ULTIBET

Truly player-to-player sports betting

http://ulti.bet

1. Abstract

ULTIBET is a website for players to bet against each other on the outcomes of events in a football match. Players can create private "rooms" to bet against their friends or join public "rooms" to bet against players worldwide. Each "room" is dedicated to a specific match and features live match commentary, a live chat, and the ability for players to make in-play bets. Players can bet against each other on which team gets the next corner, yellow card, penalty etc. All bets are paid out instantly as soon as the events occur in the match by the platform. The ULTIBET platform is built on a blockchain, meaning smart contracts handle all bets and their payouts. This means that no single individual or institution can tamper with the bets or payouts, making ULTIBET a truly player-to-player sports betting platform. The ultimate goal of ULTIBET is to make truly player-to-player sports betting simple and accessible to everyone.

2. The Idea

Sports betting has for long remained in the domain of bookmakers. They set the odds, you place the bet, they pay you if you win. At the end of the day, however, the bookmakers are always the winners as they adjust the odds. Recently, there have been a few apps that offer "social betting," meaning that you bet with your friends on events that you then settle amongst yourselves. There is no payment-enforcement in such apps and you have to agree amongst your friends on what the outcome of the event actually was. As such, this reduces the integrity of most "social" bets.

ULTIBET aims to combine the integrity of traditional sports betting with the player-to-player character of social betting. On ULTIBET, players join "rooms" that contain live data feeds from football matches. Players can bet on in-play events such as corners, fouls, penalties, yellow cards etc. As soon as the event happens in the game, the winners receive the rewards from their bets.

ULTIBET runs on a novel blockchain platform that, unlike Ethereum, supports a throughput high enough for live betting to take place. This means that ULTIBET is a truly player-to-player (peer-to-peer, p2p) sports betting platform as all wagers and payouts are handled in a decentralized manner through smart contracts. Unlike other blockchain-based betting platforms, betting on ULTIBET can be done with real money (not limited to

cryptocurrencies) and doesn't require downloading special software to interact with the platform. ULTIBET aims to make decentralized betting simple and accessible to all.

By running on a blockchain, ULTIBET protects its players from fraud, scams, and corruption. Since betting on ULTIBET is decentralized, no individual or company can place bets, cancel bets, or tamper with the payouts of other players. This is the type of due diligence that we believe modern betting platforms should be doing.

3. The Tech

All technological innovations are seamlessly embedded into the ULTIBET platform. Players who have no interest in the technology are be able to enjoy its benefits without the need to install anything or learn anything new. ULTIBET is a completely normal website and betting is fully intuitive – all the tech stuff happens behind the scenes. At the same time, players interested in the technology are able to inspect it in its fullest form as it is fully opensourced and transparent.

ULTIBET makes extensive use of innovations in technology to provide a secure and quality service to its customers. To that end, ULTIBET runs all betting-related logic on a native blockchain platform instead of being hosted on a traditional server. This means that no individual or company is capable of tampering with the bets of players. Advances in cryptography are seamlessly embedded into the platform so as to ensure maximal player integrity.

The decision to *not* build ULTIBET on the Ethereum blockchain platform was taken for the following reasons:

- Ethereum has a maximal throughput of ~10 transactions per second among all of its decentralized applications. This is not enough for live betting.
- There is only one business model available in Ethereum: having users pay miner fees. This is ridiculous to expect of players on a live betting platform.
- The anonymous nature of Ethereum's Proof of Work consensus algorithm allows for a so-called Sybil attack. This means that it is unclear how many people exert how much power over the network. There have been speculations that individual organizations control a majority of the network, leading to its centralization.
- Ethereum block data is stored as key-value pairs. This makes it very inefficient to find data quickly.

Here are the innovations of the ULTIBET blockchain platform:

- ULTIBET handles up to ~1000 transactions per second, which is capable of hosting live betting applications.
- Players do *not* pay a fee for every transaction; they do *not* pay miner fees at all. Instead, variegated incentive structures are available.
- ULTIBET employs the Proof of Luck[1] consensus algorithm, which ensures distribution among a known set of nodes. This prevents Sybil attacks and allows for the platform to be decentralized, facilitating truly player-to-player (peer-to-peer, p2p) sports betting.

- The ULTIBET platform supports blocks being stored in a relational database, such as PostgreSQL. This allows for quick and efficient searching through existing blockchain data.
- The ULTIBET platform is ultra-lightweight and works on all platforms with minimal configurations.
- The ULTIBET platform lets users sign their bets with private keys if they desire.

Outcomes of events, such as which team won the next corner in the match are reported instantly to the players in the "room" through a smart contract (a piece of code) that monitors the match. Outcomes of events are usually reported within seconds of their occurrence in the match. As soon as an outcome is reported, any bets associated with it are paid out instantly.

4. The Logistics

Betting and Payout Structure

Betting on ULTIBET is simple and takes place player-to-player (technically known as peer-to-peer or p2p). This means that you are betting directly against your friends or other players from around the world -- no more bookmakers! Betting on ULTIBET takes place live, which means that you can bet on in-game events, such as which team gets the next corner, concedes the next penalty, or scores the next goal. Here are a couple pointers to help you navigate betting on ULTIBET:

- There are two types of bets: pending bets and active bets. Pending bets are bets a player has suggested and are awaiting to be accepted by other players.
- A pending bet can, for instance, be placed by Player A for $20 that Team A wins the next corner. Other players can then choose to accept or decline the bet. If a player wants to accept the bet, he or she can choose how much money they want to wager and what team they want to bet on.
- When a bet becomes active, it is locked in. Players can then see how much money each player wagered and what team they bet on. Players do have the possibility to vote to remove an active bet. If the vote passes, each player is paid back the amount they wagered.
- Active bets are automatically paid out when the event occurs in the match. Winning players receive the money they wagered back and split the money from the losers. However, a winning player can only receive from a losing player as much as he or she wagered. This is in order to reward higher-risk wagers. The remaining money is paid back to the losers.

Here follows an example of the payout structure:

Player	Amount wagered	Team
Player A	$20	Team Y
Player B	$10	Team Y
Player C	$15	Team Z
Player D	$25	Team Z

If **Team Y** gets the next corner in the match (ie is the winning bet), these will be the payouts:

Player	Payout from own wager	Max. payout from loser	Payout from losers	Total payout	Net gain
Player A	$20	$20/2 = $10	$15/2 + $25/2 = ($7.5 -> $7.5) + ($12.5 -> $10) = $17.5	$37.5	+$17.5
Player B	$10	$10/2 = $5	$15/2 + $25/2 = ($7.5 -> $5) + ($12.5 -> $5) = $10	$20	+$10
Player C	$0 + $2.5 = $2.5	$0	$0	$2.5	-$12.5
Player D	$2.5 + $7.5 = $10	$0	$0	$10	-$15

Player A: Wins the bet. Receives the $20 he wagered back. There are two winners, so Player A's maximum payout from the losers is his wager divided by two, ie $10. From Player C, he receives $7.5 as this is fits into $10; from Player D he receives $10 because $12.5 is greater than $10. The remaining $2.5 is returned to Player D. Player A receives $37.5 which results in a net gain of $17.5.

Player B: Wins the bet. Receives the $10 he wagered back. There are two winners, so Player B's maximum payout from the losers is his wager divided by two, ie $5. From Player C, he receives $5 as $7.5 is greater than $5; from Player D he receives $5 because $12.5 is greater than $10. The remaining $2.5 and $7.5 is returned to Player C and D, respectively. Player B receives $20 which results in a net gain of $10.

Player C: Loses the bet. Receives $2.5 of his wager from the remainder of Player B's wins. Player C receives $2.5 which results in a net loss of $12.5.

Player D: Loses the bet. Receives $2.5 and $7.5 of his wager from the remainders of Player A's and B's wins, respectively. Player C receives $10 which results in a net loss of $15.

As a result, high-risk bets are rewarded with greater payouts and lower losses. The "risk" of bets is in this payout structure measured relative to the bets of other players in the round.

Registration

Registration is completely free. Upon registering, you will receive an encrypted file with your private keys. Your private keys are used to cryptographically sign any bets you make on the ULTIBET platform. This is a way of proving that it is indeed you who placed your bets. The cryptographic signing happens seamlessly behind-the-scenes when you place your bets, so you don't have to worry about anything. When you register, you can choose whether you want us to store a copy of your private keys as a back-up in case you lose them or don't have access to them. If you store your private keys with us, you can delete the file and safely forget about it!

Logging in

You log in every time you join a room. A room can either be private (a password is required to join) or public and serves as a place where players bet against each other in a given game or match. Anyone can create their own public or private rooms, and anyone can join as many rooms as they want. You can log in to a room using one of two methods:

- Traditionally, using your username and password. You can only do this if you have stored your private keys with us. We will cryptographically sign your bets for you in this case.
- By uploading the file with your encrypted private keys that you downloaded when you registered. You will also provide your password, which will be used to decrypt your private keys. Your private keys stay in your client (in your browser) and are never sent to any server or player. This means that nobody ever sees your private keys. Your client will then use your private keys to cryptographically sign any bets you make.

Depositing money

You can securely deposit money into your ULTIBET account from our add money page. We strive to offer as many payment methods as possible and will continue adding payment methods as we expand. Above all, however, we value your security and, if you choose so, privacy. To that end, we also offer money deposits through cryptocurrencies alongside traditional payment methods. All deposits are handled by smart contracts and will be processed within 12 hours.

Withdrawing money

You can securely withdraw money from your ULTIBET account from our cash out page. We strive to offer as many cash out options as we do deposit options. This means that, alongside traditional options, we will always offer the option of cashing out through cryptocurrencies in the interest of privacy. Withdrawal requests may vary in duration depending on your country of residence if you choose to cash out using a traditional option.
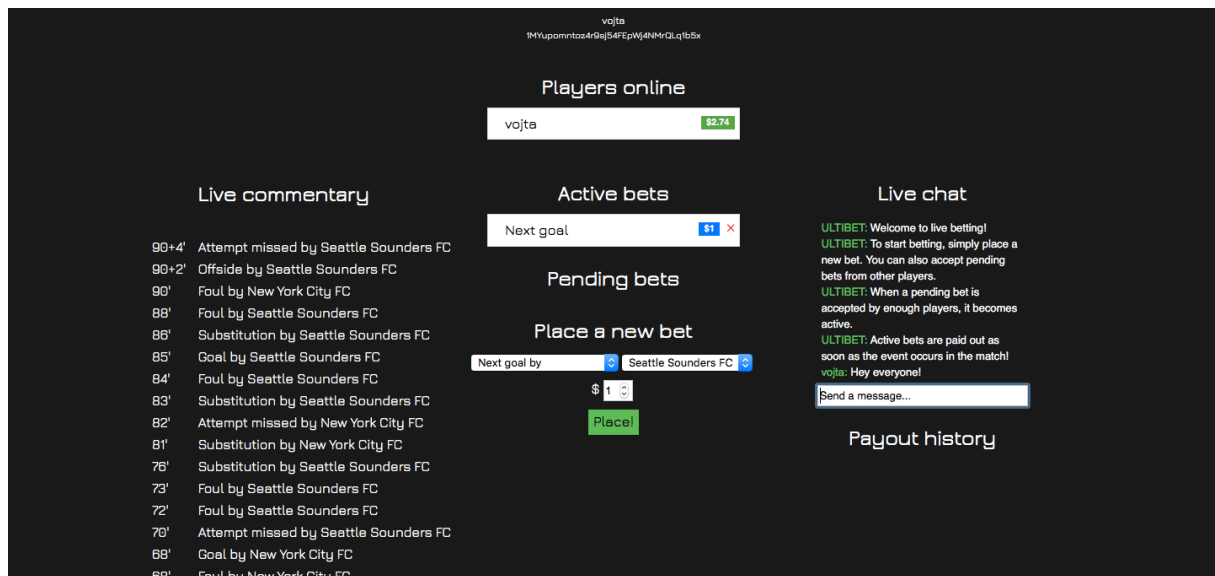
5. Screenshots

Below are a few screenshots of what the platform looks like.
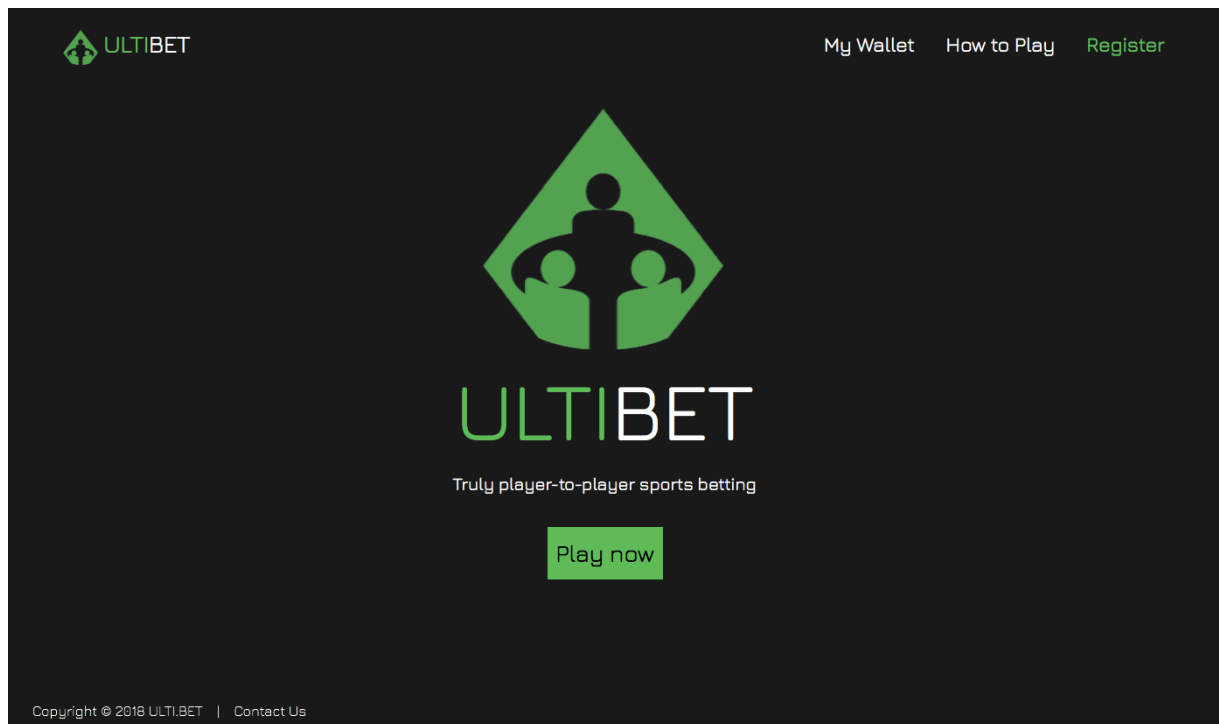
The main landing page.
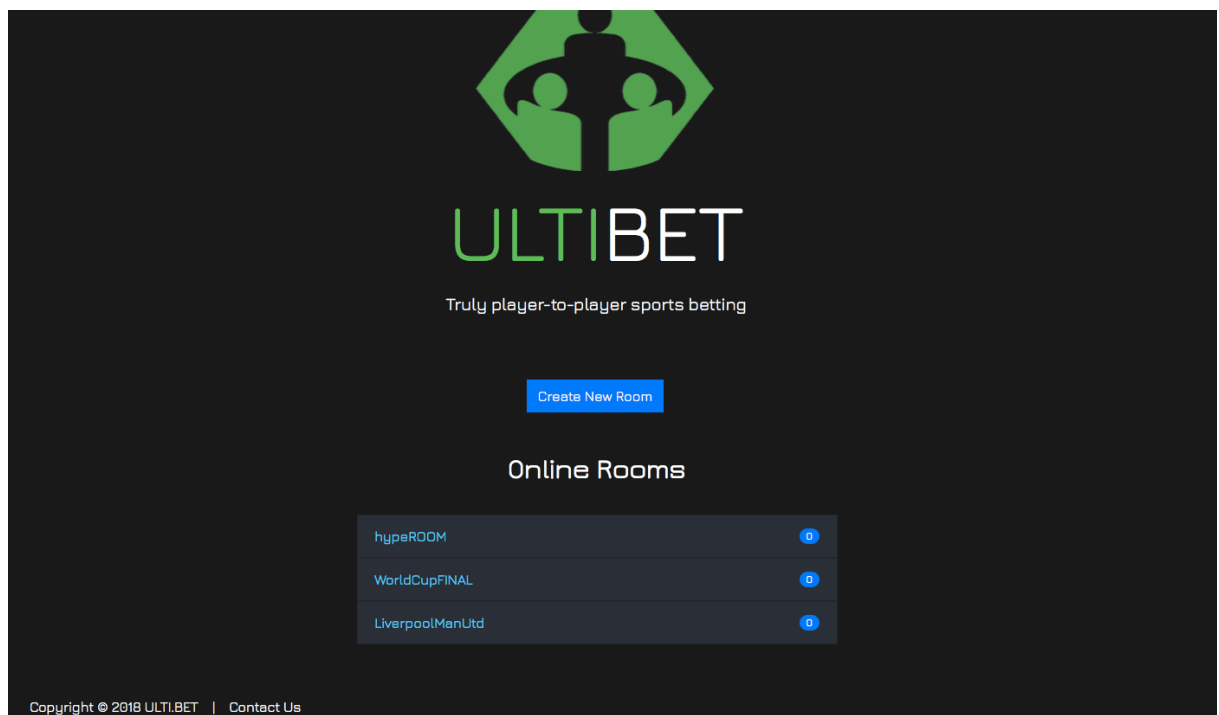
Example of the online rooms players can join.

Example of a "room."

1 Milutinovic, Mitar, et al. "Proof of Luck." *Proceedings of the 1st Workshop on System Software for Trusted Execution - SysTEX '16*, 2016, doi:10.1145/3007788.3007790.