



KittieFIGHT

A Combat Gaming Platform For Cryptokitties,
With A Deflationary,
Gamified Token Utility Economy

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◆ Abstract

A decentralized combat game filled with cats, memes, and cat memes! Using a deflationary gamified token economy [of fixed supply] with cash jackpot incentives, KittieFIGHT will create a new category of blockchain fun for cat lovers and gamers alike. KittieFIGHT is the first combat-based platform using a unique combination of gamified engagement rewards, where existing user-held NFT cat tokens [generated from CryptoKitties] form a part of this new platform. Combat happens between two opposing battle coalitions, each supporting two individual coalition leaders/cat owners. These coalitions/teams fight for huge jackpot cash prizes, completing the KittieFIGHT gaming solution. The jackpot cash prizes allocated to each game serve as a fun & gamified reward for every user interested in the economic opportunities of KittieFIGHT. The KittieFIGHT branding serves as an added marketing and growth strategy which draws cat lovers online who are open to new opportunities and experiences. Together these primary and secondary factors mobilize the existing CryptoKitties users and cat meme community, along with enthusiasts in the gaming and gambling world to explore and take advantage of entertaining opportunities in the KittieFIGHT platform. The new category created by KittieFIGHT could possibly rival and/or eclipse the existing poker industry market size and provide a viable economic market for gamers all over the world.



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◆ 1. Glossary of Terminology

◆ 1.1 Cryptocurrency

- **Blockchain** - A blockchain originally block chain is a growing list of records, called blocks, that are linked using cryptography.
- **Ethereum** - Ethereum is a global, open-source platform for decentralized applications.
- **Smart contract** - Smart contracts allow the performance of credible transactions without third parties
- **Ether** - Ether is a fundamental token for operation of Ethereum, which thereby provides a public distributed ledger for transactions. It is used to pay for gas, a unit of computation used in transactions and other state transitions.
- **Tokens** - A currency token (or value token or money token) is representative of an amount of a currency (or more generally value or money), be it a dollar bill in digital or paper form, which represents \$1, or a Bitcoin which represents 1BTC worth of value.
- **Token Economy** - refers to the system of incentives based on cryptocurrencies that reinforce and build desirable behaviors the in blockchain ecosystem.
- **Token Utility** - Use value of a token
- **Token velocity** - The speed and or frequency with which a token is exchanged within some time period
- **Token dampening** - Slowing down frequency and speed at which token is transfered
- **Token valuation** - market price of a token determined by demand an supply of the token
- **Cryptokitties** - A blockchain game on Ethereum that allows players to purchase, collect, breed and sell virtual cats
- **Non Fungible token (NFT)** - A non-fungible token (NFT) is a special type of cryptographic token which represents something unique.
- **Dapp** - DApp is an abbreviated form for decentralized application



- **Kittiefight KTY ERC20** - ERC-20 is a technical standard used for smart contracts on the Ethereum blockchain for implementing tokens.

- **KittieHELL** - A contract that prefer any future transfer or use off token forever

- **Endowment Fund** - A smart contract based, Ether cash holding vault that funds every game

- **Deflation** - Increase in token prices due to increase in demand in a fixed supply token economy

- **Greshams law** - Gresham's law is a monetary principle stating that "bad money drives out good."

- **DAO** - Decentralized Autonomous organization, i.e collaborative organization run by a global community working remotely

- **TheDAO** - The very first popular DAO implementation on the Ethereum platform

- **SuperDAO** - An evolving DAO in charge of KittieFIGHT and other financial dapps

◆ 1.2 Game Theory

- **Coalition** - Collection of players on a team within a game

- **Coalition leader** - Leader of coalition who owns the cat, responsible for organizing game and recruiting supporters

- **Provably fair** - Verifiability of truthful chain of events through mathematical means

- **Disincentive** - A disincentive is something that discourages an individual from performing an action

- **Payoff Matrix** - A payoff matrix is a visual representation of the possible outcomes of a strategic decision

- **Disincentive** - A disincentive is something that discourages an individual from performing an action

- **Shapley Value** - This is a solution for the unique distribution of a total surplus value generated by the coalition of all players

- **Escalation of commitments** - A behavior pattern in which an individual or group facing increasingly negative outcomes from a decision, action, or investment nevertheless continues the behavior instead of altering course.



- **Imperfect-information games** - Games where each other players progress are hidden from other players
- **War of attrition** - A strategy consisting of belligerent attempts to win by wearing down the opponent to the point of collapse through continuous losses in resources
- **Gamified /Gamification** - techniques are intended to leverage people's natural desires for achievement in exchange for rewards
- **Pseudo random inputs** - A pseudo-random number generator (PRNG) is a deterministic algorithm that produces numbers whose distribution is indistinguishable from uniform.
- **FOMO** - A pervasive apprehension that others might be having rewarding experiences from which one is absent”

◆ 1.3 KittieFIGHT Game dynamics

- **Listing fees** - KTY token fees on KittieFIGHT required to list a cryptokitties NFT CAT
- **Participation fees** - KTY token fees on KittieFIGHT required to join a coalition
- **Betting fees** - KTY token fees on KittieFIGHT required to bet on a kittie as part of a coalition
- **Redemption fees** - KTY token fees on KittieFIGHT required to be burned in order for a losing kittie to be reclaimed
- **Satisfactory performance** - Required increased jackpot size level before a game can be terminated
- **Top bettor** - The Top Ether contributor in each of the opposing coalitions
- **Second top bettor** - The second Top Ether contributor in each of the opposing coalitions
- **Game finality** - Determination of the winning results of the game



◆ 2. Introduction

In the fall of 2017 November, Cryptokitties dominated ethereum news cycle and brought the Ethereum network close to a crumbling halt. Network statistics shows a spike in adoption and non-fungible cat production in the period. However this activity has dwindled despite efforts of the Cryptokitties platform to spread into new jurisdictions. Hence the whole premise of KittiFIGHT is to primarily economically empower NFT holders or community users of Cryptokitties project. This is done by helping them to earn Ether and Kittiefight KTY ERC20 tokens from participating in competitive combat, coalition based games on KittieFIGHT, and in highly optimized user gaming experiences. The gaming process also has an indirect benefit of cutting down on oversupply of non-fungible/NFT digital items on Cryptokitties to reduce saturation. Kittiefight will make Cryptokitties great again through these main tactics :

- ◆ Competitive gaming environment for user to win rewards of Ether and Kittiefight ERC20 token value
- ◆ Cutting down on supply of kittens through a sink mechanism called KittieHELL

The result is that over time there are less NFT kittens in existence and more CryptoKittie and KittieFIGHT players with extra cash (Ether and Kittiefight KTY ERC20 tokens) value to spend on more breeding/ buying & gaming activities. We plan to accomplish this via cash based incentivize gaming and game theoretic engineering of token scarcity with increased demand via jackpot prizes.

We also believe that the experience on kittiefight will increase the influx of new blockchain game users and cryptokitties fans by bringing more excitement to cat fans all over the globe. The depth of the gameplay visual and auditory immersion is reminiscent of 90's Mortal Kombat gaming experience that is sure to move fans from every corner of the internet.



We are excited to apply our combined experience in the blockchain industry to gaming applications that are completely immersive for the user experience yet economically profitable.

We achieve this with the combination of sound game theory, crowd dynamics and massive user incentive crypto economics to deliver outcomes to the benefit of consumer which ultimately brings more utility and prosperity to the Cryptokitties platform and KittieFIGHT.

◆ 3. Market

Since the KittieFIGHT combat platform is a combination of internet cat and internet gaming/gambling cultures, its safe to postulate that the KittieFIGHT market-share capture-potential exist somewhere beyond any one of the market-share of the individually mentioned categories. A large majority of internet users enjoy cat memes, cat pictures and videos of domestic cats make up some of the most viewed content on the internet. This is evident from the activity on youtube where almost half of all original YouTube videos are of people's pets, and around 26 billion views are just for cats, making them the single most popular category. The gaming industry according to Entertainment Software Association is at \$43 billion, while the gambling market is expected to Hit \$80.65 billion by 2025 according to industry research by hexaresearch and android .

Therefore, the rapid and upward KittieFIGHT marketshare capture is expected given that the audience cuts across the combination of these three internet sub culture meeting points. Another aspect that is expected to speed up growth is the existence of a deflationary, gamified token economy within the KittieFIGHT combat platform. Such a token economy is one which provides cash jackpot prizes for winning players in a game, taking the gaming experience beyond just an enjoyable experience to economic benefit for users and tremendous marketshare growth for KittieFIGHT.



◆ 4. Product

kittieFight is a gamified mortal kombat for cryptokitties, which is a crowd-driven real-time Dapp fighting game on the Ethereum blockchain. It uses provably fair mechanisms for end game results, as well as Ether and Kittiefight KTY ERC20 tokens monetary jackpot incentive in each game, as a lure to draw in participators in a behavioral game-theoretical psychological war of attrition lottery experiment. Each game specifically involves two opposing large coalitions, each organized in cooperating internal strategies to coordinate the optimum Ether betting strategy according to rules of the game in order to defeat the opposing coalition. Individual players within a team also try to gain a monetary advantage over members in their coalition by accumulating large sizes of bets in order to be ranked top or second top bettor in order to claim the lion's share of the Jackpot prize of Ether and Kittiefight KTY ERC20 tokens.

kittieFIGHT has a gamified ERC20 KTY utility token economy, which has a fixed supply and operates by limited issuance per game and massive fee payment requirement in ERC20 KTY tokens per game. During the lifecycle of every game, there is an incentive for various gaming fees paid in Kittiefight (KTY) ERC20 tokens, via the game reward Jackpot Prize denominated in Ether and Kittiefight KTY ERC20 tokens. The growing demand for use of KittieFIGHT tokens (KTY) in game, drives up the value of KTY token which are additional rewards to players in each game aside from the Ether rewards.



◆ **5. Business Model : Fixed, Deflationary, Gamified Utility Token Economy**

KittieFIGHT is a decentralized gaming platform, as that, the primary business model revolves around appreciation of KittieFIGHT KTY ERC20 utility tokens, through constantly increasing network use value resulting in exponential increasing market demand. A secondary model involves governance staking of organization tokens to receive Ether rewards from the Ether jackpot profits during games. The secondary model of Ether rewards is to be in effect at the technical deployment of the KittieFIGHT DAO governance infrastructure. To achieve the primary business model of KTY token appreciation objectives, which favors all network holders of KittieFIGHT KTY utility tokens, 3 primary value creating strategies are employed :

- ◆ 1. Fixed supply, gamified or incentivized KTY Token utility
- ◆ 2. Excess demand Strategy : Very low reward emissions and high KTY fees
- ◆ 3. KTY token velocity dampening and greshams law via Deflation :

◆ **5.1 Fixed supply, gamified KTY token utility**

KTY token is used for payment of various fees in order to participate in a game. As opposed to other products where the payment requirement is a barrier to adoption, in the case with kittieFIGHT token, it is actually seen as cheap price to pay in order to access economic opportunity due to the cash jackpot incentivize available by participating in the game, which has a 50% winning outcome. The reward incentive is composed of Ether and Kittiefight KTY ERC20 tokens, paid to each game winners within the winning coalition. The gamification of fee payment is the economical motivation for dapp users to get beyond the natural participation inertia that may arise during fee payment requirement which may otherwise act as a barrier to entry.



The constant demand for fee payment in KTY tokens then results in higher and higher demand for KTY token & increasing market demand on various exchanges, thereby resulting in higher and higher token valuation. For every game there is a 50% probabilistic positive outcome for users to win Ether and token prizes based on the team they support, serving as a motivating factor to take advantage of every jackpot payout opportunity existing with every scheduled game . There are four primary types of fees, which are collected back into the holding smart contract vault called the “Endowment Fund”. Only the Last fee type “ Redemption fees” are burnt forever, removing some tokens out of the fixed token supply of 100 million KTY Tokens.

List of fees:

- ◆ Listing fees
- ◆ Participation fees
- ◆ Betting fees
- ◆ Redemption fees

◆ ***5.2 Excess demand strategy :***

The excess demand strategy involves system requirements within the game whereby more fee payments inputs for various game actions in KTY Token are required, than rewards payout from the the Kittiefight smart contract holding vault called the “Endowment fund”. This schedule of paying out very low KTY token reward emissions per game to winners, while requiring high KTY fees for gameplay process, will cause all ongoing games on the platform to create continuously increasing demand for KTY on exchanges where they are traded. The continuously increasing demand effect will then cause extraordinary upward trajectory growth of the value of KTY Tokens. An illustration of this model is that for every Jackpot prize of \$50,000 ETHER, game winners are only additionally rewarded with 1% of the initial Jackpot prize value in KTY tokens.



While the combined fees payment requirements of all participators, including listing fees, ticket fees betting and redemption collectively amount to at least 10% - 15% of the Jackpot price value in KTY tokens. This is possible because there is a large, minimum requirement number of supporters sign-up per game before each game can start. In addition every game must attain a level of satisfactory performance requirement before terminating. Minimum performance per game means that at least 10 times (10x) the initial jackpot funds has been attained. I.e a game starting with \$50,000 in Ether Jackpot must end with \$500,000 in Ether ($\$50,000 * 10$). For every game there is at least a 50% profit minimum returned to the endowment fund, from the accrued game jackpot.

◆ ***5.3 KTY token velocity dampening and greshams law via deflation***

The combined effect of the described mechanisms above will create a long term holding effect of all KTY token holders, as long as the conditions described above continue to hold true. Because the combined behavioral properties of the token utility users or holders of KTY token have higher probability to horded longterm according to gresham's law classifying good monetary instrument or asset.

◆ **6. Adjacent factors catalyzing KTY token economy growth**

◆ ***6.1 Reward distribution:***

Rewards are paid out to members of a winning coalition based on personal performance or game position during the betting period of a game. As an optimum strategy for winning, bettors collaborate to bet sequentially increasing amount of Ether each time to increase the odds of a devastating hit. The higher the Eth and more frequent the bets, the higher the probability of a bigger hit.



However individual players earnings are based on actual Ether bets weight or position within the team. For example the coalition leader (owner of cat) gets the lions share of the Jackpot. The first highest bettor gets the second highest share of the jackpot, same goes for the third getting the third largest share of the jackpot. For the rest of the bettors a set percentage is metered out to them based on their percentage contribution. On the losing side, the loser of fight match; coalition leader, have to pay a fee in KTY equivalent to the winning players winnings, in order to redeem the kittie that is already committed to kittiehell within allotted time limit, or risk losing kittie forever. The supporting members in the coalition on losing side, loose their bet Ether; which is transfered to winning side for winning coalition to share.

As an example, the Jackpot/honeypot prize of \$50,000 in value, consisting of KTY Tokens and Ether are split up among winning coalition satisfying the Shapley Value as follows :

- ◆ Coalition leader/kittie owner takes lion share (30%) of honeypot/Jackpot .
- ◆ Top bettor on winning side takes second highest share (20%) .
- ◆ Second runner-up top bettor side takes third highest share (10%) .
- ◆ Every other bettor get to share (25%) equally .
- ◆ For now, (15%) is sent back to Endowment fund. (DAO controlled eventually) .

◆ ***6.2 Replicated escalation of commitments***

Because of incentive to earn the lions-share of the jackpot, there is the potential to trigger large amounts of irrational betting actions by bettors, justifying increased betting, based on cumulative prior betting costs. In behavioral psychology, this behavior is referred to as the sunk cost theory. Also proliferation of these behaviors during games might continue despite new evidence suggesting that there is a high probability of not winning the lion-share of the jackpot.



The jackpot prizes for the top and second bettors are subtle psychological triggers potentially multiplying the number of increased irrational betting behavior in both opposing coalitions, within a game, betting beyond what is expect due to the fear of missing out “FOMO”.

Note :

In situations where there are multiple “top” or “second - top” betters”, the first to attain such positions is usually the player awarded with the designated prize

◆ 7. Game Mechanics

◆ 7.1 Getting started

The lifecycle of a game on the kittieFIGHT platform starts with potential players (Coalition leaders) owning NFT Cat tokens on the Cryptokitties platform, listing the cats for a fighting match on KittieFIGHT by paying a listing fee. Games are matched between multiple players and scheduled for various times during the day and week. When a player (coalition leader) is successfully matched, a jackpot prize in ether with an amount of KTY tokens are automatically assigned to the game used as rewards for the winners of the game. From then on each coalition leader can promote the scheduled game to each of their followers, galvanizing support before the schedule match time and date. Supporters join a coalition/coalition leader they support in a game by paying the ticket fee in KTY Tokens. Any game failing to reach the minimum supporter number count before the start time and date of a specific game start time, will be cancelled and whatever listing fees and ticket fees paid in KTY are also forfeited.

At the Game start time and date, there is a requirement for both coalition leaders to indicate readiness and presence by pressing start before the end of a predetermined amount of time like “5 mins” .



When the games starts, there is a 5 mins for actual gameplay with the exception of if the game is in an “un-performant” state . An “un-performant” game state means that within the 5 minute playing time allocated to the game, the game has failed to generate 10 times (10x) the amount of the initial jackpot assigned to the game.

◆ 7.2 Gameplay

Actual gameplay during game time involves cats/kittens fighting each other based on crowd-based/supporter Ether betting actions. Ether betting support from fans are similar to how the cheering inspiration of supporting crowds at a boxing match motive boxers to box. In the case of kittyFight, the supporting crowd for each NFT cat bet Ether on each cat they support of, causing an attack on the opponent. The supporters bet on the cat representative of a coalition, resulting in action on the part of the cat. The actions are random bets placed on the blockchain. The outcome of the betting results of each crowd participant causes events emitted from the blockchain api service to the front-end/UX resulting in kitty animation actions (punching, scratching, etc). The actions result in damage which is reflected in opposing cat through vibration and or shaking or blocks. But the actual value of each hit is not determined until the end of the game. At the end of the game, when the randomization algorithm is triggered in exchange for a reward, it uses combinatorics together with pseudo random inputs from all combined betting input actions of supporters to generate a final pseudo random, non-deterministic seed, used to determine the final values of each attack.

Animation actions of cats such as; low punch, mid punch, high punch, low scratch, mid-scratch, high scratch are generated based frequency and sizes of Ether bet.



Bets are allowed to be placed through a KTY token fee and the size of Eth contributed by each supporting bettor over the lifetime of the game, also determines if the supporting bettor is eligible to win the lion's share of honeypot/jackpot.

◆ **7.3 UX and feed back**

There are punch visual effects and sound effects accompanying these actions. There are also reactions to each of these actions in the form of vibration/shaking/blocking of the opponent cat, as well as crowd sound reaction cheering the cats on, on each assault.

When there is no action for period of time (No events emitted from blockchain for some time), there are simulated actions called "idling actions-with sound and reaction" that are carried out by each kitty in turn. Basically, during the idling cycle kitties shadow box each other, and dodge the actions/hits with a slight ducking, but keeping the game interactivity and continuity going, to keep the game enjoyable without actual damage. The winner of the game is the kitty that sustained the least damage, i.e the one accumulating the most hit points weighted by total Ether size bet by the winning team.

◆ **8. Game Algorithm**

◆ **8.1 Betting**

Betting involves clicking on the game screen, selecting the amount of ether to bet and then selecting a random number for that specific bet. There is a pre-set default value of fees to be paid specifically in kittieFIGHT Tokens KTY, paid with every bet. Once these parameters are sent to the backend betting function to be processed, the resulting event is what is actually responsible for the animation generated on screen.



Bets returns to the screen in the form of events in similar format as such: newbet: corner:red, amountBet: 2 Eth, attackType: blockedAttack, attack : hardKick...which are then translated to the pre-configured animation.

◆ 8.2 Attack Types

However there are only two types of attacks; direct and blocked attacks. Direct attacks incurred the full point penalty of the hit, while blocked attacks only result in 1/4th the points of the same attack in direct mode. Direct attacks are scored against the opponent when there has been a 5-second lapse in **activity/attacks**; this simulates punitive disincentive of opponent for lack of activity and vice-versa. Blocked Attacks are the **norm** when both players are active without lapses. The player/corner with the most points at the end of the game, when the **hitRsolver** is activated, wins the game.

◆ 8.3 Defensive level

Every game starts with each cat fighter generating a defense rating, based on the rarity level of cattributes in the cat, originally generated from the Cryptokitties platform. The defense level is synonymous with the health bar expected in normal combat based video games. The defensive level provide a cushion of defense against attacks in certain scenarios where the fighter remains active. Otherwise carefully coordinated attacks from the opponent deplete the defensive levels.



◆ *8.4 Defensive level depletion*

The defense level of **an opponent** is reduced each time an Ether based bet is received from attacker and the last five bets are compared on the **condition** to see if each Ether bet was bigger than the previous Ether bet in progression. If the comparison between the five Ether based bets resolves to the required **TRUE** condition, meaning all Ether bets were bigger than the previous Ether bets, then the Opponent losses one level of defense and vice-versa for the other team. This check is done every time Ether is bet, but executed only if there has never been any defense reduction execution or if since the last execution there has been more than 5 bets with each Ether bet bigger than the previous bet.

◆ *8.5 Final attack scores and hit resolution*

To determine the winner between the two opposing coalitions in a game, the smart contract code is triggered, which then algorithmically determine the product of the cumulative ether bet and total amount of accumulated score values outcomes, based on the performance of the collective and incremental, frequent Ether bets. The dynamic of collective and incremental, frequent Ether bets is the optimum inbuilt algorithmic strategy, to guarantee a high probability of winning a game.

Achieving the aforementioned dynamic to a high degree results in higher and higher attack values, which is impossible to attain within a coalition without high degree of cooperation. This is an important dynamic factor to encourage experimental cooperative coalition behavior where by the team that can highly and optimally maintain coordination to collectively, place frequent, subsequently incremental Ether bets win the game.



Game attack are recorded as events during the game, which are also structured as key value pairs without actual value association during the game. The game proceeds until finality when actual values for all the hits accumulated are generated by a resolution process called the “hit-resolver”. All accumulated points are then summed and augmented by weighted multiplication in a weighted product model, as described above to determine the game winner.

The hit resolver determines how each recorded attack should be valued by selecting randomly from a range of low generated values to be assigned to attacks resulting from collective Ether bets, that fail to be frequent and incremental. Likewise, all attacks resulting from collective Ether bets that are frequent and incremental, are randomly awarded values selected from a range of high values, which are randomly generated through non-deterministic, collective pseudo random generation process .

For provable fairness of the coalition dynamical games and because of the group dynamical nature of a kittieFIGHT game, it is necessary to conceal the exact values of each attack untill the end of the game round. This means that there is no way to determine who is winning the game untill the game is over at game finality. This is important to keep supporters within each team highly cohesive in loyally supporting initial team choice by preventing any unintended incentivized team switches by an obvious performance indication.



◆ 9. KittieFIGHT Cooperative Game Theory

The success of a coalition in battle of a game on the KittieFIGHT platform is dependent on cooperative game theory whereby; the most optimal and effective, frequent and incremental Ether betting effort of the coalition give the best chance of success. A coalition managing to hold such a strategy to the highest and effective degree wins the game and associated cash jackpot. Due to such implication it is highly necessary for every coalition leader to have a predetermined coordination strategy together with communication channel in order to share betting strategies and keep communication ongoing with betting members of a coalition team.

Also since the KittieFIGHT combat games are imperfect-information games; meaning that all participators in the game are blind to their winning progress or opposing coalition progress, its is advantageous to keep communication ongoing and the betting strategy ongoing intensively in order to guarantee a high probability of winning the game. Lastly, the nature of KittieFIGHT combat games as competitive zero sum games, the threat of fund loss act as a disincentive for coalition members not to drop behind on pre-agreed upon communication and betting strategy. To illustrate the potential risk profiles to coalitions members of reward scenarios, we have provided a simple reward matrix example below:

Example payoff matrix :

- ◆ **Strategy A** : Optimal, highly coordinated collective and incremental, frequent Ether bets
- ◆ **Strategy B** : Random mostly passively generated group bets
- ◆ **+Jackpot** : Jackpot cash prize as payoff ; i.e \$50,000 in Ether and KTY Tokens
- ◆ **-Jackpot** : Loss of Jackpot prize and funds bet during the game
- ◆ **Redemption fee** : Fee denominated in KTY token, required to be paid if the loser want to redeem fighting kittie within a certain amount of time; i.e 30% of \$50,000 in KTY Tokens



Payoff Matrix

Coalition	Strategy A	Strategy B
Coalition 1	+ Jackpot	- Jackpot & Redemption fee
Coalition 2	+ Jackpot	- Jackpot & Redemption fee

In summary, the only optimal winning strategy is the efficient and effective cooperation amongst coalition members; collective-frequent and incremental Ether bets. While there is a punitive measure against coalition leader/owner of cat of the losing coalition. This acts as a negative incentive motivating coalition members to work hard at their strategies in order not to loose the game.

◆ **10. Smart Contract Security**

As cooperative organization, we have been in existence through the inception of the Ethereum platform and watched the catastrophe that ensued from the “TheDAO” project exploitation. As a result of our experience, we are keen to take the necessary steps to avoid repeating similar mistakes in system design to the extent of insuring against even more elaborate sophisticated attacks. As such our smart contract system is built defensively from the ground up against elaborate exploits or unintended usage. The core interaction point of the KittieFIGHT system is the KFProxy contract which allows or denies access based on pre-determined roles types and or allowed action at specifics points of time and for what duration of time. The system is further comprised of contract managers, databases storage contracts, automated cronjob systems, business as well as system wide variable system.



The proxy Contract system is responsible for the following system properties :

- ◆ **Permissioned access** : The proxy system only allows access to certain system state changing functionalities based on roles categories. This limits the operations that an external actor can perform within the system at a specific time and the duration for which such allowed action can be performed.
- ◆ **Modularity** : The kittiefight smart contract system is highly modular such that, each module can be replaced without consequence to other interdependent contract module systems. This is possible due to the separation of concerns between application logic and storage capabilities as well as business logic.
- ◆ **Freeze system** : The freeze system is a system wide disabling of interaction capabilities via admin trigger. It serves as a complimentary safety mechanism to the non consequential replaceable module system described above, during upgrades.
- ◆ **Threat analysis** : System of monitoring health of kittiefight network in real time to detect any system anomalies quickly and solving effectively.
- ◆ **Maintenance** : Because of the highly modular architecture design, the kittieFIGHT contract system provides liberty to provide frequent maintenance in the form of upgrades, in the case of any issues without disturbing business operations for long durations.



◆ 11. Conclusion

We have created a new category of internet cat meme utility, by means of combat gaming utilizing the concept of tokenized cat memes and gamified token economy. By acknowledging the novelty of the Cryptokitties platform NFT cat tokenization and also recognizing under utility of tokens existing on the platform, we created the kittieFIGHT platform because we believe that we can create a new wave of new user adoption of crypto currencies and encourage the increase in existing crypto user activity.

KittieFIGHT is an incredible opportunity for us at SuperDAO putting our combined experience and lessons learnt in the cryptocurrency industry, starting with our founder at the inception of the bitcoin network 2010. We have learnt valuable lessons over the years from successes and failures of various crypto projects covering network effects and the role of utility tokens catalyzed by immersive user experience. By applying acquired experience to a product with a rich user experience, through gamification and experimentation in cryptoeconomic incentives with engineered user driven scarcity, we provide a model to rejuvenate and increase influx of new users of cryptocurrency, also increase user adoption for the Cryptokitties platform and KittieFIGHT itself.



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