., myVariable, updateCounter).
2. Use PascalCase for contract, struct, and enum names, with the first letter in uppercase (e.g., MyContract, UserStruct, ErrorEnum).
3. Use uppercase for constant variables and enums (e.g., MAX\_VALUE, ERROR\_CODE).
4. Use indentation to improve readability and structure.
5. Use spaces between operators and after commas.
6. Use comments to explain the purpose and behavior of the code.
7. Keep lines short (around 120 characters) to improve readability.

```
function WETH() external pure returns (address);

function __Context_init() internal initializer {
    __Context_init_unchained();
}

function __Context_init_unchained() internal initializer {
}

uint256[50] private __gap

function __ERC20_init(string memory name_, string memory symbol_) internal
initializer {
    __Context_init_unchained();
    __ERC20_init_unchained(name_, symbol_);
}

...
```

## Recommendation

By following the Solidity naming convention guidelines, the codebase increased the readability, maintainability, and makes it easier to work with.

Find more information on the Solidity documentation

<https://docs.soliditylang.org/en/v0.8.17/style-guide.html#naming-convention>.

## L05 - Unused State Variable

|                    |                          |
|--------------------|--------------------------|
| <b>Criticality</b> | Minor / Informative      |
| <b>Location</b>    | BABYTOKEN.sol#L1993,2062 |
| <b>Status</b>      | Unresolved               |

### Description

An unused state variable is a state variable that is declared in the contract, but is never used in any of the contract's functions. This can happen if the state variable was originally intended to be used, but was later removed or never used.

Unused state variables can create clutter in the contract and make it more difficult to understand and maintain. They can also increase the size of the contract and the cost of deploying and interacting with it.

```
uint256[49] private __gap  
int256 private constant MAX_INT256 = ~(int256(1) << 255)
```

### Recommendation

To avoid creating unused state variables, it's important to carefully consider the state variables that are needed for the contract's functionality, and to remove any that are no longer needed. This can help improve the clarity and efficiency of the contract.

## L07 - Missing Events Arithmetic

|                    |                                    |
|--------------------|------------------------------------|
| <b>Criticality</b> | Minor / Informative                |
| <b>Location</b>    | BABYTOKEN.sol#L2936,2971,2976,2982 |
| <b>Status</b>      | Unresolved                         |

### Description

Events are a way to record and log information about changes or actions that occur within a contract. They are often used to notify external parties or clients about events that have occurred within the contract, such as the transfer of tokens or the completion of a task.

It's important to carefully design and implement the events in a contract, and to ensure that all required events are included. It's also a good idea to test the contract to ensure that all events are being properly triggered and logged.

```
swapTokensAtAmount = amount
totalFees = tokenRewardsFee.add(liquidityFee).add(marketingFee)
liquidityFee = value
marketingFee = value
```

### Recommendation

By including all required events in the contract and thoroughly testing the contract's functionality, the contract ensures that it performs as intended and does not have any missing events that could cause issues with its arithmetic.

## L09 - Dead Code Elimination

|             |  |
|-------------|--|
| Criticality | Minor / Informative  |
| Location    | BABYTOKEN.sol#L416,845,859,879,943,968,978,997,1011,1030,1040,1057,1067,1084,1534,1777,2108,2439 |
| Status      | Unresolved   |

### Description

In Solidity, dead code is code that is written in the contract, but is never executed or reached during normal contract execution. Dead code can occur for a variety of reasons, such as:

- Conditional statements that are always false.
- Functions that are never called.
- Unreachable code (e.g., code that follows a return statement).

Dead code can make a contract more difficult to understand and maintain, and can also increase the size of the contract and the cost of deploying and interacting with it.

```
function _burn(address account, uint256 amount) internal virtual {
    require(account != address(0), "ERC20: burn from the zero address");

    _beforeTokenTransfer(account, address(0), amount);

    uint256 accountBalance = _balances[account];
    ...
}
_totalSupply -= amount;

emit Transfer(account, address(0), amount);

_afterTokenTransfer(account, address(0), amount);
}
```



## Recommendation

To avoid creating dead code, it's important to carefully consider the logic and flow of the contract and to remove any code that is not needed or that is never executed. This can help improve the clarity and efficiency of the contract.

## L12 - Using Variables before Declaration

|                    |                               |
|--------------------|-------------------------------|
| <b>Criticality</b> | Minor / Informative           |
| <b>Location</b>    | BABYTOKEN.sol#L3209,3210,3211 |
| <b>Status</b>      | Unresolved                    |

### Description

The contract is using a variable before the declaration. This is usually happening either if it has not been declared yet or if the variable has been declared in a different scope. It is not a good practice to use a local variable before it has been declared.

```
uint256 iterations  
uint256 claims  
uint256 lastProcessedIndex
```

### Recommendation

By declaring local variables before using them, the contract ensures that it operates correctly. It's important to be aware of this rule when working with local variables, as using a variable before it has been declared can lead to unexpected behavior and can be difficult to debug.

## L14 - Uninitialized Variables in Local Scope

|                    |                               |
|--------------------|-------------------------------|
| <b>Criticality</b> | Minor / Informative           |
| <b>Location</b>    | BABYTOKEN.sol#L3209,3210,3211 |
| <b>Status</b>      | Unresolved                    |

### Description

Using an uninitialized local variable can lead to unpredictable behavior and potentially cause errors in the contract. It's important to always initialize local variables with appropriate values before using them.

```
uint256 iterations  
uint256 claims  
uint256 lastProcessedIndex
```

### Recommendation

By initializing local variables before using them, the contract ensures that the functions behave as expected and avoid potential issues.

## L15 - Local Scope Variable Shadowing

|                    |  |
|--------------------|--|
| <b>Criticality</b> | Minor / Informative                          |
| <b>Location</b>    | BABYTOKEN.sol#L2327,2328,2387,2394,2406,2420 |
| <b>Status</b>      | Unresolved                                   |

### Description

Local scope variable shadowing occurs when a local variable with the same name as a variable in an outer scope is declared within a function or code block. When this happens, the local variable "shadows" the outer variable, meaning that it takes precedence over the outer variable within the scope in which it is declared.

```
string memory _name  
string memory _symbol  
address _owner
```

### Recommendation

It's important to be aware of shadowing when working with local variables, as it can lead to confusion and unintended consequences if not used correctly. It's generally a good idea to choose unique names for local variables to avoid shadowing outer variables and causing confusion.

## L16 - Validate Variable Setters

|                    |                          |
|--------------------|--------------------------|
| <b>Criticality</b> | Minor / Informative      |
| <b>Location</b>    | BABYTOKEN.sol#L2905,2926 |
| <b>Status</b>      | Unresolved               |

### Description

The contract performs operations on variables that have been configured on user-supplied input. These variables are missing of proper check for the case where a value is zero. This can lead to problems when the contract is executed, as certain actions may not be properly handled when the value is zero.

```
uniswapV2Pair = _uniswapV2Pair  
payable(serviceFeeReceiver_).transfer(serviceFee_)
```

### Recommendation

By adding the proper check, the contract will not allow the variables to be configured with zero value. This will ensure that the contract can handle all possible input values and avoid unexpected behavior or errors. Hence, it can help to prevent the contract from being exploited or operating unexpectedly.

## L17 - Usage of Solidity Assembly

|             |                                     |
|-------------|-------------------------------------|
| Criticality | Minor / Informative                 |
| Location    | BABYTOKEN.sol#L828,846,864,921,1096 |
| Status      | Unresolved                          |

### Description

Using assembly can be useful for optimizing code, but it can also be error-prone. It's important to carefully test and debug assembly code to ensure that it is correct and does not contain any errors.

Some common types of errors that can occur when using assembly in Solidity include Syntax, Type, Out-of-bounds, Stack, and Revert.

```
assembly {
    let ptr := mload(0x40)
    mstore(ptr,
0x3d602d80600a3d3981f3363d3d373d3d3d363d730000000000000000000000)
    mstore(add(ptr, 0x14), shl(0x60, implementation))
    mstore(add(ptr, 0x28),
0x5af43d82803e903d91602b57fd5bf3000000000000000000000000000000)
    instance := create(0, ptr, 0x37)
    ...
assembly {
    let ptr := mload(0x40)
    mstore(ptr,
0x3d602d80600a3d3981f3363d3d373d3d3d363d730000000000000000000000)
    mstore(add(ptr, 0x14), shl(0x60, implementation))
    mstore(add(ptr, 0x28),
0x5af43d82803e903d91602b57fd5bf3000000000000000000000000000000)
    instance := create2(0, ptr, 0x37, salt)
}
    ...
}
```

## Recommendation

It is recommended to use assembly sparingly and only when necessary, as it can be difficult to read and understand compared to Solidity code.

## L20 - Succeeded Transfer Check

|             |                     |
|-------------|---------------------|
| Criticality | Minor / Informative |
| Location    | BABYTOKEN.sol#L3234 |
| Status      | Unresolved          |

### Description

According to the ERC20 specification, the transfer methods should be checked if the result is successful. Otherwise, the contract may wrongly assume that the transfer has been established.

```
IERC20(rewardToken).transfer(_marketingWalletAddress, newBalance)
```

### Recommendation

The contract should check if the result of the transfer methods is successful. The team is advised to check the SafeERC20 library from the [Openzeppelin library](#).



## Functions Analysis

| Contract              | Type           | Bases      |            |           |
|-----------------------|----------------|------------|------------|-----------|
|                       | Function Name  | Visibility | Mutability | Modifiers |
|                       |                |            |            |           |
| <b>IERC20</b>         | Interface      |            |            |           |
|                       | totalSupply    | External   |            | -         |
|                       | balanceOf      | External   |            | -         |
|                       | transfer       | External   | ✓          | -         |
|                       | allowance      | External   |            | -         |
|                       | approve        | External   | ✓          | -         |
|                       | transferFrom   | External   | ✓          | -         |
|                       |                |            |            |           |
| <b>IERC20Metadata</b> | Interface      | IERC20     |            |           |
|                       | name           | External   |            | -         |
|                       | symbol         | External   |            | -         |
|                       | decimals       | External   |            | -         |
|                       |                |            |            |           |
| <b>Context</b>        | Implementation |            |            |           |
|                       | _msgSender     | Internal   |            |           |
|                       | _msgData       | Internal   |            |           |
|                       |                |            |            |           |

| ERC20   | Implementation       | Context,<br>IERC20,<br>IERC20Meta<br>data |   |   |
|---------|----------------------|---|---|---|
|         |                      | Public                                    | ✓ | - |
|         | name                 | Public                                    |   | - |
|         | symbol               | Public                                    |   | - |
|         | decimals             | Public                                    |   | - |
|         | totalSupply          | Public                                    |   | - |
|         | balanceOf            | Public                                    |   | - |
|         | transfer             | Public                                    | ✓ | - |
|         | allowance            | Public                                    |   | - |
|         | approve              | Public                                    | ✓ | - |
|         | transferFrom         | Public                                    | ✓ | - |
|         | increaseAllowance    | Public                                    | ✓ | - |
|         | decreaseAllowance    | Public                                    | ✓ | - |
|         | _transfer            | Internal                                  | ✓ |   |
|         | _mint                | Internal                                  | ✓ |   |
|         | _burn                | Internal                                  | ✓ |   |
|         | _approve             | Internal                                  | ✓ |   |
|         | _beforeTokenTransfer | Internal                                  | ✓ |   |
|         | _afterTokenTransfer  | Internal                                  | ✓ |   |
|         |                      |   |   |   |
| Ownable | Implementation       | Context                                   |   |   |
|         |                      | Public                                    | ✓ | - |

|                 |                    |          |   |           |
|-----------------|--------------------|----------|---|-----------|
|                 | owner              | Public   |   | -         |
|                 | renounceOwnership  | Public   | ✓ | onlyOwner |
|                 | transferOwnership  | Public   | ✓ | onlyOwner |
|                 | _setOwner          | Private  | ✓ |           |
|                 |                    |          |   |           |
| <b>SafeMath</b> | Library            |          |   |           |
|                 | tryAdd             | Internal |   |           |
|                 | trySub             | Internal |   |           |
|                 | tryMul             | Internal |   |           |
|                 | tryDiv             | Internal |   |           |
|                 | tryMod             | Internal |   |           |
|                 | add                | Internal |   |           |
|                 | sub                | Internal |   |           |
|                 | mul                | Internal |   |           |
|                 | div                | Internal |   |           |
|                 | mod                | Internal |   |           |
|                 | sub                | Internal |   |           |
|                 | div                | Internal |   |           |
|                 | mod                | Internal |   |           |
|                 |                    |          |   |           |
| <b>Clones</b>   | Library            |          |   |           |
|                 | clone              | Internal | ✓ |           |
|                 | cloneDeterministic | Internal | ✓ |           |

|                          |                             |          |   |   |
|--------------------------|-----------------------------|----------|---|---|
|                          | predictDeterministicAddress | Internal |   |   |
|                          | predictDeterministicAddress | Internal |   |   |
|                          |                             |          |   |   |
| <b>Address</b>           | Library                     |          |   |   |
|                          | isContract                  | Internal |   |   |
|                          | sendValue                   | Internal | ✓ |   |
|                          | functionCall                | Internal | ✓ |   |
|                          | functionCall                | Internal | ✓ |   |
|                          | functionCallWithValue       | Internal | ✓ |   |
|                          | functionCallWithValue       | Internal | ✓ |   |
|                          | functionStaticCall          | Internal |   |   |
|                          | functionStaticCall          | Internal |   |   |
|                          | functionDelegateCall        | Internal | ✓ |   |
|                          | functionDelegateCall        | Internal | ✓ |   |
|                          | verifyCallResult            | Internal |   |   |
|                          |                             |          |   |   |
| <b>IUniswapV2Factory</b> | Interface                   |          |   |   |
|                          | feeTo                       | External |   | - |
|                          | feeToSetter                 | External |   | - |
|                          | getPair                     | External |   | - |
|                          | allPairs                    | External |   | - |
|                          | allPairsLength              | External |   | - |
|                          | createPair                  | External | ✓ | - |

|                           |                              |          |         |   |
|---------------------------|------------------------------|----------|---------|---|
|                           | setFeeTo                     | External | ✓       | - |
|                           | setFeeToSetter               | External | ✓       | - |
|                           |                              |          |         |   |
| <b>IUniswapV2Router01</b> | Interface                    |          |         |   |
|                           | factory                      | External |         | - |
|                           | WETH                         | External |         | - |
|                           | addLiquidity                 | External | ✓       | - |
|                           | addLiquidityETH              | External | Payable | - |
|                           | removeLiquidity              | External | ✓       | - |
|                           | removeLiquidityETH           | External | ✓       | - |
|                           | removeLiquidityWithPermit    | External | ✓       | - |
|                           | removeLiquidityETHWithPermit | External | ✓       | - |
|                           | swapExactTokensForTokens     | External | ✓       | - |
|                           | swapTokensForExactTokens     | External | ✓       | - |
|                           | swapExactETHForTokens        | External | Payable | - |
|                           | swapTokensForExactETH        | External | ✓       | - |
|                           | swapExactTokensForETH        | External | ✓       | - |
|                           | swapETHForExactTokens        | External | Payable | - |
|                           | quote                        | External |         | - |
|                           | getAmountOut                 | External |         | - |
|                           | getAmountIn                  | External |         | - |
|                           | getAmountsOut                | External |         | - |
|                           | getAmountsIn                 | External |         | - |

|                                  |   |                    |         |   |
|----------------------------------|---|--------------------|---------|---|
|                                  |   |                    |         |   |
| <b>IUniswapV2Router02</b>        | Interface   | IUniswapV2Router01 |         |   |
|                                  | removeLiquidityETHSupportingFeeOnTransferTokens           | External           | ✓       | - |
|                                  | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External           | ✓       | - |
|                                  | swapExactTokensForTokensSupportingFeeOnTransferTokens     | External           | ✓       | - |
|                                  | swapExactETHForTokensSupportingFeeOnTransferTokens        | External           | Payable | - |
|                                  | swapExactTokensForETHSupportingFeeOnTransferTokens        | External           | ✓       | - |
|                                  |   |                    |         |   |
| <b>IERC20Upgradeable</b>         | Interface   |                    |         |   |
|                                  | totalSupply   | External           |         | - |
|                                  | balanceOf   | External           |         | - |
|                                  | transfer  | External           | ✓       | - |
|                                  | allowance   | External           |         | - |
|                                  | approve   | External           | ✓       | - |
|                                  | transferFrom  | External           | ✓       | - |
|                                  |   |                    |         |   |
| <b>IERC20MetadataUpgradeable</b> | Interface   | IERC20Upgradeable  |         |   |
|                                  | name  | External           |         | - |
|                                  | symbol  | External           |         | - |
|                                  | decimals  | External           |         | - |
|                                  |   |                    |         |   |

|                           |                          |   |   |             |
|---------------------------|--------------------------|---|---|-------------|
| <b>Initializable</b>      | Implementation           |   |   |             |
|                           |                          |   |   |             |
| <b>ContextUpgradeable</b> | Implementation           | Initializable   |   |             |
|                           | __Context_init           | Internal  | ✓ | initializer |
|                           | __Context_init_unchained | Internal  | ✓ | initializer |
|                           | _msgSender               | Internal  |   |             |
|                           | _msgData                 | Internal  |   |             |
|                           |                          |   |   |             |
| <b>ERC20Upgradeable</b>   | Implementation           | Initializable, ContextUpgradeable, IERC20Upgradeable, IERC20MetadataUpgradeable |   |             |
|                           | __ERC20_init             | Internal  | ✓ | initializer |
|                           | __ERC20_init_unchained   | Internal  | ✓ | initializer |
|                           | name                     | Public  |   | -           |
|                           | symbol                   | Public  |   | -           |
|                           | decimals                 | Public  |   | -           |
|                           | totalSupply              | Public  |   | -           |
|                           | balanceOf                | Public  |   | -           |
|                           | transfer                 | Public  | ✓ | -           |
|                           | allowance                | Public  |   | -           |
|                           | approve                  | Public  | ✓ | -           |
|                           | transferFrom             | Public  | ✓ | -           |
|                           | increaseAllowance        | Public  | ✓ | -           |

|                          |                          |                                  |   |             |
|--------------------------|--------------------------|----------------------------------|---|-------------|
|                          | decreaseAllowance        | Public                           | ✓ | -           |
|                          | _transfer                | Internal                         | ✓ |             |
|                          | _mint                    | Internal                         | ✓ |             |
|                          | _burn                    | Internal                         | ✓ |             |
|                          | _approve                 | Internal                         | ✓ |             |
|                          | _beforeTokenTransfer     | Internal                         | ✓ |             |
|                          | _afterTokenTransfer      | Internal                         | ✓ |             |
|                          |                          |                                  |   |             |
| <b>OwnableUpgradable</b> | Implementation           | Initializable, ContextUpgradable |   |             |
|                          | __Ownable_init           | Internal                         | ✓ | initializer |
|                          | __Ownable_init_unchained | Internal                         | ✓ | initializer |
|                          | owner                    | Public                           |   | -           |
|                          | renounceOwnership        | Public                           | ✓ | onlyOwner   |
|                          | transferOwnership        | Public                           | ✓ | onlyOwner   |
|                          | _setOwner                | Private                          | ✓ |             |
|                          |                          |                                  |   |             |
| <b>IUniswapV2Pair</b>    | Interface                |                                  |   |             |
|                          | name                     | External                         |   | -           |
|                          | symbol                   | External                         |   | -           |
|                          | decimals                 | External                         |   | -           |
|                          | totalSupply              | External                         |   | -           |
|                          | balanceOf                | External                         |   | -           |
|                          | allowance                | External                         |   | -           |



|             |                      |          |   |   |
|-------------|----------------------|----------|---|---|
|             | approve              | External | ✓ | - |
|             | transfer             | External | ✓ | - |
|             | transferFrom         | External | ✓ | - |
|             | DOMAIN_SEPARATOR     | External |   | - |
|             | PERMIT_TYPEHASH      | External |   | - |
|             | nonces               | External |   | - |
|             | permit               | External | ✓ | - |
|             | MINIMUM_LIQUIDITY    | External |   | - |
|             | factory              | External |   | - |
|             | token0               | External |   | - |
|             | token1               | External |   | - |
|             | getReserves          | External |   | - |
|             | price0CumulativeLast | External |   | - |
|             | price1CumulativeLast | External |   | - |
|             | kLast                | External |   | - |
|             | mint                 | External | ✓ | - |
|             | burn                 | External | ✓ | - |
|             | swap                 | External | ✓ | - |
|             | skim                 | External | ✓ | - |
|             | sync                 | External | ✓ | - |
|             | initialize           | External | ✓ | - |
|             |                      |          |   |   |
| SafeMathInt | Library              |          |   |   |

|                                     |                  |          |   |   |
|-------------------------------------|------------------|----------|---|---|
|                                     | mul              | Internal |   |   |
|                                     | div              | Internal |   |   |
|                                     | sub              | Internal |   |   |
|                                     | add              | Internal |   |   |
|                                     | abs              | Internal |   |   |
|                                     | toUint256Safe    | Internal |   |   |
|                                     |                  |          |   |   |
| <b>SafeMathUint</b>                 | Library          |          |   |   |
|                                     | toInt256Safe     | Internal |   |   |
|                                     |                  |          |   |   |
| <b>IterableMapping</b>              | Library          |          |   |   |
|                                     | get              | Public   |   | - |
|                                     | getIndexOfKey    | Public   |   | - |
|                                     | getKeyAtIndex    | Public   |   | - |
|                                     | size             | Public   |   | - |
|                                     | set              | Public   | ✓ | - |
|                                     | remove           | Public   | ✓ | - |
|                                     |                  |          |   |   |
| <b>DividendPayingTokenInterface</b> | Interface        |          |   |   |
|                                     | dividendOf       | External |   | - |
|                                     | withdrawDividend | External | ✓ | - |
|                                     |                  |          |   |   |

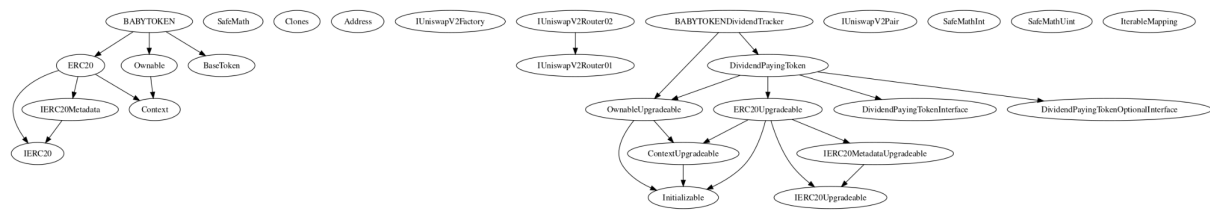
|   |                            |  |   |             |
|---|----------------------------|--|---|-------------|
| <b>DividendPayingTokenOptionalInterface</b> | Interface                  |  |   |             |
|   | withdrawableDividendOf     | External   |   | -           |
|   | withdrawnDividendOf        | External   |   | -           |
|   | accumulativeDividendOf     | External   |   | -           |
|   |                            |  |   |             |
| <b>DividendPayingToken</b>                  | Implementation             | ERC20Upgradable, OwnableUpgradable, DividendPayingTokenInterface, DividendPayingTokenOptionalInterface |   |             |
|   | __DividendPayingToken_init | Internal   | ✓ | initializer |
|   | distributeCAKEDividends    | Public   | ✓ | onlyOwner   |
|   | withdrawDividend           | Public   | ✓ | -           |
|   | _withdrawDividendOfUser    | Internal   | ✓ |             |
|   | dividendOf                 | Public   |   | -           |
|   | withdrawableDividendOf     | Public   |   | -           |
|   | withdrawnDividendOf        | Public   |   | -           |
|   | accumulativeDividendOf     | Public   |   | -           |
|   | _transfer                  | Internal   | ✓ |             |
|   | _mint                      | Internal   | ✓ |             |
|   | _burn                      | Internal   | ✓ |             |
|   | _setBalance                | Internal   | ✓ |             |
|   |                            |  |   |             |

|                                 |                                       |  |         |             |
|---------------------------------|---------------------------------------|--|---------|-------------|
| <b>BABYTOKENDividendTracker</b> | Implementation                        | OwnableUpgradable, DividendPayingToken |         |             |
|                                 | initialize                            | External                               | ✓       | initializer |
|                                 | _transfer                             | Internal                               |         |             |
|                                 | withdrawDividend                      | Public                                 |         | -           |
|                                 | excludeFromDividends                  | External                               | ✓       | onlyOwner   |
|                                 | isExcludedFromDividends               | Public                                 |         | -           |
|                                 | updateClaimWait                       | External                               | ✓       | onlyOwner   |
|                                 | updateMinimumTokenBalanceForDividends | External                               | ✓       | onlyOwner   |
|                                 | getLastProcessedIndex                 | External                               |         | -           |
|                                 | getNumberOfTokenHolders               | External                               |         | -           |
|                                 | getAccount                            | Public                                 |         | -           |
|                                 | getAccountAtIndex                     | Public                                 |         | -           |
|                                 | canAutoClaim                          | Private                                |         |             |
|                                 | setBalance                            | External                               | ✓       | onlyOwner   |
|                                 | process                               | Public                                 | ✓       | -           |
|                                 | processAccount                        | Public                                 | ✓       | onlyOwner   |
|                                 |                                       |  |         |             |
| <b>BaseToken</b>                | Implementation                        |  |         |             |
|                                 |                                       |  |         |             |
| <b>BABYTOKEN</b>                | Implementation                        | ERC20, Ownable, BaseToken              |         |             |
|                                 |                                       | Public                                 | Payable | ERC20       |
|                                 |                                       | External                               | Payable | -           |

|  |                                       |          |   |           |
|--|---------------------------------------|----------|---|-----------|
|  | setSwapTokensAtAmount                 | External | ✓ | onlyOwner |
|  | excludeFromFees                       | External | ✓ | onlyOwner |
|  | excludeMultipleAccountsFromFees       | External | ✓ | onlyOwner |
|  | setMarketingWallet                    | External | ✓ | onlyOwner |
|  | setTokenRewardsFee                    | External | ✓ | onlyOwner |
|  | setLiquiditFee                        | External | ✓ | onlyOwner |
|  | setMarketingFee                       | External | ✓ | onlyOwner |
|  | _setAutomatedMarketMakerPair          | Private  | ✓ |           |
|  | updateGasForProcessing                | Public   | ✓ | onlyOwner |
|  | updateClaimWait                       | External | ✓ | onlyOwner |
|  | getClaimWait                          | External |   | -         |
|  | updateMinimumTokenBalanceForDividends | External | ✓ | onlyOwner |
|  | getMinimumTokenBalanceForDividends    | External |   | -         |
|  | getTotalDividendsDistributed          | External |   | -         |
|  | isExcludedFromFees                    | Public   |   | -         |
|  | withdrawableDividendOf                | Public   |   | -         |
|  | dividendTokenBalanceOf                | Public   |   | -         |
|  | excludeFromDividends                  | External | ✓ | onlyOwner |
|  | isExcludedFromDividends               | Public   |   | -         |
|  | getAccountDividendsInfo               | External |   | -         |
|  | getAccountDividendsInfoAtIndex        | External |   | -         |
|  | processDividendTracker                | External | ✓ | -         |
|  | claim                                 | External | ✓ | -         |

|  |                                 |          |   |   |
|--|---------------------------------|----------|---|---|
|  | getLastProcessedIndex           | External |   | - |
|  | getNumberOfDividendTokenHolders | External |   | - |
|  | _transfer                       | Internal | ✓ |   |
|  | swapAndSendToFee                | Private  | ✓ |   |
|  | swapAndLiquify                  | Private  | ✓ |   |
|  | swapTokensForEth                | Private  | ✓ |   |
|  | swapTokensForCake               | Private  | ✓ |   |
|  | addLiquidity                    | Private  | ✓ |   |
|  | swapAndSendDividends            | Private  | ✓ |   |

# Inheritance Graph



## Flow Graph



## Summary

Pinocchio Inu contract implements a token mechanism. This audit investigates security issues, business logic concerns, and potential improvements. Pinocchio Inu is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler errors or critical issues. The contract Owner can access some admin functions that can not be used in a malicious way to disturb the users' transactions. There is also a limit of max 25% fees.

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## About Cyberscope

Cyberscope is a blockchain cybersecurity company that was founded with the vision to make web3.0 a safer place for investors and developers. Since its launch, it has worked with thousands of projects and is estimated to have secured tens of millions of investors' funds.

Cyberscope is one of the leading smart contract audit firms in the crypto space and has built a high-profile network of clients and partners.



**The Cyberscope team**

<https://www.cyberscope.io>