# ETHERTOTE

## WHITEPAPER

PARI-MUTUEL TRADING DAPP FOR CRYPTO

Version 1.03

# Table of Contents

# Overview

## Ethertote

Ethertote uses the concept of pari-mutuel betting combined with the power of Ethereum smart contracts to allow users to trade on the performance of leading crypto-currencies over a fixed period. Users will select one or more crypto currencies, and place trades using ETH via our EtherTote decentralised application (ĐApp).

Users can trade on any of the top twenty-five leading crypto-currencies (ranking based on Market Cap), and have a total of 154 hours (known as the "standard trading period") from the start of each game to make their selection/s. When the game opens for play, the current $USD of each crypto-currency is automatically retrieved from an independent crypto-currency market data provider. After 154 hours have elapsed, the game is "locked" to everyone except for Ethertote TOTE token holders, and users can no longer place trades. TOTE token holders can continue trading for an additional 4 hours (known as the "extended trading period"). After a total of 158 hours, the game is "locked" to all players.

After an additional 8 hours (a total of 166 hours from the start of the game) the $USD price of each crypto-currency is once again retrieved, and the "winning crypto" is determined based on the crypto-currency with the highest overall percentage gain over the total 166 hour period.

Upon confirmation of the "winning Crypto", all funds are transferred to an Ethertote "Postprocessor" (an Ethereum smart contract), and are prepared for automatic distribution to all successful traders who placed trades on the "winning crypto".

Traders who had traded on the "winning crypto" are entitled to a proportional stake of the overall Ethertote fund. The Tote fund is comprised of 95%* of all trades across all crypto-currencies, with the remaining 5% going to a TOTE Token Holder (THCLAIM) smart contract.

*Total amount fractionally less than 95% owing to gas fees for Eth transfers and oracle fees.

## TOTE Tokens

TOTE tokens are Ethereum ERC-20 compliant utility tokens, and 9-million TOTE utility tokens will be available for public sale from 10-million minted coins. Prior to the public token sale, 9 million tokens will be sent to the "Token Sale" contract. Details of the Token Sale will be published on the Ethertote website.

The TOTE token contract can be verified here: TOTE Contract

- TOTE utility token holders are able to interact with the Ethertote ĐApp to trade during the "Extended trading period", which offers a tactical advantage when trading on the EtherTote game. This trading period is limited to TOTE token holders only.

- TOTE token holders are able to use the "historical data" interactive section of the Ethertote ĐApp.

- TOTE token holders are entitled to claim funds from the Token Holder Claim smart contract on a quarterly basis. Details of the Token Holder claim fund can be found on the Ethertote website.

- TOTE token holders will be able to trade their TOTE tokens on numerous Ethereum crypto-currency exchanges.

## Token Holder Claim Smart Contract

TOTE token holders are entitled to claim Ether funds from the THCLAIM ("TOTE Token Holders") smart contract once every 12-week period.

The Token Holder Claim smart contract will be open for claims for the first 11 weeks of each 12-week period (known as the "claim window"), followed by a 1-week closure period to allow for auditing and potential maintenance of the Ethertote platform and ecosystem.

As soon as the Token Holder "claim window" opens, the current Ethereum block number is stored directly onto the smart contract and is also made publicly visible on the Ethertote website ĐApp.

Ethertote uses this block number to determine ownership of every TOTE token holder globally at this specific moment in time.  This is known as a "snapshot" of TOTE token owners. The amount of TOTE tokens held at this block number determines the share of Eth that each TOTE token holder is entitled to claim from the Token Holder Claim smart contract.

If a TOTE token holder exchanges or sells their TOTE tokens after this block number, they will still be entitled to a share of the Eth from the Token Holder Claim smart contract, providing they owned TOTE tokens at the specific block number stored on the contract.

In order to claim their share, a TOTE token holder will visit the ĐApp at any point during the "claim window", and the ĐApp will automatically detect the token holders Ethereum wallet address. If this wallet address matches the address of TOTE token holders at the block number stored on the smart contract, they can simply click on the "Claim" button and the ĐApp will process their claim and transfer the correct share of the Eth into the holders Ethereum wallet.

## Trading on Crypto using the ĐApp

All trading on the Ethertote is made via the ĐApp. Anyone in possession of Eth can access the trading section during the "standard trading period", which is during the first 154 hours of the Tote being open.

After 154 hours, the "standard trading period" closes. After this, only TOTE token holders are able to trade during the "extended trading period" for an additional 4 hours.

Important Note: The value of TOTE utility tokens on Ethereum exchanges may fluctuate on exchanges leading up to and during this "Extended trading period", as theoretically people wishing to trade on the Ethertote, and who do not currently possess TOTE tokens may create an increased demand for them. The value of the TOTE tokens may also fluctuate in the days leading up to the opening of the THCLAIM smart contract, as only TOTE token holders will be entitled to a share of the Eth held in the contract.

# Introduction

EtherTote is a relatively simple concept. It harnesses the concept of pari-mutuel (TOTE) betting to pool together all trades across all crypto-currencies, with successful traders receiving a relative percentage of the entire pool of Eth. The EtherTote trading table is comprised of 25 of the leading crypto-currencies based on current market cap.

Each game lasts for a total of 166 hours, and for the first 154 hours of the game, standard players are able to stake an amount of Eth on any crypto on the EtherTote table. For an additional 4 hours (hours 154-158), TOTE token holders are eligible to trade on the Tote. The additional 4-hour period is known as the "Extended trading period".

## Game rules

The maximum number of trades on any single cryptocurrency is 1000 trades, irrespective of size of trade. After 1000 trades, the crypto-currency is "locked" for the remainder of the game.

- Minimum trade is 0.05 eth per trade (subject to change)
- Maximum trade is 10 eth per trade (subject to change)
- Only TOTE token holders can trade during hours 154-158

The maximum (theoretical) cumulative amount that players can stake on any one crypto currency is **10,000 Eth**. Once this maximum amount is achieved on a crypto, the crypto is "locked".

To introduce an element of "exclusivity", and to avoid scenarios where all users choose to wait until the end of the trading period to make their crypto selection, a limit of 1000 trades per crypto was introduced.

As an example, if players collectively make 1000 trades on the NEO crypto currency, then nobody else can trade on NEO for the remainder of the game. Players can stake any amount between 0.05 Eth and 10 Eth per trade, but this will be classed as one trade, regardless of the size.

The theoretical minimum and maximum amount that can be placed on each crypto are as follows:

**Minimum** = 0 Eth (no trades made on the crypto)
**Maximum based on smallest trade size** = 0.05 Eth x 1000 trades = 50 Eth
**Maximum based on largest trade size** = 10 Eth x 1000 trades = 10,000 Eth

In the event that all crypto currencies on the Ethertote table are "locked out" with a maximum 10,000 Eth stake, then the entire game will be locked until the result of the Tote and the "winning crypto" is declared.

## Extended Trading Period

The Extended Trading period is the period immediately after the Standard trading period, which lasts for 4 hours. Only players holding TOTE tokens are eligible to trade during this period. The game "locks" to all standard players (anyone who does not possess TOTE token) at the 154$^{th}$ hour, but TOTE token holders can continue trading for an additional 4 hours, subject to crypto-currencies on the Tote table still being available to trade on if they have not already been locked out with the 1,000 trade limit.

The entire Tote locks at the 158th hour and the results are declared at the 166th hour.

Between the 166th and 168th Hour, all successful traders are automatically paid out in Eth back to the Ethereum wallet address from which original trades were made, and the entire Tote table resets in preparation for the next trading period.

## Claiming a share of Eth from the Token Holder Claim smart contract

TOTE token holders are eligible to claim a share of the Token Holder Claim smart contract on a 12-week basis. The amount that can be claimed amount is proportional to the number of TOTE tokens held. There are a total circulating supply of 10,000,000 TOTE tokens, so as an example, a TOTE token holder with 13,000 TOTE tokens would be entitled to 0.13% of Eth held in the Token Holder Claim smart contract.

Eth held in the Token Holder Claim contract are generated entirely from the collective crypto-currency trades made on the Tote table, and the amount represents 5% of the total pool.

The theoretical maximum value the Token Holder Claim contract can hold in Eth per quarter is 150,000 Eth*

*5% of (10,000 eth per crypto x 25 crypto currencies x 12 weeks) = 150,000 Eth*
*Actual amount would be fractionally smaller than this due to gas fees for Eth transfers*

**Token Holder Claim example 1:**

- The fund grows to 7,000 Eth over a quarterly period.
- An individual owns 4,500 TOTE tokens (0.045% of total supply) and is therefore entitled to 0.045% of the Eth held in the contract
- The individual can claim 7000x0.00045 = **3.15 eth**

**Token Holder Claim example 2:**

- The fund grows to 80,000 Eth over a quarterly period.
- An individual owns 20,000 TOTE tokens (0.2% of total supply) and is therefore entitled to 0.2% of the Eth held in the contract
- The individual can claim 80,000x0.002 = **160 eth**

*(Note: the actual amounts would be fractionally smaller due to the associated Ethereum gas fees for transferring Eth)*

In order for TOTE token holders to claim their share of Eth from the Token Holder Claim smart contract, they would need to visit the Ethertote website DApp and click on the “claim” button.

Our GitHub page will also provide a complete breakdown of the Token Holder Claim smart contract together with details of interacting directly with the smart contract (for example by using Remix) in the unlikely event that the website is unavailable or down for maintenance.

In the event that a TOTE token holder does not claim their share of Eth during the 11-week open period, the unclaimed Eth will remain in the dividend fund and automatically rollover to the next 12-week claim window.

In this situation, all TOTE token holders would have access to the unclaimed Eth to in the next claim window. It is therefore extremely important to ensure that token holders make their claim each quarter.

## Crypto Selection using the ĐApp

Users can select one or more crypto currencies from the Ethertote table. The ĐApp will provide details on the current crypto pot value, the number of hours remaining to trade, the current percentage increase of each crypto, and other useful information.

In the event of two users who both wish to trade on the Stellar cryptocurrency, and there has already been 999 trades on Stellar, then in this scenario, for the user with the later timestamp, the trade will fail, and the entire trade amount will be refunded.

It is important that users DO NOT attempt to enter the Tote by directly transferring Eth to the crypto currency smart contracts. The reason being that users will not be be calling the correct smart contract function, nor will they have access to the information that governs the success of a trade. For example, by transferring Eth directly to the Litecoin contract on the tote and bypassing the ĐApp, the user will not know if the Litecoin crypto is “locked”, or indeed, if the entire Tote is locked. In this instance, the transaction will fail, as the transaction will not adhere to the “require” validation statements within the smart contract. In this situation, Ethertote cannot be held responsible for any loss in Ethereum gas fees.

In the unlikely event of the Ethertote website being down, users can still trade on the Ethertote by engaging directly with the individual smart contracts that make up the Ethertote eco-system. To do this they would need to copy the smart contract solidity code (available on the GitHub page) into an online compiler such as remix, where they would then be able to call the **enterGame()** function from the smart contract. Full details and instructions for this process will be published on the Ethertote GitHub page.

The Ethertote table on the website is presented in order of crypto currency based on Market Cap, however you can also sort the table based on all of the following headers:

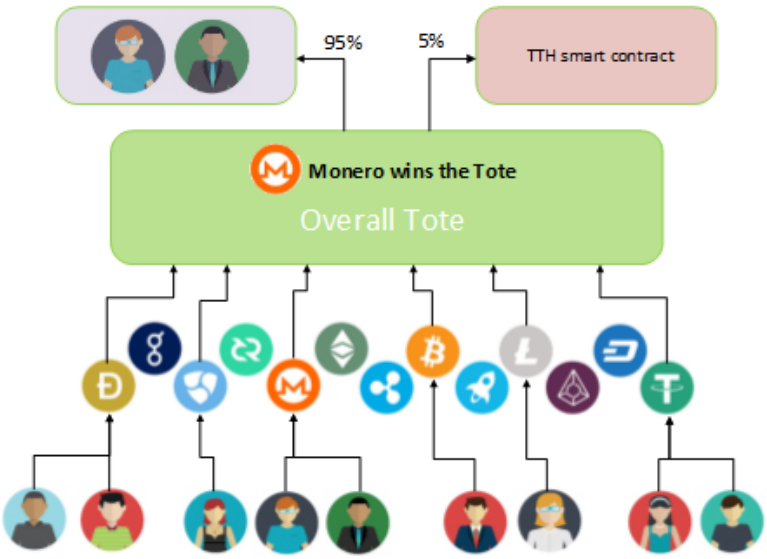
1. Crypto name (Alphabetical)
2. Current Price
3. Trading Volume
4. 24 hour % gain
5. Overall % Gain (from the start of the Tote)
6. Number of trades placed by users
7. Crypto pot size

The following image represents the Ethertote table available on the Ethertote website

**Ethertote Table**

| Icon | Rank | Name | MCap | Volume | Start Price | Now Price | % 24hr | % Total | Nr. Trades | Pot | Trade |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | Bitcoin | $115,084,768,419 | $4,270,580,000 | $6,629.48 | $6,709.03 | 1.45 | 1.2 | 137 | 206.5 | Available |
| | 2 | Ethereum | $47,241,735,573 | $1,752,680,000 | $475.363 | $468.915 | -1.01 | -1.36 | 73 | 97.5 | Available |
| | 3 | XRP | $18,495,477,620 | $256,573,000 | $0.465 | $0.471 | 1.66 | 1.23 | 44 | 50.5 | Available |
| | 4 | Bitcoin Cash | $13,617,170,256 | $461,628,000 | $772.705 | $789.76 | 2.39 | 2.21 | 17 | 14.5 | Available |
| | 5 | EOS | $7,105,192,941 | $657,393,000 | $7.811 | $7.929 | 1.64 | 1.5 | 27 | 13.5 | Available |
| | 6 | Litecoin | $4,778,071,583 | $276,607,000 | $82.668 | $83.175 | 0.58 | 0.61 | 84 | 62.5 | Available |
| | 7 | Stellar | $4,326,248,385 | $48,534,200 | $0.229 | $0.231 | 0.24 | 0.79 | 269 | 211 | Available |
| | 8 | Cardano | $3,916,802,546 | $82,988,500 | $0.151 | $0.151 | -0.02 | 0.05 | 19 | 14.5 | Available |
| | 9 | IOTA | $2,946,246,509 | $45,018,500 | $1.067 | $1.06 | -0.85 | -0.67 | 2 | 1 | Available |
| | 10 | Tether | $2,711,065,699 | $2,689,610,000 | $1 | $1.001 | 0.24 | 0.16 | 0 | 0.00 | Available |
| | 11 | TRON | $2,400,358,359 | $190,827,000 | $0.036 | $0.037 | 0.83 | 0.57 | 64 | 57.5 | Available |
| | 12 | NEO | $2,331,218,500 | $125,701,000 | $35.79 | $35.865 | 0.52 | 0.21 | 0 | 0.00 | Available |
| | 13 | Monero | $2,216,242,206 | $33,582,100 | $128.648 | $136.525 | 5.58 | 6.12 | 340 | 288 | Available |
| | 14 | Dash | $2,008,283,079 | $158,418,000 | $240.566 | $244.926 | 1.4 | 1.81 | 105 | 88.5 | Available |
| | 15 | Ethereum Classic | $1,758,353,262 | $214,258,000 | $17.172 | $17.056 | -0.96 | -0.68 | 55 | 37.5 | Available |
| | 16 | NEM | $1,563,597,000 | $11,512,200 | $0.169 | $0.174 | 2.65 | 3.04 | 0 | 0.00 | Available |
| | 17 | Binance Coin | $1,524,127,630 | $44,063,100 | $13.161 | $13.365 | 1.34 | 1.55 | 6 | 2 | Available |
| | 18 | Tezos | $1,361,358,641 | $3,794,090 | $2.286 | $2.241 | -2.27 | -1.98 | 0 | 0.00 | Available |
| | 19 | VeChain | $1,007,836,525 | $29,797,900 | $1.897 | $1.817 | -3.16 | -4.2 | 77 | 52.5 | Available |
| | 20 | OmiseGO | $1,014,598,321 | $35,975,900 | $7.155 | $7.234 | 0.77 | 1.12 | 0 | 0.00 | Available |
| | 21 | Zcash | $800,102,514 | $65,006,400 | $177.775 | $182.965 | 1.05 | 2.92 | 0 | 0.00 | Available |
| | 22 | Qtum | $719,555,106 | $165,350,000 | $8.2 | $8.115 | -1.15 | -1.03 | 17 | 8 | Available |
| | 23 | 0x | $591,461,645 | $26,144,000 | $1.161 | $1.106 | -4.92 | -4.72 | 1 | 0.10 | Available |
| | 24 | Bytecoin | $576,998,680 | $5,116,660 | $0.003 | $0.003 | -0.59 | -0.39 | 0 | 0.00 | Available |
| | 25 | ICON | $561,996,279 | $31,764,800 | $1.468 | $1.451 | -1.13 | -1.22 | 0 | 0.00 | Available |

The following image represents the flow of the process for trading on the crypto currencies as part of the overall Tote



## Technical Flow of Trading on the Ethertote

1. The Ethertote team start the Tote, by invoking the startGame() function in the Ethereum PriceStart smart contract. This in turn calls the function to start the game for all of the 25 CryptoPrice smart contracts.
2. Each CryptoPrice smart contract calls the Oraclize oracle via a query to retrieve the crypto currency name based on the current rank of the Coin Market Cap ranking table. For example, the smart contract of cryptoprice01.ethertote.eth will retrieve the name and the $USD price of the crypto currency currently ranked at number 1 on the independent crypto currency market data website. The name and the $USD price of the crypto is then stored as public string variable and a public uint variable in the smart contract and published onto the Ethereum block chain for public audit.
3. The Ethertote is declared "open" for users to now trade. Every "CryptoPrice" smart contract has an associated "CryptoPot" smart contract, and it is this contract which users will send Eth to trade. For example cryptoprice01.ethertote.eth will be linked to cryptopot01.ethertote.eth
4. Users can now trade and send Eth to the preferred "CryptoPot" smart contract.
5. After 154 hours, the "standard trading period" closes and the contract once again calls the Oraclize oracle to begin the "Extended trading period" of 4 hours for TOTE token holders. At this point only TOTE token holders can trade on the crypto-currencies.
6. After this 4-hour period, the "extended trading period" also closes, and the game is officially "locked". After a further 8-hour period, the CryptoPrice smart contract calls the "PriceManager" smart contract to retrieve a random value ranging between 0s and 300s. The "PriceManager" smart contract itself calls the "Random" smart contract, which is used to retrieve a random number from www.random.org using an Oraclize oracle query. This value is used to define a delay time of calling the final $USD price for each crypto currency. This use of a random value to define a delay period is used so that the final call price on each crypto currency is always slightly different for each weekly game. This helps to ensure that any form of market manipulation attempts to influence a winning crypto-currency would be extremely difficult to coordinate.
7. Once the final $USD price is retrieved and stored in each CryptoPrice smart contract, the "PotProcessorCore" smart contract is used to determine the overall winning cryptocurrency by calling on the "CryptoWinnerRank" smart contract, which compares the overall percentage gain of every CryptoPrice smart contract and determines the "winning crypto"
8. The "PotProcessorCore" contract then makes a copy of every Ethereum wallet addresses and associated trade amounts placed on the "winning" CryptoPot smart contract. The contract then calls the "CryptoPot" smart contracts to instruct them to transfer all Eth to a "PotProcessor" smart contract. There are a total of five "PotProcessor" contracts. PotProcessor_01_05 manages "CryptoPot" 01 – 05 contracts. PotProcessor_06_10 manages "CryptoPot" 06-10 contracts. PotProcessor_11_15 manages "CryptoPot" 11-15 contracts. PotProcessor_16_20 manages "CryptoPot" 16-20 contracts. PotProcessor_21_25 manages "CryptoPot21-25" contracts. If for example, the "winning" crypto currency was ranked at number 10 (based on MarketCap) at the start of the Tote, and that currency was NEO, then all Eth from all 25 CryptoPot contracts would be sent to the "PotProcessor_06_10" smart contract.
9. The PotProcessorCore smart contract would then determine the amount owed to all winning players (those who traded on CryptoPot10) and then call on the PotProcess_06_10 contract to automatically transfer winning funds to the players. The overall amount to be distributed represents 95% of the total eth stored in the PotProcessor contract.

10. Once all winning traders have received their share of Eth, the remaining 5% of Eth in the PotProcessor contract is sent to the TokenHolderClaim smart contract, which can be accessed once every quarterly during the “claim window”.

All payments to winning traders are automatically sent back to the wallet address from which the trades were taken on the winning CryptoPot smart contract.

In order to synchronize the Eth transfer process and subsequent winner payout process with the timing of the CryptoPrice contracts, we use a special “ProcessPayout” smart contract that uses a series of Oraclize oracle calls to determine the correct time to initiate each stage of the process.

If for any reason, the oracle fails to call the function required to process payment, either a member of the Ethertote team or any member of the public can manually call the public function to process the payments.

It should be noted that we are also developing a backup oracle to further mitigate any issues with oracle queries.

## Possible reasons for automatic Eth refund

1. The user sends less than the minimum amount or more than the maximum amount
2. The crypto selected for trading on is “locked”
3. The user trades during a period where the Tote is locked
4. The user attempts to trade during the “extended trading period”, but does not possess any TOTE tokens in the wallet that the Eth was sent from
5. The Ethertote is suspended (details would be provided on the website or our twitter feed)

## Historical Data Service

The Ethertote website will provide an interactive “Historical Data” service, which will only be available for use for TOTE token holders. The service will allow token holders to analyse historical market data on leading crypto currencies, which will help traders develop strategies when trading on the Tote. The Ethertote team will continue to develop and enhance this service regularly.

## Ethertote Game Management

Ethertote uses a number of custom smart contracts to manage the Ethertote game. The smart contracts are as follows:

**pricemanager.ethertote.eth** – This smart contract tracks the address of every CryptoPrice smart contract. It also tracks the address of the “Random” smart contract used to generate a random number for the CryptoPrice contracts to reference. Finally, it tracks the address of the “PriceStart”, “PricePause” and “PriceKill” smart contracts.

**potmanager.ethertote.eth** – This smart contract tracks the contract addresses of all of the CryptoPot smart contracts, as well as all "PotProcessor" contracts, all "CryptoWinnerRank" contracts, all "MasterUpdater" contracts, and the "DividendFund" smart contract. All address are publicly viewable.

**pricestart.ethertote.eth** – This smart contract references all "CryptoPrice" contracts, as well as the "ProcessPayout" smart contract, and the "Random" smart contract. The contract is used to start the game.

**pricepause.ethertote.eth** – This smart contract manages the same contracts as the PriceStart contract. It is used to pause an Ethertote game gracefully, by allowing the current game to complete and payments to be processed.

**pricekill.ethertote.eth** - This smart contract manages the same contracts as the PriceStart contract. It is used to immediately stop any current game, which will be immediately locked and players can no longer trade on any crypto.

**masterrefund.ethertote.eth** – This smart contract manages all CryptoPot Contracts and is used to call the refund function on all CryptoPot contracts and refund all players in the event of any issue found with the game.

**masterupdatercore.ethertote.eth** – This smart contract manages and calls functions to the "MasterUpdater_01_13" and "MasterUpdater_14_25" smart contracts.

**masterupdaterbackend.ethertote.eth** – This smart contract calls a special "updateReferences()" function for all of the backend management smart contracts. By invoking this function call, all smart contracts effectively refresh their smart contract address references, retrieved from the PriceManager and PotManager contracts. This contract is used purely to make intra-contract referencing far more efficient.

**masterupdaterpot.ethertote.eth** – This smart contract works in the same way as MasterUpdater_Backend but calls the "updateReferences()" function call on all 25 "CryptoPot" smart contracts.

**potprocessorcore.ethertote.eth** – This smart contract is used to call functions on the five PotProcessor smart contracts, and is also used to retrieve the overall winning crypto-currency rank from the "CryptoWinnerRank" smart contracts.

**potprocessor01-05.ethertote.eth** – This smart contract monitors the CryptoPot01-05 smart contracts, and copies the player addresses and associated trade sizes. It is also used to call the function to pull ether from the CryptoPot contracts. The contract pays out winning players, and forwards fund to the Dividend fund.

**potprocessor06-10.ethertote.eth** – This smart contract monitors the CryptoPot06-10 smart contracts, and copies the player addresses and associated trade sizes. It is also used to call the function to pull ether from the CryptoPot contracts. The contract pays out winning players, and forwards fund to the Dividend fund.

**potprocessor11-15.ethertote.eth** – This smart contract monitors the CryptoPot11-15 smart contracts, and copies the player addresses and associated trade sizes. It is also used to call the

function to pull ether from the CryptoPot contracts. The contract pays out winning players, and forwards fund to the Dividend fund.

**potprocessor16-20.ethertote.eth** – This smart contract monitors the CryptoPot16-20 smart contracts, and copies the player addresses and associated trade sizes. It is also used to call the function to pull ether from the CryptoPot contracts. The contract pays out winning players, and forwards fund to the Dividend fund.

**potprocessor21-25.ethertote.eth** – This smart contract monitors the CryptoPot21-25 smart contracts, and copies the player addresses and associated trade sizes. It is also used to call the function to pull ether from the CryptoPot contracts. The contract pays out winning players, and forwards fund to the Dividend fund.

**gastracker.ethertote.eth** - This smart contract monitors the gas spent on oracle queries to allows the contracts to get refilled

**cryptowinnerrank.ethertote.eth** – This smart contract tracks the percentage change of market cap for all CryptoPrice contracts and determines the "rank" of the crypto currency with the highest percentage increase.

**random.ethertote.eth** – This smart contract retrieves a random value from www.random.org between 0 and 600 and is used to set a delay time for retrieving the final market cap price for the CryptoPrice smart contracts.

**updatevars.ethertote.eth** – This smart contract calls a function on every "CryptoPrice" smart contract to retrieve game variable information, including the standard game period duration, the TLC period duration, the "Call final price" duration and the oracle fees. This allows Ethertote to change the duration of games if player feedback during the testnet phase strongly urges us to do so.

**manualtopup.ethertote.eth** – This smart contract allows us to quickly top-up any smart contract in the ethertote ecosystem that may require additional Eth to cover any oracle query fees.

**cryptoprice01.ethertote.eth** – There are twenty-five CryptoPrice smart contracts ranging from CryptoPrice01 to CryptoPrice25. Each CryptoPrice contract uses Oraclize oracle queries to retrieve crypto-currency market data which is stored in the smart contract and is publicly viewable.

**cryptopot01.ethertote.eth** - There are twenty-five CryptoPot smart contracts ranging from CryptoPot01 to CryptoPot25. The smart contracts are public-facing and can be interacted with using the Ethertote DApp. Each CryptoPot contract has an associated CryptoPrice contract, and represents a single crypto currency.

**tokenholderclaim.ethertote.eth** – This smart contract stores 5% of all Eth traded on each tote, and the Eth can be claimed on a quarterly basis by anyone who holds TOTE tokens at a specified block number.

**teameth.ethertote.eth** – This smart contract is a time-locked contract that can only be called to transfer Eth back to the EtherTote team after a set period.

**teamtokens.ethertote.eth** – This smart contract is a time-locked contract that can only be called to transfer TOTE tokens back to the EtherTote team after a set period.

**tokenburn.ethertote.eth** – this is a simple smart contract that will accept TOTE tokens, but the owner/controller of the smart contract is set to the null address of 0x0 when deployed using the constructor function. Once tokens are sent to this address they can never be retrieved, and are effectively considered "burned" tokens.

The Ethertote smart contract eco-system includes over 70 independent yet inter-linked Ethereum smart contracts. We believe this to be the world's largest modularized independent Ethereum trading game at the time of writing.

During the pre-token sale period, the following smart contracts will be publicly viewable for audit on our GitHub page -

- TOTE token smart contract
- Public Token Sale smart contract
- Token Burn smart contract
- Team Eth time-locked smart contract

Within 24 hours of the Public Token Sale completing, ALL Ethertote smart contracts will be made public on the GitHub page, which will enable us to begin our public bug bounty program.

### Claiming a share of the Eth stored in the Token Holder Claim smart contract

The exact process to make a claim during the claim window will be as follows:

1. TOTE token holders will need to visit the DApp on our website.
2. The DApp will identify the visitors Ethereum wallet address (visitor must be logged into MetaMask or using some form of web3 injection)
3. The DApp will notify the visitor of the amount of Eth they are entitled to claim
4. The visitor clicks on the "claim" button and the TokenHolderClaim smart contract will transfer the correct amount of Eth to the address detected by the DApp.

In the event of any issues for TOTE token holders to reach the DApp on the Ethertote website, players can manually interact with the smart contract. Details of the process for doing this will be available on the Ethertote GitHub page.

## Ethertote Stats

- Total trading hours per Tote game (non-TOTE token holders) = **154 hours**
- Total trading hours per Tote (TOTE token holders) = **158 hours**
- Maximum possible Eth to "lock" the entire Tote = **250,000 Eth**
- Maximum possible dividend fund available for distribution per quarter (based on 12 weeks) = (25 x 10,000 x 12)*0.05 = **150,000 Eth**

## ĐApp Architecture

The EtherTote ĐApp resides in the EVM (Ethereum Virtual Machine) and it contains the core code, the data, stack, arguments, and memory. All operations (read & write) go through the Ethereum Blockchain

### BACKEND

The smart contracts used to power the EtherTote game are written entirely in Solidity. Oraclize is used to carry data from external web API's (CoinMarketCap API) to retrieve crypto market data and transfer this data into the DApp environment. Random.org is used to generate a random number for final price calls.

### FRONTEND

EtherTote have chosen Next.js with React.js and Redux.js for managing application states. We harness the power of Node.js with Express.js for our front-end, combined with MongoDB for management of the "historical data" service on the website.

The EtherTote UI interacts directly with the Ethereum Blockchain using all major supported web3 providers. The EtherTote front-end will work with Metamask in Google Chrome or Mozilla Firefox and is also compatible with multiple mobile browsers including Cipher, Trust and Toshi.

EtherTote uses Truffle to interact with the frontend and includes the truffle-artifactor and truffle-contract frameworks.

Connectivity to Ethereum nodes is provided by Infura.

Some of the technologies used to develop the Ethertote platform

## TOTE Token Crowd sale

TOTE is a fully compliant ERC20 standard utility token with a fixed supply.

0x42be9831FFF77972c1D0E1eC0aA9bdb3CaA04D47

1 TOTE Token = 0.001 Eth
1 Eth = 1000 TOTE Tokens

Public Token Sale Hard Cap = 9,000,000 (9 Million) TOTE Tokens

Minimum purchase during Public Token Sale - 100 TOTE Tokens (equivalent to 0.1 eth)

Allocation of Eth collected:

50% of the Eth raised will be used for marketing, promotion, game development, running costs and exchange listing fees.

25% of the Eth raised will be used to liquidate the Ethertote game for the first 12 weeks, which will incidentally also increase the Eth available to TOTE token holders to claim from the Token Holder Claim smart contract after the first quarter.

25% of Eth raised will be automatically sent to a time-locked contract (TeamEth) into a publicly viewable smart contract, which can be released in 25% batches amounts every three-month period. (teameth.ethertote.eth)

### Token Issuance

- 10 Million (10,000,000) TOTE tokens generated (total fixed supply)
- 9 Million (9,000,000) TOTE tokens will be sent to the "TokenSale" smart contract and are available to purchase directly from the public token sale smart contract.

Of the 1 Million (1,000,000) TOTE tokens retained by the team:

- 750,000 TOTE tokens will go to a publicly visible time-locked smart contract known as the "TeamTokens" smart contract, which will be available to the Ethertote team in batches of 150,000 tokens every three months. The smart contract code is visible to view on Etherscan.

- 250,000 TOTE tokens are immediately available to be used for game development, bug bounties, crypto-influencer incentivizing, giveaways, airdrops, partner rewards, and other marketing and promotional opportunities.

- Please note that all tokens will be transferred to the relevant smart contracts and wallets prior to the start of the token sale, and tokens will not be available until the token sale begins. All smart contract and wallet addresses and transfer TX hashes will be made public on our website and twitter feed.

**Start of Public Token Sale** – TBC (announcement will be made on our website and twitter feed)

At launch date, the Public Token Sale smart contract address will be published simultaneously on www.ethertote.com the Ethertote twitter feed www.twitter.com/ethertote and the Ethertote Telegram group.

The Public Token Sale will last for 7 days or until the hard cap is reached.

Any unsold TOTE tokens after the public token sale will be "burned" and automatically sent to the TokenBurn smart contract address 0xadca18dc9489c5fe5bddf1a8a8c2623b66029198 where the owner of the smart contract is set to the null address 0x0, set with the constructor function when first deployed to the blockchain – Please visit the Ethertote GitHub page for further details)

The Ethertote Dapp will be accessible via the Ethertote website prior to launch of the public token sale.

## Common Q&A

**Q. There are other projects out on the market that offer a similar type of game. What makes Ethertote different?**

A. The Ethertote team have taken a different approach to incorporating the concept of pari-mutuel betting on the Ethereum Blockchain. Our game offers a far greater number of crypto-currencies to trade on than some of our competitors, which increases both the level of competitiveness and skill required to be successful. Each Tote game runs over the course of one week, as opposed to smaller, quicker games hosted by our competitors that may only last for a few hours. We believe there are numerous benefits to approaching the game in this way.

Firstly, the element of skill is enhanced as players have more time to develop and apply various forms of analysis (fundamental, technical, statistical, etc.) to their trades based on ever-changing market movements. This type of skill-based trading differentiates us from other Ethereum "betting" DApps, as well as differentiating our associated TOTE utility token from other security tokens associated with betting DApps.

Crucially, the extended game length also allows for games to be carefully managed in the event of any technical issues. For example, if there are any issues with our price oracle retrieving crypto pricing, we will have the time to manually send independently verified $USD pricing to the smart contracts on the Blockchain to allow the game cycle to complete successfully. The fact that our game is bigger than our competitors, and runs for a longer duration, ultimately leads to a "bandwagon effect" in terms of the overall Tote getting bigger, and more people wanting to trade on the Tote because of the pot size.

Another advantage of the extended period of game time is that it gives greater choice for traders to time their trades based on any network gas price fluctuations.

We have also limited the number of trades on each individual crypto currency to a maximum of 1000 trades to maintain a level of exclusivity and further expand on the skill element of the game. A player must think very carefully as to whether or not they should trade on a crypto early before the crypto potentially "locks", or instead wait for a time closer to when the entire Tote "locks" where it may be easier to gauge or narrow-down on a few crypto currencies which are currently leading the Ethertote table in terms of overall % gain.

Finally, we have incorporated a small advantage for TOTE utility token holders, who will have an additional 4 hours after the standard game time has completed to trade on any crypto currencies which are still open.

**Q. Do you have a testnet?**

A. Yes we have a working product on the Kovan test network and all smart contracts which make up the Ethertote ecosystem game can be viewed on our website, and can be fully validated using Etherscan.

**Q. When will you transition to main net?**

A. Our focus is to launch main-net in Q4 2018 after a successful bug bounty and marketing campaign

Please direct all questions to:


(Image used for mail spam protection)