

Avian Defi

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ABSTRACT: Decentralized finance (DeFi) is an emerging financial technology based on secure distributed ledgers similar to those used by cryptocurrencies. In the U.S., the Federal Reserve and Securities and Exchange Commission (SEC), likewise in India we have RBI that define the rules for centralized financial institutions like banks and brokerages, which consumers rely on to access capital and financial services directly. DeFi challenges this centralized financial system by empowering individuals with peer-to-peer digital exchanges. DeFi eliminates the fees that banks and other financial companies charge for using their services. Individual should hold money in a secure digital wallet, can transfer funds in minutes, and anyone with an internet connection can use DeFi.

Keywords-DeFi, Centralization, Decentralization, funds, peer-to-peer, transport, exchanges cryptocurrencies.

I. INTRODUCTION

The phenomenal rise of cryptocurrencies and decentralized finance have prominently featured “staking”: Besides offering a convenience yield for transactions as digital media of exchange, tokens are frequently staked (and slashed) for base-layer consensus generation or for incentivizing economic activities and platform development, and consequently earn stakers rewards in the same tokens. To provide insights into the economics of staking and its asset pricing implications, we build a continuous time model of a token-based economy where agents heterogeneous in wealth dynamically solve their wealth allocation (stake-transact-consume) problem.

Emerging cryptocurrencies like Bitcoin make a peer-to-peer exchange of value without relying on a third party. A blockchain is an immutable, distributed, and append-only data structure created by a sequence of blocks which are

chronologically and cryptographically tied together. Typically, blockchain is a network composed of a set of nodes, named miners or validators, which are responsible for keeping trustworthy records of all transactions using a consensus algorithm in a trust-less environment. More importantly, blockchain enables the essence of smart contracts which can be defined as programs that every blockchain node runs and updates their local replicas according to the execution results without any intervention from a third party. We are Developing an Avian Defi application.

This application creates a pool of money, where lenders can stake their money on which they get a Fixed Return with APRs up to 30%, something similar to FDs (Fixed Deposit) but better returns. Now Borrowers can come on our platform and can borrow according to their limits. How do we calculate the limits? Since the data on the blockchain is public, we can traverse through their previous transactions to verify their credibility. Moreover, we are using Smart Contracts as an agreement which eliminates the Middleman and directly makes Lender and Borrower the POC.

II. LITERATURE SURVEY

- [1] Proof-of-Stake is becoming the prevalent way of securing decentralized networks. Proof-of-Stake has many advantages over the battle-tested Proof-of-Work, including faster block times and finality, lower operational costs, higher throughput, and a lower ecological impact. As a result, the vast majority of new blockchains rely on Proof-of-Stake for their security.
- [2] In Proof-of-Stake networks, virtual assets are used as collateral to determine participants (“validators”) in the consensus process (“staking”). Since these assets serve to

incentivize and enforce the correct behavior of validators, protocols may need to be able to confiscate or destroy them in case of misbehavior. So, Proof-of-Stake protocols escrow staked assets, which prevents them from being transferred or used in decentralized finance applications. Also, a delay ("unbonding period") is often enforced by protocols when one wants to stop participating to recover staked assets

- [3] In the paper presented by Lin William Cong, Zhiheng He, Ke Tang, J, they examined the first study relating various utility-based functions tokens provide to users (e.g., transaction convenience via medium of exchange and rewards via staking) to token prices, from both theoretical and empirical angles. We start by building a continuous time model of an economy with token-based digital networks, where agents heterogeneous in wealth optimally conduct transactions on a (blockchain) platform subject to endogenous productivity shocks, stake tokens to earn rewards from both newly minted tokens and fees, and consume offline. Tokens derive value by enabling users to complete economic transactions on the digital platform, making them a hybrid of money and investable assets. Stakeable tokens further serve as collateral and represent claims to rewards. Our model captures the following two distinguishing features of Proof-of-Stake consensus protocols and stakeable projects. First, such tokens are used on platforms that support specific economic transactions or broader use in on-chain-based projects.
- [4] In the paper presented by Lin William Cong, Zhiheng He, Ke Tang, method they have developed a continuous-time model of a token-based economy where agents heterogeneous in wealth dynamically solve their wealth allocation (stake-transact-consume) problems. We cast the interactions as a mean field game with stochastic control and systematic shocks, which underscores aggregates taking ratio as a key variable linking staking to token pricing and equilibrium reward rate.
- [5] In the paper presented by Calvin, Jonas, & Etienne, it presents a novel and effective method for utilizing staking rewards as an incentive mechanism to encourage users to participate in the consensus finding of the chain actively. In practice, rational users are expected to be profit-seeking and therefore, must assess the potential rewards of participating in the ecosystem of each coin.

However, staking rewards are typically denominated in a non-fiat pegged cryptocurrency, carrying potential volatility risks.

- [6] In the paper presented by Chris McCoy and Rag Bhagavatha, they designed to offer token holders competitive returns in the growing, multi-billion dollar staking market and to redesign the dynamics of the \$266B public cloud computing market through a radically new design that provides value to all stakeholders (users, miners and developers).

III. EXISTING SYSTEM

Understanding DeFi protocols requires understanding the definition of decentralized finance. Peer-to-peer financing, also known as decentralized finance, refers to the transition from conventional, centralized financial systems to peer-to-peer funding. In addition to tokenized digital currency and stable coins, the DeFi ecosystem has successfully created a lending and borrowing platform. Over time, the DeFi landscape has:-

A. AAVE:

In the DeFi landscape, Aave is one of the most popular and leading lending protocols. Besides providing security for the protocol, it also enables users to participate in its governance with the native token AAVE. Users can stake AAVE tokens through the Safety Module to achieve AAVE rewards.

B. yEarn:

Another top mention goes to yEarn, among the best DeFi protocols. There are several options for yield farming available through this automated liquidity aggregator. YFI, yEarn's native token, handles governance of the protocol. Users could stake YFI tokens to participate in the protocol governance and to claim a pro-rata share of the protocol fees.

C. Uniswap:

The UniSwap protocol is also one of the leading DeFi protocols today. As of right now, it is the most popular decentralized exchange in the DeFi space. Offering liquidity to certain pools allows users to earn UNI, the native token. Uniswap will offer 15% of its supply to previous users starting in September 2020 by introducing the "Universal Basic Income" program.

IV. PROPOSED SYSTEM

This system explores the different modules involved along with the various models

through which this system is understood and represented. Analysis/Framework/ Algorithm Blockchain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network. An asset can be tangible (a house, car, cash, land) or intangible (intellectual property, patents, copyrights, branding).

Virtually anything of value can be tracked and traded on a blockchain network, reducing risk and cutting costs for all involved. Staking is when you lock crypto assets for a set period of time to help support the operation of a blockchain. In return for staking your crypto, you earn more cryptocurrency.

Many blockchains use a proof of stake consensus mechanism.

Under this system, network participants

who want to support the blockchain by validating new transactions and adding new blocks must “stake” set sums of cryptocurrency. Staking helps ensure that only legitimate data and transactions are added to a blockchain. Participants trying to earn a chance to validate new transactions offer to lock up sums of cryptocurrency in staking as a form of insurance.

Popular cryptocurrencies Solana (SOL) and Ethereum (ETH) uses taking as part of their consensus mechanisms. Ethereum is a technology that's home to digital money, global payments, and applications. The community has built a booming digital economy, bold new ways for creators to earn online, and so much more. It's open to everyone, wherever you are in the world – all you need is the internet.

- Shows the Comparison between existing and proposed system in the form of table comparison: -

Parameter	Traditional Bank	Avian Defi
Returns	4-5%	Upto 12%
Security	Depends on Bank	Highly Secured
Support for mobile device	Doesn't have a mobile app-based approach	Mobile app increased the speed of tracing
Decentralized	Controlled by a single Centralized Authority	Truly Decentralized
Time	More time	Less time
User Friendly	Lots of Paperwork and tedious processes to get loan	Single Click Approval
Innovation	Ancient	Blazing

V. SYSTEM ARCHITECTURE

In AvianDefi, we have a very open system architecture where the Users can be of mainly two types and the user can exist in both Categories, which are as followed, Lender & Borrower. Both will first Connect their Hot wallet (MetaMask) without application which gives our platform the ability to communicate with the blockchain using their wallet, Once that is done, User can Stake their tokens for a specific period of time for which they will receive a fixed reward and Same goes for the

lenders they come on the platform and connect their Hot Wallets our Avian Defi has access to the Blockchain and can communicate with other Wallets on the

EVM, All the tokens staked by the Lenders are collected in a pool and Borrowers can take their share from it, on which they will be charged an Interest like a normal traditional Banking system with the key difference being, instead of the profits going to Greedy Banks it goes to the actual owner.

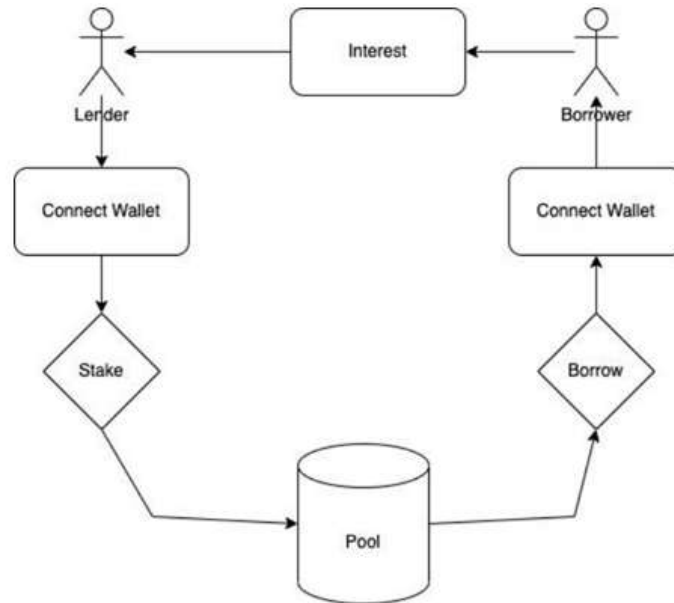


Fig.1 System Architecture

The modules are:

1. Authentication
2. Staking (Lending)
3. Borrowing

A. **Connect Wallet:** -Blockchain authentication refers to the system developed for increasing

the security of the users and verifying user identity and allows users to connect to the resources found on technologies of digital currency, transactions, cryptocurrencies, etc.

B. **Staking Pools:** -Users can Stake their tokens for a specific period of time for which they will receive a fixed reward.

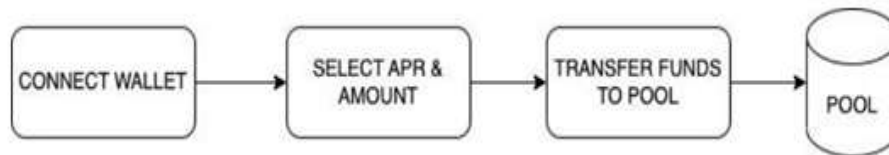


Fig. 2-Staking pools

C. **Borrowing Mechanism:** -Blockchain technology can help eradicate all the key issues in mortgage origination by means of distributed ledger framework, which provides

a list of benefits and capabilities: Multi-party transactions with decentralization capabilities. No intermediaries. Security assurance.

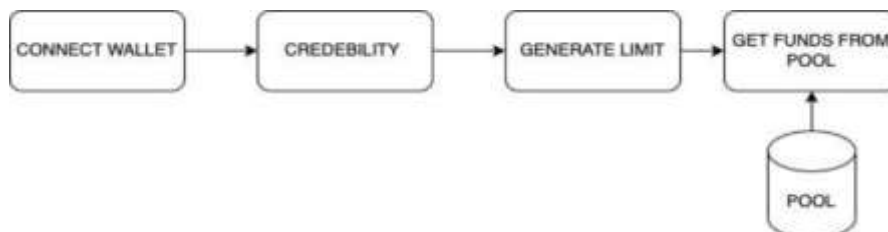


Fig.3 - Lending Mechanism

VI. RESULTS AND DISCUSSION

The existing system that is implemented will help the common people participate in

Decentralized Online Transaction as well as having an option of Lending and Borrowing money while eliminating the middleman to earn more profits.

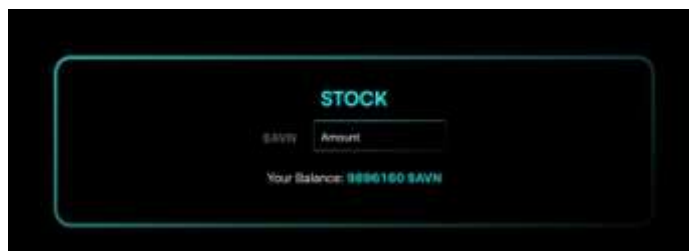


Fig.4-Enter Amount to Stake

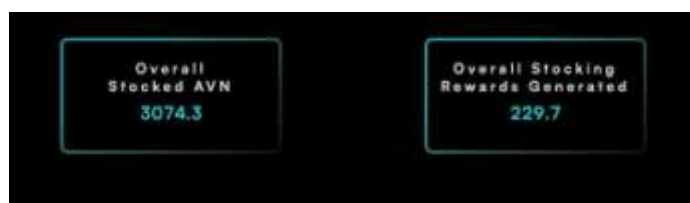


Fig.5-Overview of the Amount Staked/Rewards Generated

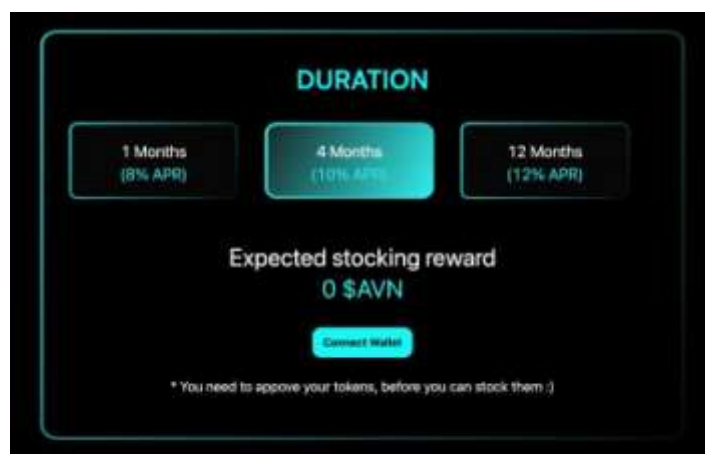


Fig 6-SelectAPR/Duration to lock the tokens for Duration

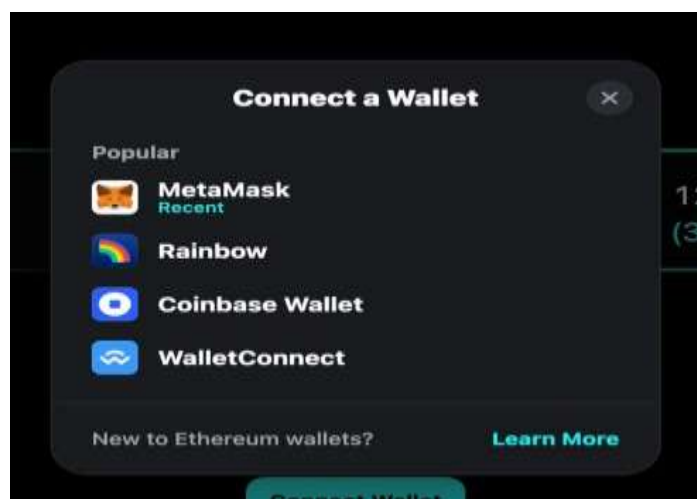


Fig. 7-HotWallet Options



Fig.8

- The dashboard is an Initial Page that enables users to keep track of their financial accounts, transactions, and budgets. It also allows payments to be made using QR codes and

AvianId. The design of the dashboard is modern and visually appealing, while also being easy to use and navigate.



Fig.9

- Making a payment using QR code or Avian ID through a mobile app involves scanning a QR code or entering an Avian ID on a mobile device to initiate a payment transaction. Users can enter their payment details within the app

end confirm the payment. This method of payment is becoming increasingly popular as it offers a quick and convenient way to make payments without the need for physical cash or credit cards.

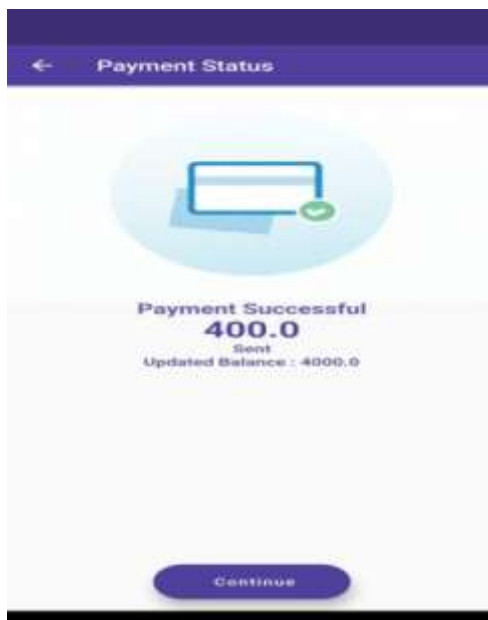


fig.10

- The payment has been processed and confirmed as successful. This means that the funds

have been transferred to the intended recipient's account.

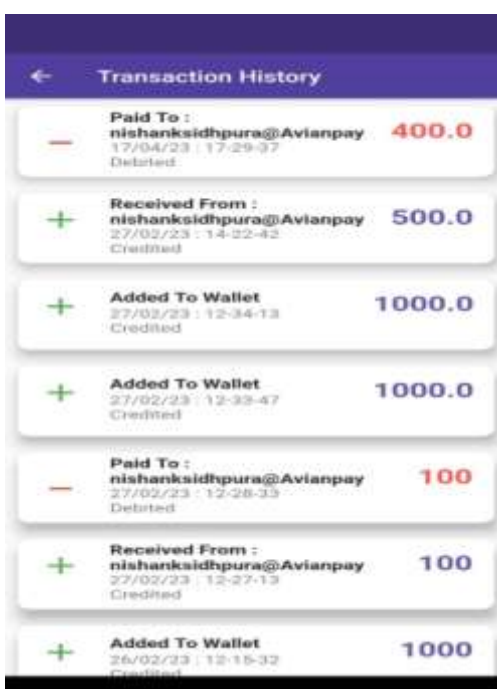


fig.11

- The transaction history shows a record of both credited and debited payments. It provides a detailed account of all the payments that have been made or received by an individual or organization over a specific period of time. By reviewing the transaction history, one can keep track of their finances and ensure that all payments have been accurately recorded.

VII. CONCLUSION

Lending and borrowing platforms have become a tremendous part of the DeFi ecosystem. Users are able to lock crypto positions into a smart contract and borrow against their position. Other users are able to lock crypto positions into a smart contract and generate yield by allowing their coins to be lent out to borrowers.

An interesting thing to note is the yields generated by lenders in the DeFi ecosystem are substantially higher than the traditional financial system. Running a smart contract is much more cost-effective than running a traditional bank; therefore, nearly all of the yield generated from lending money is passed directly back to the lender via the smart contract. Many people place their trust in these transparent smart contracts and are able to generate a significant income from their utilization. In a world of ultra-low interest rates, the cost-effective smart contracts are providing a technological solution to this problem.

Many people are upset with central bankers for allowing interest rates to be so low, and a solution isn't found by political persuasion but rather through technology, which has yet again created an opportunity for borrowers and savers alike. Perhaps it would be wise to hedge your bets on the traditional banking system through building a robust DeFi portfolio.

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