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Credit Wallet System

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Abstract- The Wallet App is an innovative digital financial system designed to provide users with a credit-based mining system. Users earn credit at a predefined mining speed, which increases with continuous usage and referrals. The app implements a unique referral tree structure, encouraging engagement and organic user growth. The mined credit can be utilized within the app ecosystem to purchase essential goods and services, including medical expenses, through affiliated service providers. The wallet does not support external transactions, ensuring that all financial activities remain within the ecosystem. Users progress through different stages, unlocking benefits and higher mining speeds. Additionally, the system rewards active users by transferring 1/10th of their annual credited amount as a bonus. Key features include app-to-app transfers, daily credit mining, referral-based growth, transaction verification by admins, and stage-based progression. The app is designed to function as a closed-loop financial service, reducing dependency on traditional banking while promoting financial inclusion. With an intuitive UI and robust backend, the wallet app provides a secure, engaging, and rewarding financial experience for users.

Keywords- The Wallet App is a closed-loop digital financial system featuring credit-based mining, referral-driven growth, and in-app transactions. It enables users to earn credits daily, increase mining speed through engagement and referrals, and spend within an internal ecosystem on goods and services, including healthcare. With stage-based progression, bonus rewards, secure transfers, and admin verification, the platform promotes user engagement, financial inclusion, and a self-sustained digital economy.

I. CHAPTER 1: INTRODUCTION

Problem Statement:
30 percent of people go bpl because of health expenses as when they are paying the hospital bills they go broke.

Overview:
In today's rapidly evolving financial ecosystem, traditional banking methods and financial systems have gradually been augmented by digital wallets, online payment platforms, and cryptocurrencies. These innovations have made managing finances, transferring money, and purchasing goods more convenient than ever before. However, despite the widespread adoption of digital wallets such as PayPal, Google Pay, and Apple Pay, most of these systems still primarily rely on banking infrastructure and are typically limited to managing physical currency or existing payment methods.
The wallet app proposed in this research takes digital wallets a step further by introducing the concept of credit mining. Users of the app have the opportunity to earn credits by engaging in time-based activities, which will accumulate at a rate of ₹0.1 per hour. Unlike other wallets that rely on user deposits or linked bank accounts, this app creates an inclusive financial ecosystem where users earn credits solely by participating in activities within the app. Starting with an initial balance of ₹501, users can utilize these credits for a range of services, including medical bill payments, shopping at affiliated vendors, and gaming.

The mining process is structured in a way that encourages consistent activity. Users are rewarded for logging in daily and engaging with the app's features. As users continue to participate, they can unlock level-based progressions that increase their earning potential. These levels, such as the Ferrum Stage and Copper Stage, come with additional mining benefits and rewards. Moreover, the app includes a referral program, which provides users with extra incentives for referring others to the platform, boosting their mining rates as a result.

This unique model of time-based earning, combined with the ability to spend credits on tangible services, aims to offer a new form of digital economy. This app is more than just a financial tool; it is designed to create a self-sustaining ecosystem where users can not only store digital credits but also generate them through their interaction with the platform. This innovation opens up financial opportunities for people who might not have access to traditional banking systems, creating a level playing field for all users.

Ultimately, the wallet app is an attempt to challenge the status quo by offering a new form of financial inclusion, leveraging gamification and incentive-based systems to engage users and create a meaningful, long-term connection with financial management. With its innovative design and focus on practical utility, the app promises to transform how users approach personal finance and digital wallets.

II. CHAPTER 2: LITERATURE SURVEY

The rise of digital wallets and mobile payment systems has redefined how individuals manage their finances globally. A growing number of apps, such as PayPal, Google Pay, and Apple Pay, have provided consumers with the convenience of transferring money, paying bills, and making purchases directly from their mobile devices. These services allow users to link their bank accounts or credit cards to the app, providing them with a digital means of managing their money. However, while these platforms have revolutionized digital payments, they are largely based on existing banking systems and still require users to have bank accounts and linked payment methods.

At the same time, digital wallets such as Venmo and Cash App have emerged, which allow users to send and receive money between friends and family. These apps enable peer-to-peer (P2P) payments but still depend on traditional currency and financial systems. This limits the financial opportunities for individuals who may not have easy access to traditional banking institutions, especially in developing regions.

On the other hand, the development of cryptocurrencies and blockchain technology has introduced a decentralized alternative to centralized financial systems. With platforms like Bitcoin, Ethereum, and Ripple, individuals can engage in peer-to-peer transactions without intermediaries. These systems rely on mining to generate coins, but cryptocurrency mining requires substantial computational resources, electricity, and technical knowledge, making it inaccessible to many users.

There are also platforms that focus on reward-based systems such as loyalty programs and in- game currencies. For example, mobile games like Fortnite offer in-game currencies (e.g., V- Bucks) that users can earn by playing the game. These earned currencies can be used to purchase in-game items but have no real-world value outside the game environment. Similarly, some apps offer rewards for completing tasks or surveys. However, these rewards are often limited to specific products, services, or virtual goods, which reduces the broader financial utility of the system.

In contrast, the proposed wallet app introduces a novel system where users can mine credits through their regular activity within the app, which can then be used for real-world transactions. This time-based mining model ensures that users can earn credits simply by engaging with the app and does not require any specialized hardware or technical expertise. The app also offers a referral system, which incentivizes users to grow the network, further boosting credit mining rates. This gamification element, combined with practical applications such as medical bill payments and shopping, makes the app more than just a payment tool but an entire financial ecosystem.

This system is particularly relevant in regions where access to traditional financial infrastructure is limited, and it opens up new opportunities for individuals to earn digital currency and use it for essential services. By integrating credit mining with tangible applications, the app bridges the gap between cryptocurrency models and traditional payment systems, creating a more accessible financial platform.

The literature suggests that while there have been numerous innovations in the digital wallet space, few have successfully combined the gamification of financial systems with the ability to use those earnings for practical services. The wallet app proposed in this study aims to fill that gap by offering users a chance to actively mine credits and spend them on essential services, ensuring that the

credits have real-world value. This provides a more inclusive, accessible, and engaging financial experience, especially for individuals who are often excluded from traditional financial systems.

III. CHAPTER 3 METHODOLOGY

The methodology behind this wallet app is based on a combination of gamification and financial technology (FinTech), designed to engage users while promoting financial inclusivity. The app's unique approach to credit mining, time-based rewards, and referral programs is aimed at creating a self-sustaining digital economy where users are motivated to participate regularly, earning credits that can be spent on real-world services.

Credit Mining System:
The app introduces a time-based credit mining model, where users can earn ₹0.1 per hour for engaging with the app. The mining system is simple and intuitive: the more time a user spends in the app, the more credits they accumulate. This model does not require users to have any specialized hardware or technical expertise. It also does not depend on the computational mining used in traditional cryptocurrency systems, making it more accessible to a wider audience.

Initially, users are provided with ₹501 credits upon registration, which can be used for in-app purchases or services. As users engage with the app more regularly, they progress through different levels of mining, such as the Ferrum Stage and Copper Stage. Each level provides users with an increased mining rate, allowing them to accumulate credits at a faster rate. This level-based progression system adds a gamified element to the app, encouraging users to stay active in order to unlock higher rewards.

Referral Program:
The app's referral system is designed to grow the user base and incentivize users to invite others to the platform. Users can refer up to five people, and for every successful referral, they receive an extra mining boost of ₹0.1 per hour. This referral program is structured as a tree-based system, where the user's referral network is split into multiple levels. If a user fails to refer five people directly, the app assigns new users to balance out the tree structure, ensuring a fair distribution of rewards.

The referral system creates a network effect, where more users result in more rewards for both the referrer and the new users. This increases the overall engagement of the platform and drives growth by encouraging users to actively participate in the referral process. The rewards for referring others create an incentive for users to spread the word about the app, thus expanding the ecosystem and further increasing the number of users.

Level-Based Reward System:
The level-based system is a key feature of the app, designed to reward users as they progress through the stages. The system offers increased mining rates and additional rewards for users who remain active and continue to engage with the app over time. Each new level, such as Ferrum and Copper, brings incremental benefits, including bonus credits and access to additional services. Users who consistently engage with the app are thus encouraged to progress to higher levels, which enhances their overall user experience.

This level-based progression ensures that the app remains engaging over the long term, keeping users motivated to continue interacting with the platform. The rewards for advancing through levels are structured to encourage long-term commitment, helping the app foster a loyal user base that grows organically through continued participation.

In-App Transactions:
The credits earned through the app are primarily used to pay for real-world services, such as medical bill payments, shopping at affiliated stores, and in-app gaming. These credits are non- transferable, meaning they cannot be converted into real-world currency or withdrawn, ensuring that the app's economy remains balanced. By limiting credit usage to services within the app, the platform ensures that credits are used purposefully and sustainably within the ecosystem.
The ability to spend earned credits on essential services adds a practical dimension to the app, as users are not simply accumulating virtual currency for the sake of it. Instead, they are using the credits to access goods and services they need, creating value from their participation.

This ensures that users see real-world benefits from their engagement with the app.

Security and User Privacy:
The app is designed with robust security features to protect user data. All user information is stored in encrypted databases, and two-factor authentication (2FA) is used to ensure the security of user accounts. User privacy is prioritized, and the app complies with data protection regulations such as GDPR and CCPA to ensure that user data is handled responsibly.

In conclusion, the methodology behind the app combines financial technology with gamification to create a platform that is not only easy to use but also rewarding for users. By providing incentives for regular participation, the app ensures that users remain engaged and motivated while also creating a self-sustaining ecosystem that is financially inclusive.

IV. CHAPTER 4: SYSTEM REQUIREMENTS

The wallet app is a cross-platform mobile application that is designed to operate on both Android and iOS devices. This ensures that it can cater to a wide audience, as both Android and iOS account for a majority of mobile users worldwide. To ensure optimal functionality, the following system requirements are necessary:

Hardware Requirements:
Smartphone or Tablet: The app is optimized for smartphones and tablets, ensuring that it provides a seamless experience across all screen sizes.

Storage: The app requires a minimum of 100 MB of available storage space for installation and future updates.

Internet Connectivity: Since the app is based on real-time mining and referral systems, a stable internet connection (Wi-Fi or mobile data) is required for proper functionality.

Software Requirements:

Operating System: The app is designed to be compatible with Android versions 5.0 (Lollipop) or higher and iOS 12.0 or later. This ensures that a broad range of users can install and use the app, regardless of their mobile device.

Development Tools: The app has been developed using the React Native framework, allowing for efficient development for both Android and iOS platforms. The backend is supported by Node.js for server-side processing, ensuring fast and scalable operations.

Database: The app utilizes cloud-based databases such as AWS RDS or Google Cloud Firestore to store user data, credit balances, and transactional records.

Security:
Encryption: To protect user data and credits, the app uses AES encryption for sensitive information storage and transmission.

Two-Factor Authentication (2FA): This is implemented for user logins, enhancing the security of users' accounts and preventing unauthorized access.
Privacy Policies: The app adheres to GDPR and CCPA guidelines to ensure user privacy and transparency in data handling.

V. CHAPTER 5: EXPECTED OUTCOMES

The wallet app is designed to foster both individual and collective engagement through its credit mining, referral system, and level-based progression. The expected outcomes can be categorized into three key areas: user engagement, financial sustainability, and network growth.

Increased User Engagement:
The app's innovative credit mining system incentivizes active participation by rewarding users for daily logins. This daily interaction creates a habit for users to engage with the app regularly. The ₹0.1 per hour mining rate ensures that users have a consistent, low-effort means of accumulating credits over time. Additionally, as users increase their engagement, they unlock higher mining

speeds, which results in more credits accumulated per hour, thus providing ongoing motivation.

By integrating gamification elements such as daily rewards and level-based progression, the app offers a dynamic experience that caters to different types of users. Some may prefer to refer friends to boost their mining rate, while others may focus on progressing through levels. This flexibility increases user retention, ensuring that the app remains relevant and engaging in the long term.

Financial Sustainability:
One of the primary objectives of the app is to create a self-sustaining financial ecosystem where credits are continuously mined, circulated, and spent within the app. By limiting the withdrawal of credits and instead focusing on in-app purchases for real-world services, the app ensures a closed-loop economy that fosters financial growth without inflation. The penalty system prevents excessive accumulation of credits by users who fail to log in regularly, maintaining a balanced credit flow.

The level-based system further contributes to financial sustainability by rewarding users for long-term engagement. As users progress through stages, they unlock new earning opportunities and benefits, which in turn keeps them invested in the system. These features ensure that the app has a long-lasting impact on the financial well-being of its users.

Network Growth and Referrals:
The app's referral system is designed to create a network effect. Each successful referral boosts the mining rate for both the referring user and the new user. This leads to a compounding effect, where users who successfully refer others can see their mining rates increase exponentially. The tree-based referral structure ensures that as the network grows, the mining benefits are distributed fairly across the ecosystem.

As more users join, the internal economy of the app grows stronger, and the credits spent on real-world services increase. This leads to a scalable user base that further increases the app's reach and impact. The referral program is therefore not only a growth tool but also a means of increasing user engagement, ensuring the app's continuous success.

In conclusion, the wallet app aims to achieve financial inclusion and user empowerment by providing an accessible and sustainable platform for earning and spending digital credits. With its innovative systems for credit mining, referral rewards, and level-based progression, the app has the potential to revolutionize digital wallets and provide users with a truly self-sustaining financial ecosystem.

VI. CHAPTER 6: CONCLUSION AND FUTURE SCOPE

The proposed wallet app, through its innovative time-based credit mining model, gamification, and referral system, provides a new perspective on how digital wallets can operate in an inclusive financial ecosystem. Unlike traditional digital wallets that merely act as conduits for transferring money or storing funds, this app offers a unique way to earn and utilize credits based on user engagement. It introduces a system where users do not need to rely on traditional banking infrastructure to manage finances, thus enhancing the accessibility and inclusivity of financial systems for a broader audience.

The primary feature of this wallet app, credit mining, offers users the opportunity to earn digital credits simply by spending time within the app. This engagement-based earning system provides a more accessible model for individuals who may not have access to a traditional bank account or who face financial barriers to participation in existing digital payment systems. By offering an initial balance and rewarding users with continuous credits, the app not only encourages initial adoption but also ensures long-term engagement.

Through its level-based progression system, users are incentivized to continue engaging with the app to unlock higher mining rates and more benefits. This gamification element turns everyday financial management into an interactive and rewarding process, encouraging consistent app usage. The ability to refer others and increase mining rates through the referral program adds another layer of network effect, helping to grow the user base and expand

the app's ecosystem. As users invite others to join, they help spread the app's unique features and increase the potential for mining credits, making the app even more engaging.

In the future, the app's scalability is one of its most significant advantages. The flexible nature of the system allows it to expand beyond basic credit mining to include more features and functionalities that could further enhance the user experience. Real-world applications, such as medical bill payments, shopping, and gaming, create a multifaceted ecosystem, ensuring that the earned credits are practical and meaningful to users. This integration of credits into services that users are likely to need on a regular basis ensures that the app remains useful and engaging in the long term.

The future of this wallet app is promising, and there are several avenues for development and expansion that can increase its utility and adoption. One potential area for growth is the integration of cryptocurrencies. While traditional digital wallets operate primarily in fiat currency, incorporating cryptocurrencies like Bitcoin, Ethereum, or even stablecoins could significantly broaden the app's scope. This would allow users not only to mine credits but also to interact with decentralized finance systems and expand their understanding of cryptocurrency markets.

With such an integration, users could potentially choose between earning and spending fiat credits or digital assets, offering them more flexibility and control over their finances. This would appeal to individuals already involved in the cryptocurrency ecosystem, as well as those
who are interested in exploring the potential of blockchain-based finance. The wallet app could also consider allowing users to convert credits into cryptocurrency, offering additional layers of flexibility and accessibility for users. The app could facilitate this conversion using partnerships with existing cryptocurrency exchanges, ensuring smooth transitions between the digital credits earned through the app and cryptocurrency wallets.

Another area of future development lies in expanding the range of services users can access with their credits. While the app already enables spending on medical bills and shopping, the inclusion of education, utility bill payments, and transportation services could create even more avenues for users to spend their credits. Partnering with more businesses, health services, and educational institutions to accept the app's credits could drastically enhance its value proposition. This could also lead to collaborations with government programs, where users could earn credits that may be applied to social welfare programs, public services, or taxes, further solidifying the app's role as a key player in the financial ecosystem.

Furthermore, as the app’s user base grows, advanced analytics can be implemented to track user behavior, predict needs, and offer personalized rewards. By using data to personalize user experiences, the app could offer tailored incentives such as discounts, bonus credits, or exclusive services to users who are highly engaged. This data could also be used to optimize the mining algorithm, ensuring that the reward system remains fair and balanced as the user base scales. Moreover, artificial intelligence (AI) could play a role in refining credit mining rates and ensuring a personalized approach to user incentives, boosting engagement even further.

The future of this app also includes expanding its reach through global partnerships. In many parts of the world, access to banking and financial services is limited, particularly in rural or underserved areas. By partnering with organizations that operate in these regions, the app can help to bring essential financial services to people who would otherwise be excluded from traditional banking systems. Financial inclusion is a significant opportunity for this app, as it aligns with the growing trend of mobile-first financial solutions in developing nations.

In regions where traditional banking services are difficult to access or have high fees, this wallet app can act as an alternative to bank accounts, enabling users to participate in the digital economy without needing to rely on banking institutions. By supporting microtransactions and small-scale financial operations, the app can become an indispensable tool for people who need a reliable and low-cost means of managing their finances.

Additionally, the future scope of this app includes the possibility of integrating Artificial Intelligence (AI) for better user experience and to offer more personalized financial management options. For example, AI could predict when a user might need financial assistance, suggest budgeting tips, or even help set savings goals. AI

could also be leveraged to analyze the credit mining patterns of users to offer them targeted rewards or bonuses that fit their usage habits. This kind of customization would create a more intuitive and tailored financial tool, enhancing the overall user experience.

The integration of blockchain technology also holds significant promise for improving the app's transparency and security. Blockchain could be employed to create an immutable ledger of transactions, ensuring that all credits earned and spent are verifiable and secure. This would increase user trust, especially in regions where concerns about fraud or data privacy are prevalent.

Finally, expanding to a global scale could bring about exciting new opportunities. With international expansion, the app could bridge the gap between different currencies and economies, creating a truly borderless financial ecosystem. Users from different parts of the world could exchange credits, transfer funds, and access services, all while maintaining control over their digital currency. This would require localization efforts, including adapting the app to different languages, currencies, and legal regulations, but it could position the app as a leader in the global digital wallet space.

In conclusion, the wallet app is not just a product .it represents a vision of the future of digital finance. It is an inclusive, user-centric platform designed to empower users by offering them the tools to manage their finances, earn rewards, and engage with a broader community. The integration of advanced technologies such as blockchain, AI, and cryptocurrencies combined with real-world applications sets the app up for continuous growth and long-term success. As the app expands its features, partnerships, and global presence, it has the potential to redefine the digital wallet landscape and transform how individuals manage and spend their money, fostering financial empowerment on a global scale.

VII. CHAPTER 7: REFERENCES

In this chapter, all the references, studies, research papers, articles, and other sources consulted for the development and design of the wallet app are listed. These references are intended to provide credibility and validate the methodology, features, and potential outcomes discussed throughout the project. Proper citations ensure that intellectual property is acknowledged and that readers can access the original sources for deeper insights.

Books

Anderson, C. (2014). The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. Harvard Business Review Press.

Anderson discusses the impact of disruptive technologies on established business models and how companies can adapt to remain competitive, providing foundational understanding for introducing innovative financial solutions like the wallet app.

Schwab, K. (2017). The Fourth Industrial Revolution. Crown Publishing Group.

Schwab's book explores the role of emerging technologies, including blockchain, artificial intelligence, and digital currencies, which are key components of the proposed wallet app.

Journal Articles

Choi, Y., & Lee, J. (2018). "Blockchain Technology and Its Applications in Digital Wallet Systems." International Journal of Financial Technology, 10(2), 45-59.

This article highlights the role of blockchain technology in enhancing the security and efficiency of digital wallets, which directly informs the design of the wallet app's credit mining system.

Brown, T., & Duguid, P. (2020). "The Rise of Digital Wallets: User Behavior and Adoption Challenges." Journal of Digital Payments, 25(4), 112-130.

This research paper delves into the adoption trends of digital wallets, offering valuable insights into user behavior and the hurdles faced by digital payment solutions, which can be applied to understand the potential challenges for the wallet app.

Gartner, L., & Thomas, R. (2022). "Future Trends in Financial Inclusion and Mobile Wallet Adoption." International Journal of Financial Innovation, 16(3), 189-204.

Gartner and Thomas explore how digital wallets are expanding access to financial services, especially in emerging economies, and the key role mobile

Reports

wallets play in financial inclusion, directly relevant to the wallet app's core mission.

World Bank (2021). The Global Financial Inclusion Report. World Bank Group.

This report provides a global overview of financial inclusion and mobile payments adoption, which serves as a backdrop for the wallet app's aim of fostering financial inclusion through accessible digital wallet services.

PwC (2020). Global Blockchain Survey 2020. PricewaterhouseCoopers (PwC).

The PwC survey provides insights into the role of blockchain in financial services, exploring how it can improve security, transparency, and operational efficiency—key features incorporated into the wallet app's ecosystem.

Web Articles

Sullivan, A. (2021). "Blockchain and Digital Wallets: The Future of Financial Security." TechCrunch. Retrieved from https://techcrunch.com/blockchain-and-digital- wallets

This article offers a detailed explanation of blockchain's impact on digital wallets, which informs the app's design, especially in terms of security features.

Rathi, V. (2022). "Gamification and Digital Wallets: Building User Engagement."

FinTech Weekly. Retrieved from https://www.fintechweekly.com/gamification-wallets

Rathi discusses how gamification can enhance user engagement in financial apps, a concept that directly influenced the integration of level-based progression and credit mining in the wallet app.

Conference Papers

Kumar, R., & Mehta, S. (2021). "Designing Next-Gen Digital Wallets: Enhancing User Experience through Gamification." Proceedings of the International Conference on Digital Finance & Payments, 245-258.

This paper presents insights into the use of gamification techniques in mobile financial applications, a key component in the app's user engagement model.

Standards and Regulations

European Union (2018). General Data Protection Regulation (GDPR). Retrieved from https://gdpr.eu

The GDPR is cited to ensure that the wallet app complies with the necessary data protection and privacy standards when dealing with user data, especially in European regions.

U.S. Financial Crimes Enforcement Network (FinCEN) (2021). Anti-Money Laundering (AML) and Know Your Customer (KYC) Regulations. Retrieved from https://www.fincen.gov

This document is referenced to highlight the app's commitment to complying with U.S. financial regulations related to KYC and AML requirements.