

Proposer: iDream Technologies LTD

[RootStock-Scaling Bitcoin Hackathon]: coinEase - P2P Payment Wallet for Quick and Easy Global Payments on Rootstock

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1. Executive Summary

Problem Statement:

In today's fast-paced world, there is a growing need for a peer-to-peer (P2P) payment solution that enables quick and easy payments globally. Existing payment methods often come with limitations, such as high transaction fees, slow processing times, and limited accessibility. Moreover, the transport sector, particularly in Africa, lacks a comprehensive digital payment system tailored to its unique needs.

The transport sector represents a vast market, with millions of people relying on public transport services daily. Furthermore, the increasing adoption of cryptocurrencies in Africa, where coinEase's solution will be primarily deployed, creates an ideal environment for integrating crypto utilities into everyday services. By leveraging the growing demand for digital payment solutions, coinEase aims to tap into this market potential and drive the adoption of cryptocurrencies.

Solution:

coinEase proposes the development of a robust P2P payment wallet on the Rootstock protocol, designed to facilitate seamless and secure payments worldwide. Drawing inspiration from successful platforms like CashApp, coinEase aims to leverage Rootstock's secure blockchain infrastructure to build a user-friendly, feature-rich payment solution specifically targeting the commuter sector. Africa, with its booming digital economy, serves as our initial market.

Market Potential:

The global payment market is witnessing a significant shift towards digital transactions. Africa, in particular, has seen remarkable growth in mobile payments and digital financial services. coinEase aims to tap into this market potential by offering a P2P payment wallet that caters to the unique needs of commuters and individuals seeking quick and hassle-free payment experiences.

Benefits of Implementing coinEase - P2P Payment Wallet on Rootstock:

1. Quick and Easy Global Payments:

coinEase's payment wallet allows users to make instant P2P payments globally, eliminating the complexities associated with traditional payment methods. With a few taps on their mobile devices, users can effortlessly send and receive funds, enabling seamless transactions with friends, family, and business partners across borders.

2. Secure and Scalable Infrastructure:

By leveraging the Rootstock protocol, coinEase ensures the security and scalability of its payment ecosystem. Rootstock's blockchain technology provides a robust foundation for encrypted transactions, protecting users' financial data and minimizing the risk of fraud or unauthorized access. This fosters trust and confidence among users.

3. Low Transaction Fees and Swift Processing:

coinEase's payment wallet integrates the lightning network, which offers low transaction fees and fast processing times. Users can enjoy cost-effective and efficient payments, particularly for microtransactions common in the commuter sector. The reduced overhead costs make coinEase an attractive solution for both individuals and businesses.

4. Financial Inclusion and Empowerment:

coinEase strives to promote financial inclusion by providing a user-friendly platform accessible to individuals who may not have access to traditional banking services. The payment wallet acts

as a gateway to the digital economy, empowering users to participate in global financial transactions, improve their financial well-being, and broaden their economic opportunities.

5. Seamless Integration and Expanded Services:

coinEase's payment wallet can seamlessly integrate with various merchant platforms, enabling users to make payments at a wide range of establishments, including retail stores, online marketplaces, and service providers. Additionally, coinEase can introduce features like bill payments, mobile top-ups, and peer-to-peer lending, expanding the utility and versatility of the payment wallet.

2. Introduction

2.1 Background and Problem Statement

Background: African P2P Market and the Transport Sector

The African continent has witnessed remarkable growth in its digital economy, with peer-to-peer (P2P) transactions playing a vital role in facilitating financial activities. P2P payments refer to the direct transfer of funds between individuals without the involvement of traditional intermediaries like banks. These transactions have gained popularity due to their convenience, cost-effectiveness, and ability to empower individuals in the digital era.

The transport sector in Africa, particularly the paratransit segment, plays a critical role in daily life. Millions of people rely on paratransit services, such as minibuses, taxis, and ride-hailing platforms, to commute within and between cities. However, the existing payment methods in this sector are predominantly cash-based, posing significant challenges for both passengers and service providers.

Current Payment Landscape:

The reliance on cash in the African transport and payment sector presents several limitations and inefficiencies. Cash payments are often inconvenient, prone to theft or loss, and hinder the adoption of digital financial services. Moreover, cash transactions lack transparency, making it difficult to track payments, maintain proper records, and ensure accountability.

The Need for a Transformative Solution:

To address the limitations of cash-based payments there is a pressing need for a transformative solution that leverages digital technologies. A comprehensive P2P payment solution, like coinEase, can revolutionize the African transport market by offering secure, convenient, and privacy-enhanced payment experiences.

By providing a digital payment ecosystem, coinEase aims to empower and drive the mass adoption of cryptocurrency in Africa. It enables users to make swift and seamless transactions, reducing dependency on cash..

coinEase transformative solution not only caters to the immediate needs of the African transport market but also aligns with the broader vision of driving financial inclusion, promoting digital adoption, and fostering economic growth across the continent. By bridging the gap between traditional payment methods and innovative digital solutions, coinEase aims to shape the future of P2P payments in Africa, creating a more connected, efficient, and secure transport ecosystem.

3. Solution Overview

3.1 Leveraging Rootstock

At coinEase, our vision is to create a peer-to-peer (P2P) payment wallet that offers quick and seamless global transactions, similar to the likes of Cash App and Venmo. To achieve this, we are leveraging the Rootstock protocol, a smart contract platform built as a sidechain to Bitcoin, to revolutionize the way people make payments.

By utilizing Rootstock's advanced features, we can ensure enhanced security, privacy, scalability, and interoperability within our platform. Here's how Rootstock will empower coinEase to deliver a seamless P2P payment experience:

1. Smart Contracts for Enhanced Functionality:

Rootstock's integration of smart contracts allows us to introduce advanced features into the coinEase wallet. Through smart contracts, we can automate payment processes, enabling secure and transparent transactions without intermediaries. We'll leverage this functionality to offer programmable financial features, such as recurring payments and escrow services, ensuring convenience and trust for our users.

2. Secure and Private Transactions:

Rootstock's robust security mechanisms, backed by the Bitcoin network, provide a secure environment for transactions. Our users can enjoy the same level of security as Bitcoin, mitigating risks associated with unauthorized access and fraud. Rootstock's implementation of privacy techniques ensures that transactions within coinEase are private, protecting users' sensitive financial data.

3. Compatibility with the Bitcoin Ecosystem:

Rootstock's compatibility with the Bitcoin ecosystem is a significant advantage for coinEase. Users can seamlessly leverage their existing Bitcoin holdings within the CoinEase wallet, expanding the utility and accessibility of our platform. This compatibility enhances user adoption and enables a wider range of use cases for global transactions.

4. Enhanced Security and Scalability:

By building on Rootstock, coinEase benefits from the secure infrastructure of the Bitcoin network. Our users can trust that their funds and personal information are protected within a tamper-resistant environment. Additionally, Rootstock's scalability solutions ensure that

coinEase can handle a high volume of transactions with low fees and minimal congestion, guaranteeing an efficient payment experience.

5. Interoperability and Ecosystem Expansion:

Rootstock's compatibility extends beyond Bitcoin itself, providing coinEase with opportunities for interoperability. We can tap into existing Bitcoin-compatible applications, wallets, and services, creating a seamless user experience and expanding our ecosystem. This interoperability enables integration with merchant platforms, remittance services, and financial applications, further extending the reach and utility of coinEase as a global P2P payment solution.

3.2 Integration with the Lightning Network

At coinEase, our focus is to provide a P2P payment wallet like Cash App, enabling quick global payments. We plan to leverage the RSK blockchain (Rootstock) and integrate the Lightning Network to achieve our vision. Here's a technical overview of how we will implement the Lightning Network on coinEase:

1. Lightning Network Integration:

To enable Lightning Network functionality on coinEase, we will utilize Lightning Network APIs and libraries that are compatible with the RSK blockchain. This integration will involve implementing the necessary protocols and smart contracts to establish and manage Lightning Network channels.

2. Payment Channel Creation:

When users join coinEase, they will have the option to open payment channels on the Lightning Network. These payment channels will be established off-chain, allowing users to transact with each other directly and instantaneously. Opening a payment channel requires an on-chain transaction to fund the channel with the desired amount of cryptocurrency.

3. Off-Chain Transactions:

Once payment channels are established, users can conduct off-chain transactions with each other. These transactions occur instantly and do not require on-chain confirmation. Users can send and receive payments within the Lightning Network, taking advantage of its scalability and near-instant settlement.

4. Routing and Network Liquidity:

To facilitate payments between users who do not have a direct payment channel, coinEase will utilize the Lightning Network's routing functionality. This involves finding suitable payment paths through the Lightning Network's network of interconnected payment channels. Users' balances within their channels will contribute to the overall network liquidity, enabling seamless routing of payments.

5. Security and Integrity:

The RSK blockchain provides a secure and decentralized foundation for coinEase. The Lightning Network integration will inherit these security features, ensuring that users' funds and transactions remain safe. Smart contract audits, rigorous testing, and adherence to best practices will be carried out to maintain the highest level of security.

6. User Experience and Wallet Integration:

coinEase's user interface and wallet functionality will be designed to seamlessly integrate with the Lightning Network. Users will be able to manage their Lightning Network channels, view transaction history, and initiate Lightning Network payments directly within the app. The app will provide a user-friendly interface that abstracts the technical complexities of the Lightning Network, making it accessible to all users.

By integrating the Lightning Network on coinEase, we harness the scalability and speed benefits of off-chain transactions. The RSK blockchain provides a secure and compatible foundation for Lightning Network implementation. Together, they offer a robust infrastructure for coinEase's P2P payment wallet, ensuring enhanced scalability, near-instant transactions, improved privacy, and a seamless user experience.

coinEase's technical implementation of the Lightning Network on the RSK blockchain will enable us to build a P2P payment wallet for quick global payments. Leveraging Lightning Network APIs and libraries, we will establish payment channels, facilitate off-chain transactions, and ensure the security and integrity of user funds. By combining the strengths of the RSK blockchain and the Lightning Network, coinEase will deliver a powerful and efficient payment solution to users, empowering them to transact globally with ease.

4. Market Analysis

4.1 African Market Potential

In-Depth Analysis: The African Market and Opportunities for coinEase

The African market presents significant opportunities for innovative solutions like coinEase due to several key factors. Let's delve into an in-depth analysis of the African market, focusing on cryptocurrency adoption, financial inclusion, and the unique prospects for coinEase:

1. Cryptocurrency Adoption:

Africa has witnessed substantial growth in cryptocurrency adoption over recent years. The continent has embraced digital currencies as a means to overcome traditional financial barriers, such as limited access to banking services, high remittance fees, and unstable local currencies. According to reports, Africa has the highest rate of cryptocurrency adoption globally, with countries like Nigeria, South Africa, Kenya, and Ghana leading the way.

This growing interest in cryptocurrencies creates a favorable environment for coinEase to introduce its P2P payment wallet. By leveraging the RSK blockchain and integrating the

Lightning Network, Kiib can tap into this increasing demand for digital financial solutions, providing a user-friendly platform that enables quick and secure global payments.

2. Financial Inclusion:

One of the significant challenges in Africa is the lack of financial inclusion, with a significant portion of the population excluded from traditional banking systems. However, mobile phone penetration is widespread, making it an ideal platform for delivering financial services to the unbanked and underbanked populations.

coinEase can play a pivotal role in promoting financial inclusion by providing a convenient and accessible payment solution. Its P2P payment wallet can enable individuals without a bank account to participate in the digital economy, empowering them to send and receive payments, access online services, and engage in global commerce. coinEase's user-friendly interface and compatibility with mobile devices align perfectly with the needs of the African market, fostering financial inclusion and economic empowerment.

3. Unique Opportunities:

Africa presents unique opportunities for innovative solutions like coinEase due to its specific market characteristics. These opportunities include:

a. Cross-Border Payments: Many African countries have strong economic ties and a high volume of cross-border transactions. coinEase's ability to facilitate quick global payments through the Lightning Network can significantly streamline cross-border remittances, reducing fees and transaction times. This addresses a significant pain point for individuals and businesses engaged in international trade and remittance activities.

b. Informal Economy: A significant portion of economic activities in Africa takes place in the informal sector. This informal economy often relies on cash transactions, which can be cumbersome and pose security risks. coinEase's P2P payment wallet, built on the RSK blockchain, offers a secure, digital alternative for conducting transactions within the informal economy. It provides a transparent and efficient way to track and record payments, contributing to increased financial stability and accountability.

c. E-Commerce and Digital Services: The growth of e-commerce and digital services in Africa is accelerating rapidly. As more individuals and businesses engage in online transactions, the need for reliable and secure payment solutions becomes paramount. coinEase's P2P payment wallet, backed by the RSK blockchain and Lightning Network, can serve as a trusted payment infrastructure for e-commerce platforms and digital service providers, facilitating seamless and secure transactions.

The African market offers promising opportunities for coinEase to make a significant impact. The region's increasing cryptocurrency adoption, the need for financial inclusion, and the unique market characteristics of cross-border payments, the informal economy, and the growing e-commerce sector align perfectly with coinEase's vision of providing a P2P payment wallet like

Cash App for quick global payments. By leveraging the RSK blockchain and integrating the Lightning Network, coinEase can address these market needs, empower individuals and businesses, and contribute to the economic growth and financial inclusion in Africa.

5. Proposed Architectural Overview

Below is a proposed architectural structure for coinEase Wallet, this is far from finished and would still be adjusted to better suit our vision for coinEase.

Architecture Design

1. User Interface (UI):

The UI layer of coinEase encompasses the mobile application that users interact with. It provides a seamless and intuitive user experience, allowing users to create accounts, manage their wallets, initiate transactions, and access various features of the app. The UI is designed to be user-friendly, visually appealing, and compatible with different devices and platforms.

2. Authentication and Security:

Authentication and security mechanisms are crucial components of coinEase to ensure the safety of user accounts and transactions. This includes features like two-factor authentication, biometric authentication (fingerprint or facial recognition), and encryption techniques to protect sensitive user data. These measures aim to provide a robust security framework and build trust among users.

3. Wallet Management:

The wallet management component is responsible for generating and storing users' public and private keys, which serve as their digital identities on the RSK blockchain. It enables users to create wallets, securely store their cryptocurrencies, view transaction history, and manage their account settings. This component ensures the seamless integration of coinEase with the RSK blockchain and provides users with full control over their funds.

4. RSK Blockchain Integration:

coinEase leverages the RSK blockchain to facilitate secure and transparent transactions. The integration with the RSK blockchain allows users to send, receive, and store cryptocurrencies within their coinEase wallets. It interacts with the RSK network through APIs, enabling seamless communication between the app and the blockchain infrastructure. Smart contracts deployed on the RSK blockchain can be utilized for various functionalities, such as transaction validation, fund transfers, and execution of business logic.

5. Lightning Network Integration:

To enhance scalability and transaction speed, coinEase integrates with the Lightning Network, a layer-2 protocol built on top of the RSK blockchain. The Lightning Network would enable off-chain transactions, reducing the load on the main blockchain and facilitating near-instantaneous transactions with minimal fees. Through Lightning Network channels, users

can establish direct payment channels with each other, enabling fast and cost-effective microtransactions.

6. Backend Services:

The backend services form the core of the coinEase architecture. They handle various functionalities, including transaction processing, network integration, user management, and communication with external APIs and services. These services are responsible for executing business logic, ensuring data consistency, and facilitating seamless integration with third-party platforms or services.

7. Data Storage and Encryption:

coinEase employs secure data storage and encryption techniques to protect user information and transaction data. Users' personal data and transaction history would be stored in a secure database, with encryption mechanisms in place to safeguard sensitive information. Compliance with data protection regulations and privacy standards is ensured to build user trust and maintain confidentiality.

8. External Integrations:

As necessary coinEase may integrate with external services and APIs to expand its functionality and provide additional features. For example, integration with payment gateways, banking systems, or third-party identity verification services can enhance the capabilities of the app. These integrations enable seamless interoperability and allow users to connect their coinEase wallets with existing financial services.

9. Conclusion

In conclusion, coinEase is a P2P payment wallet built on the Rootstock (RSK) blockchain that aims to revolutionize global payments, starting with the African market. Our vision is to provide a user-friendly and secure platform for quick and easy financial transactions. By leveraging the features of RSK, including smart contracts, secure transactions, and compatibility with the Bitcoin ecosystem, coinEase offers enhanced security, scalability, and interoperability.

With a focus on the African market, coinEase capitalizes on the significant growth in cryptocurrency adoption and the potential for financial inclusion. Our solution addresses the unique challenges faced by commuters and individuals in need of quick and reliable payment options. By integrating the Lightning Network into Kiib, we enhance scalability and transaction speed, enabling efficient microtransactions in the transportation sector.

coinEase's go-to-market strategy emphasizes market research, early adopter engagement, strategic partnerships, localization, education, and ongoing customer support. Through targeted marketing efforts and partnerships with key players in the African financial ecosystem, we aim to drive user adoption and establish coinEase as a trusted and widely-used payment solution. Our

continuous product development ensures that coinEase remains competitive and aligned with user needs and market trends.

coinEase strives to empower individuals with a seamless and inclusive financial experience, bridging the gap between cryptocurrencies and everyday payments. By providing a secure, user-friendly, and innovative P2P payment wallet, we aim to facilitate quick global payments and contribute to the financial well-being of individuals in Africa and beyond.

10. Company Info

Name: IDream Technologies LTD

Description: IDream is a leading IT company founded by Winner Azubike with the vision of becoming a major force in the african and then global technology space, the company has ever since operated as a tech provider building solutions for clients across different industries but more recently discovered a gap in the african financial market (a growing adoption of crypto currency and limited utilities and channels to interact with crypto holdings) this birthed the idea of coinEase.

We have since then been making lots of research and analysis to better understand the sector and tailor our solution to bridge the gap appropriately, it was along this time that we discovered the RootStock hackathon.

RSK blockchain aligned with our vision at coinEase, as any platform looking to drive massive crypto adoption has to be both secure, fast, scalable, and economic. RSK ticks this boxes, so we decided to build on RSK. Hopefully we would be privileged to partake of the grant funding and bring our project to life.

11. Team

We are a team of seasoned engineers with experience in both blockchain Technology and the african financial market, we've built different solutions across the space both as hackathon projects and for clients, one of us currently serves in **interswitch** (one of the largest financial players in Africa) and another at **Kiib** (A Blockchain Startup).

Name: Winner Azubike - **Team Lead**

Title: Founder IDream Technologies

Role: Blockchain Engineer/Mobile Developer

Contact: winnernwakaku123@gmail.com

Name: James Obi

Title: Co-founder Kiib App

Role: Blockchain Engineer

Contact: JamesObi14@gmail.com

Name: Micheal Boyo

Role: Backend Engineer

Contact: michealboyo.dev@gmail.com

Name: Michael Ihurome

Role: Mobile Developer

Contact: ihuromemichael@gmail.com

12. Resources Needed

1.Design Team: Our team doesn't include interface designers at the moment so we will be outsourcing that. Highly skilled UI/UX design team to sketch out a prototype we'd build with.

2. Infrastructure: Sufficient hardware infrastructure, including servers and networking equipment, will be needed to support the development and deployment of the payment wallet.

3. APIs and Third-Party Services: Integration with external services and APIs may be required to enhance the functionality of the payment wallet.

4. Testing and Security Audits: A dedicated testing and quality assurance team will be required to conduct thorough testing of the payment wallet's functionalities, security features, and user experience. This includes both manual testing and automated testing methodologies to identify and resolve any bugs or vulnerabilities.

9. Marketing and Promotion: Resources for marketing and promotion will be essential to create awareness and drive adoption of the coinEase payment wallet. This may include digital marketing campaigns, social media presence, content creation, and strategic partnerships with relevant stakeholders.

10. Compliance and Legal Support: Compliance with regulatory frameworks and adherence to legal requirements are critical. Obtaining legal advice and guidance on matters such as data protection, financial regulations, and compliance with anti-money laundering (AML) and know your customer (KYC) requirements will be necessary.

11. Maintenance: The development team will need resources to provide ongoing maintenance, support, and regular updates to the payment wallet. This ensures the wallet remains secure, functional, and up to date with the evolving needs of users and the technology landscape.

