

U.S. PROVISIONAL PATENT APPLICATION

INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND
METHODS

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INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND METHODS

BACKGROUND

[0001] In today's world, transactions are predominantly managed digitally and are facilitated by a network of banking systems and electronic payment services. Traditional fiat currencies, which are government-issued, remain the foundation of everyday commerce. In recent years, the emergence of cryptocurrency has impacted the way in which various entities approach financial transactions. Unlike fiat currencies, cryptocurrencies operate on decentralized platforms using distributed ledger technology, such as a blockchain, which serves as a public financial transaction database. However, the integration of cryptocurrency into mainstream commerce has been slow and has faced resistance. This is partly due to the complexities associated with digital currencies and the lack of instant settlement capabilities that consumers and businesses have come to expect from traditional financial transactions. In existing cryptocurrency systems, transactions typically require blockchain-type confirmations that can introduce delays, which is not conducive to the pace of contemporary commerce that demands immediacy. As a result, there remains a significant barrier to the broad adoption of cryptocurrencies for everyday transactions.

DESCRIPTION

[0002] In the following description, various embodiments will be described. For purposes of explanation, specific configurations and details are set forth in order to provide a thorough understanding of the embodiments. However, it will also be apparent to one skilled in the art that the embodiments may be practiced without the specific details. Furthermore, well-known features may be omitted or simplified in order not to obscure the embodiment being described.

[0003] Approaches in accordance with various illustrative embodiments of the present invention provide for digital payment processing that integrates cryptocurrency transactions with traditional banking systems through the use of, for example, blockchain technology in a streamlined digital payment process. As an example, a digital payment processing system may

integrate cryptocurrency with exchanges and banking systems via APIs (Application Programming Interfaces). Such integration allows for the determination and use of real-time exchange rates, as well as almost immediate transfer of funds between cryptocurrency and fiat (traditional) or other such currency. By automating the exchange process and connecting directly to financial institutions for instant fiat settlement, such approaches can effectively avoid the usual delays of blockchain (or other distributed ledger-based) confirmations. Such a system may also utilize other technologies for facilitating a faster transaction process, such as off-chain solutions (e.g., transactions that occur outside of the blockchain) or layer-2 scaling solutions, utilizing faster consensus mechanisms.

[0004] Additionally, such an approach may use blockchain technology (e.g., Kraken's Polygon blockchain technology) to not only streamline the transaction process but also enhance user experience by reducing latency and improving scalability. For example, using immutable identity verification mechanisms, user privacy can be bolstered, and robust control provided over personal data, which can be enabled by the secure and decentralized nature of a blockchain. Such an approach may also use smart contracts to automate and enforce agreements with absolute transparency and tamper-proof execution, which can be achieved at least in part through the ability of a blockchain or distributed ledger to execute complex algorithms and store data securely. Furthermore, such an approach may support streamlined management of tokenized assets through the use of cryptographic tokens for secure asset handling, which can help to simplify transactions while ensuring their integrity. Functionalities associated with such a digital payment processing system are discussed in greater detail below.

[0005] Variations of this and other such functionality can be used as well within the scope of the various embodiments as would be apparent to one of ordinary skill in the art in light of the teachings and suggestions contained herein.

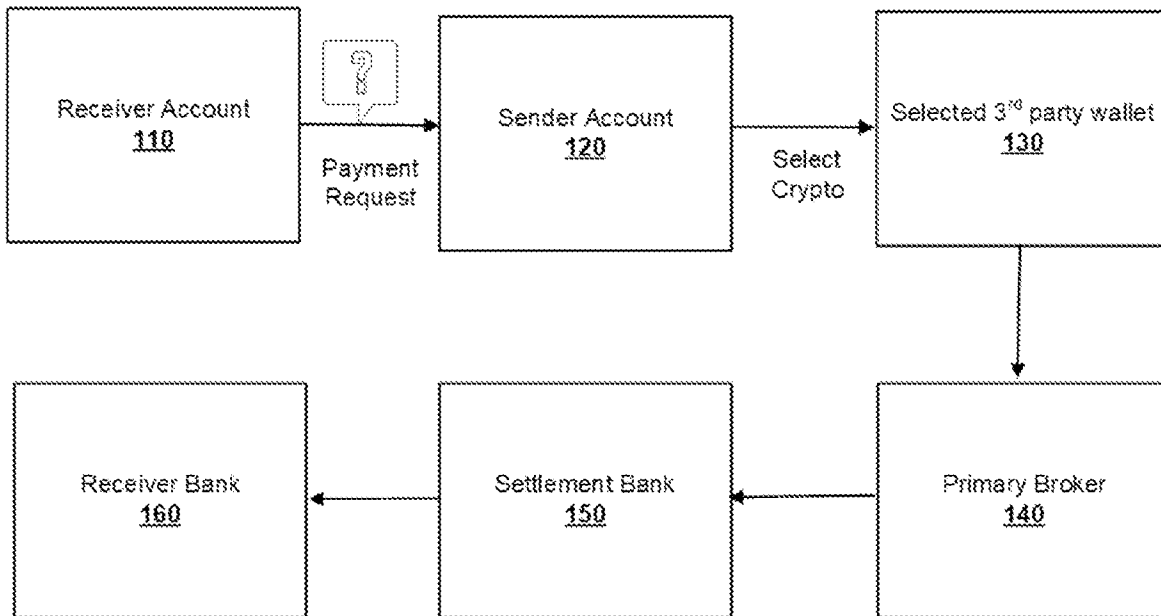


FIG. 1

[0006] FIG. 1 illustrates an example flow chart illustrating a streamlined cryptocurrency transaction process according to at least one embodiment. Such a process may be performed by a digital payment processing system or service, among other such options. A receiver account 110 may be associated with an entity that is entitled to payment from a sender. A receiver may be any party capable of accepting payments, including traditional merchants, various service providers, landlords, or any entity involved in commercial transactions. This account, through integration with modern point-of-sale systems like Sweet Retail and Clover, can generate a payment request (or enable a customer to generate a payment request) via a quick response (QR) code or other such mechanism. This QR code can encode information that may be used to direct a sender to a location (e.g., a URL or API) from which the sender can obtain all the necessary transaction details and provide a gateway for payment initiation. For example, a receiver may represent any entity entitled to receive funds, such as retailers, hotels, service businesses, or individuals. A receiver may be associated with a QR code associated with a unique payment link. When a sender 120 scans the provided QR code in this example, the sender 120 may be

directed to a payment link, which when accessed can provide a mechanisms to guide the sender 120 through a payment process involving cryptocurrency. In one embodiment, the receiver may download a mobile application or (access a web page) provided by a digital payment processing system. Through this application or web page, for example, the receiver is able to register an account with the digital payment processing system (if one does not already exist). During the registration process, the receiver's identity (such as may correspond to a business certificate) can be validated. Through this mobile application and/or web page, the receiver may be able to initiate a payment request directed to a sender account 120.

[0007] A sender associated with the sender account 120 may be a party responsible for making a payment. By scanning the QR code, the sender can activate a payment process that is guided by an intuitive application interface. The payment process may occur through a dedicated customer app, for example, as may be available on mobile platforms such as iOS and Android, which can lead the sender through the selection of cryptocurrency from a wallet 130 of their choice. In one embodiment, the sender may register an account with a digital payment processing system or service through the mobile application and during the registration process, and the sender's identity may be verified. The sender may then select the cryptocurrency to be used, which can be linked to their third-party crypto wallets 130. Upon selecting a desired cryptocurrency, the digital payment processing system may check for sufficient wallet balance to cover the transaction and any associated fees. If the balance is adequate, the transaction can proceed using with a primary broker 140, such as Kraken, which collects and liquidates the cryptocurrency into fiat currency. Alternatively, the cryptocurrency may be first transferred from the third-party crypto wallets 130 to a crypto wallet managed by a digital payment processing system or service, where the crypto wallet is associated with the sender's account registered with the digital payment service. In one embodiment, if the balance associated with the desired cryptocurrency is not sufficient for making the payment, the digital payment processing system may prompt the sender to select another crypto coin (or other such currency) for making the payment. When a digital payment processing system determines that there is sufficient balance for making the

payment, specification associated with the selected crypto coins are sent to a primary broker 140 for further processing.

[0008] A primary broker 140 such as Kraken may receive a request and manages the liquidity of the cryptocurrencies into fiat currency. A primary broker 140 may represent a cryptocurrency exchange platform such as Kraken, but is not limited to it. The primary broker 140 may function as an intermediary that sells assets such as various crypto coins from linked sender cryptocurrency wallets 130. Usually, selling crypto coins and collecting the equivalent fiat (or other such) currency may result in a delay ranging from several minutes to several days. Such a delay makes it challenging for customers to use cryptocurrency as a digital payment. However, digital payment processing approaches as presented herein provide a solution to such an issue, at least partly because of the involvement of a settlement bank 140 in the streamlined payment process. While the primary broker 140 is processing the request of selling the crypto coins, the settlement bank 140 may fund the receiver bank 160 with the requested amount. Upon confirming with the settlement bank that a settlement payment is made, a confirmation of payment from the receiver bank 160 is generated and sent to the receiver. Such a process can be conducted in a very short period of time, such that the customer and/or merchant will not be impacted by (or potentially even aware of) any delay. At the same time, the settlement bank may be waiting for the primary broker to liquidate the cryptocurrency and when a corresponding fund from the primary broker is received by the settlement bank, such a transaction process is fully complete.

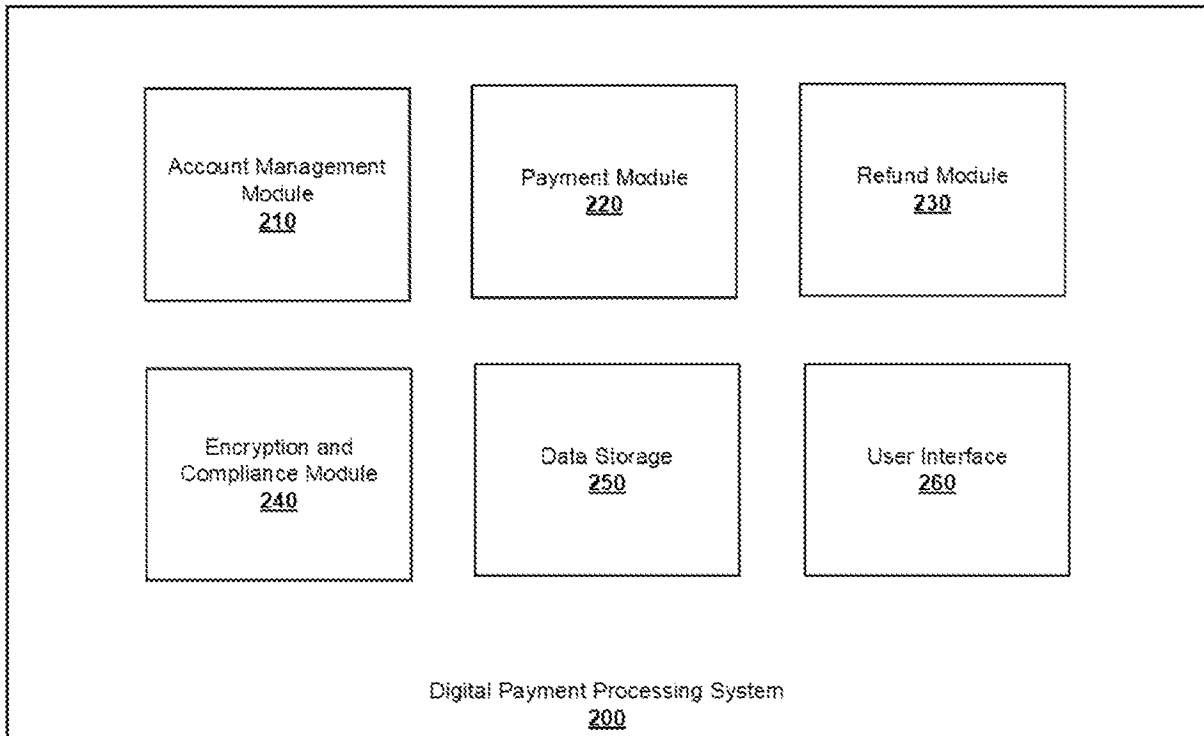


FIG. 2

[0009] FIG. 2 illustrates a block diagram including several modules, each serving a function within an example digital payment processing system 200 according to at least one embodiment. It should be understood that there may be additional, fewer, or alternative modules, devices, services, or components used in other systems, services, or offerings as well within the scope of various embodiments. In the embodiment illustrated in FIG. 2, a digital payment processing system 200 may include an account management module 210 that is responsible for managing user accounts within the system, a payment module 220 that manages transactions, a refund module 230 that handles refund requests, an encryption and compliance module 240 that provides security and legal compliance, a data storage 250 that manages transaction records, user data, audit logs, and other relevant information, and a user interface 260 that provides the visual and interactive components that users engage with. Each module is discussed in further detail below.

[0010] An account management module 210 can be responsible for tasks such as managing user accounts within the digital payment processing system 200. Such a module may facilitate operations such as user registration, authentication, profile management, and the secure handling of user credentials and payment settings. The account management module 210 may interact with other modules to ensure that user information is up-to-date and synchronize user account activities across the platform. The account management module 210 may manage both merchant and customer accounts (e.g., receiver and sender accounts). A merchant account may provide tools for merchants to create their accounts, manage payment preferences, view transaction histories, and receive payments. Merchants may also be able to set up their catalog of products or services and configure their specific payment terms. Each account may be equipped with necessary features such as transaction management, refund initiation, and financial reporting. In one embodiment, the account management module 210 may support multiple user roles within a merchant organization which provides granular access control to sensitive financial operations. Similarly, the account management module 210 may manage customer accounts for end-users of the digital payment processing system. A customer account may offer a streamlined process for account creation, wallet integration, and payment instrument management. Customers may be provided with intuitive tools to review past transactions, manage cryptocurrencies, and interface with the payment module 220 for initiating and tracking payments. The account management module 210 may also manage customer accounts through which customers can manage their personal and payment information. The account management module 210 may support wallet connectivity which allow customers to link their cryptocurrency wallets for efficient transaction processing. In one embodiment, both merchants and customers are required to undergo KYC (know your customer) and KYB (know your business) verification processes, respectively. The account management module 210 may integrate with third-party services to validate identities and business credentials, ensuring compliance with regulatory requirements and reducing the risk of fraud.

[0011] A payment module 220 may manage payment requests, executes transactions, and the flow of funds between parties. Such a payment module 220 may interface with external banking systems and cryptocurrency networks to facilitate fiat and crypto transactions, respectively, to ensure seamless and secure processing of payments. In one embodiment, a payment process using cryptocurrencies is illustrated in accordance with FIG. 1.

[0012] A payment module 220 may accept payment instructions from both merchant and customer accounts, as well as accounts for other relevant parties. A payment module 220 may process these requests, verify the transaction details and executing fund transfers in real-time with minimized delay. The payment module 220 may support a broad spectrum of transaction types, including but not limited to one-time payments, recurring billing, and batch transactions for larger merchant operations. In one embodiment, payments are processed in real-time through the utilization of Kraken's Polygon blockchain technology to minimize latency. To achieve this, the payment module 220 may convert cryptocurrency to fiat currency through the API integration with primary brokers such as Kraken exchange, banking systems, and other entities. The payment module 220 may employ various APIs to connect the digital payment processing system to various entities, including cryptocurrency exchanges like Kraken, banking systems, third-party cryptocurrency wallets, etc. Such integration allows for real-time price feeds, the execution of trade orders, the instant conversion of cryptocurrencies to fiat, and vice versa. For example, the payment module 220 may communicate with traditional banking systems through APIs that conform to financial industry standards for data transmission and security. The APIs may facilitate the transfer of funds to and from banking institutions, manage account balances, and confirm transaction completion.

[0013] In one embodiment, a payment module 220 may facilitate a peer-to-peer transaction workflow that operates independently of traditional Point of Sale (POS) systems. For example, a merchant user may select a product or service, and a payment module 220 may generate an itemized payment request within a digital payment processing system. The merchant user may either create a detailed payment request or directly input the receivable amount. The itemized

payment request allows the merchant user to select specific products and services from their catalog, which is then presented in a detailed list format. This list may include essential information such as the description, quantity, and price of each item or service, providing a clear breakdown of costs for both the merchant and the customer. Such an itemized request may enable customers to understand exactly what they are paying for and ensure that merchants can account for every product or service. Once the merchant has selected the products or services and a digital payment processing system has compiled the itemized list, a payment request may be generated. Such a request may encapsulate details of the transaction, including the total amount due. Based on the request, a QR code may be generated that embodies the transaction details encrypted within it. A payment sender may scan the QR code which prompts the sender to authorize payment from the sender's crypto wallet.

[0014] In one embodiment, through a streamlined process, the payment module 220 may allow merchants to receive immediate settlement in fiat currency. The payment module 220 may utilize off-chain solutions, which handles transactions outside of the blockchain. This means that instead of each transaction being recorded on the public ledger, they are settled between parties independently, and only the final state is recorded on-chain. This significantly reduces the time needed as the majority of confirmations are no longer required. In one embodiment, the payment module 220 may employ consensus mechanisms for faster confirmations. As used herein, consensus mechanisms may refer to the protocols used to agree on the validity of transactions. By using mechanisms that allow for faster confirmations, like Proof of Stake (PoS), Delegated Proof of Stake (DPoS), or others that require less computational work than Proof of Work, transactions can be confirmed more quickly without compromising the security of the network. In one embodiment, the payment module 220 may utilize smart contracts to automate and enforce complex financial agreements, which ensures transparency and reduces the need for intermediaries.

[0015] A refund module 230 may manage the reversal of transactions when necessary. Such a module may handle requests for refunds, calculates the appropriate refund amounts, processes

the return of funds, and updates the transaction records accordingly. The refund module 230 may initiate a refund process when a user or merchant selects an existing transaction from their respective interfaces within the digital payment processing system. Upon this selection, the user may request a refund, which triggers a series of automated and interactive processes. The refund process begins with the user's request via a user interface on mobile application/web page. For a transaction to be eligible for refund, the refund module 230 may identify the transaction within the system's database as a completed and settled transaction. Upon receiving a refund request, the refund module 230 may generate a notification for the digital payment processing system to initiate the refund process protocol. The transaction in question may then be relayed to the merchant for approval. The merchant can review the transaction details, including the reason for refund and the transaction amount. If the merchant approves the refund, they select the transaction for reversal. The refund module 230 then notifies the merchant about the amount impacted by the refund. This amount is recorded in the merchant's audit log and is adjusted with the next transaction executed by the merchant. The refund module 230 may then calculate the correct refund amount. The total refunded does not include any processing fees such as gas fees for cryptocurrency transactions. Once the refund amount is calculated and approved, the digital payment processing system may receive a notification, and the corresponding bank is alerted to process the refund. The bank processes the refund amount in the fiat currency, and the funds are returned to the user's account. This process may vary by region due to different settlement bank protocols. In one embodiment, the digital payment processing system is responsible for any Additional Service Charge (ASC) that may apply to the refund transaction. This charge is presumably a system-imposed fee to cover the cost of processing the refund. Although the refund process aims for immediacy, the refund module 230 also includes the capability to handle refund transactions in batches. In one embodiment, while the initiation and approval of a refund are immediate, the actual return of funds may be processed in groups for efficiency. Following the successful processing of a refund, the refund module 230 may update all associated transaction records to reflect the reversal. This update includes the transaction's status, the final refunded amount, and any associated fees or adjustments.

[0016] An encryption and compliance module 240 may provide security and legal compliance for the digital payment processing system 200. The encryption and compliance module 240 may implement end-to-end encryption protocols for data in transit and at rest. Additionally, the encryption and compliance module 240 may enforce regulatory compliance standards related to financial transactions, data protection, and anti-money laundering (AML) requirements. The encryption and compliance module 240 may also ensure that compliance is built into the transaction workflow, with regular updates to reflect changes in the regulatory landscape. The encryption and compliance module 240 may implement state-of-the-art encryption protocols such as TLS (Transport Layer Security) for data in transit between the client and server to prevent data interception and tampering. Advanced Encryption Standard (AES) with 256-bit keys may be used for encrypting data at rest to ensure that stored data is inaccessible to unauthorized users. The encryption and compliance module 240 may include Perfect Forward Secrecy (PFS) ensuring that the compromise of a single encryption key will not compromise past communication sessions. Data masking and tokenization techniques are utilized to protect sensitive information, such as account numbers, to prevent exposure even if data access controls are bypassed. The encryption and compliance module 240 may continuously monitor transactions for compliance with international financial regulations such as the Bank Secrecy Act (BSA), the USA PATRIOT Act, and the General Data Protection Regulation (GDPR) for European users. The encryption and compliance module 240 may integrate with global watchlist databases and sanctions lists to screen transactions against known fraudulent entities and prevent illicit activities. In one embodiment, the encryption and compliance module 240 may incorporate algorithms designed to detect patterns indicative of money laundering, such as unusual transaction sizes or frequencies. In one embodiment, the encryption and compliance module 240 is designed with a flexible rule engine that can be updated in response to changes in the regulatory landscape without requiring system downtime or significant redevelopment. The encryption and compliance module 240 may utilize smart contracts on blockchain platforms, where applicable, to automate compliance with contractual and legal obligations.

[0017] The data storage 250 may be the data repository for the digital payment processing system 200. The data storage 250 may securely store transaction records, user data, audit logs, and other relevant information. The data storage 250 may employ blockchain technology to create an immutable ledger for transaction records. Each transaction is verified and then added as a new block to the chain, which is timestamped and linked to the previous block. This chain of blocks forms a secure database of records that is resistant to tampering and revision, ensuring the integrity of stored data. Rather than relying on a central point of storage, which could be a single point of failure, data storage 250 may distribute its data across a network of nodes. This decentralized approach may enhance data availability and resilience against attacks or outages. By leveraging decentralized storage systems, such as IPFS (InterPlanetary File System) or decentralized cloud storage services, the digital payment processing system may ensure data availability even in the event of a node failure. For personal and sensitive user data, the blockchain may store hashes or encrypted references to the data, rather than the data itself, to maintain privacy. Access to the actual data is controlled through cryptographic keys, which ensure that only authorized users can view or process the data. In one embodiment, audit logs are maintained on the blockchain, which provides an unalterable trail of actions that can be used for compliance auditing and security reviews. Each entry in the audit logs is a transaction on the blockchain, making it easy to track the history of changes and access to the system.

[0018] In one embodiment, the data storage 250 may also store smart contracts which encode the terms of service agreements between the digital payment processing service and its users, both merchants and customers. Every change or acceptance of these terms can be tracked and verified. The data storage 250 may also store proof of purchase, such as digital receipts and invoices on the blockchain. Such confirmation provides an immutable record of transactions that can be used for warranties, returns, and audits. The data storage 250 may also store results from KYC (Know Your Customer), KYB (Know Your Business) and AML (Anti-Money Laundering) checks, which can be hashed and stored on the blockchain to provide a clear audit trail of the

verification steps taken for each user without exposing personal identity information directly on-chain.

[0019] The user interface 260 may provide the visual and interactive components that users engage with. The user interface 260 may deliver a user-friendly interface for accessing the functionalities of the digital payment processing system 200, including account management, transaction initiation, review of transaction history, and access to support services. User interface examples for both customer and merchant mobile applications and web pages can be found in the attached appendix.

COMPUTER SYSTEMS

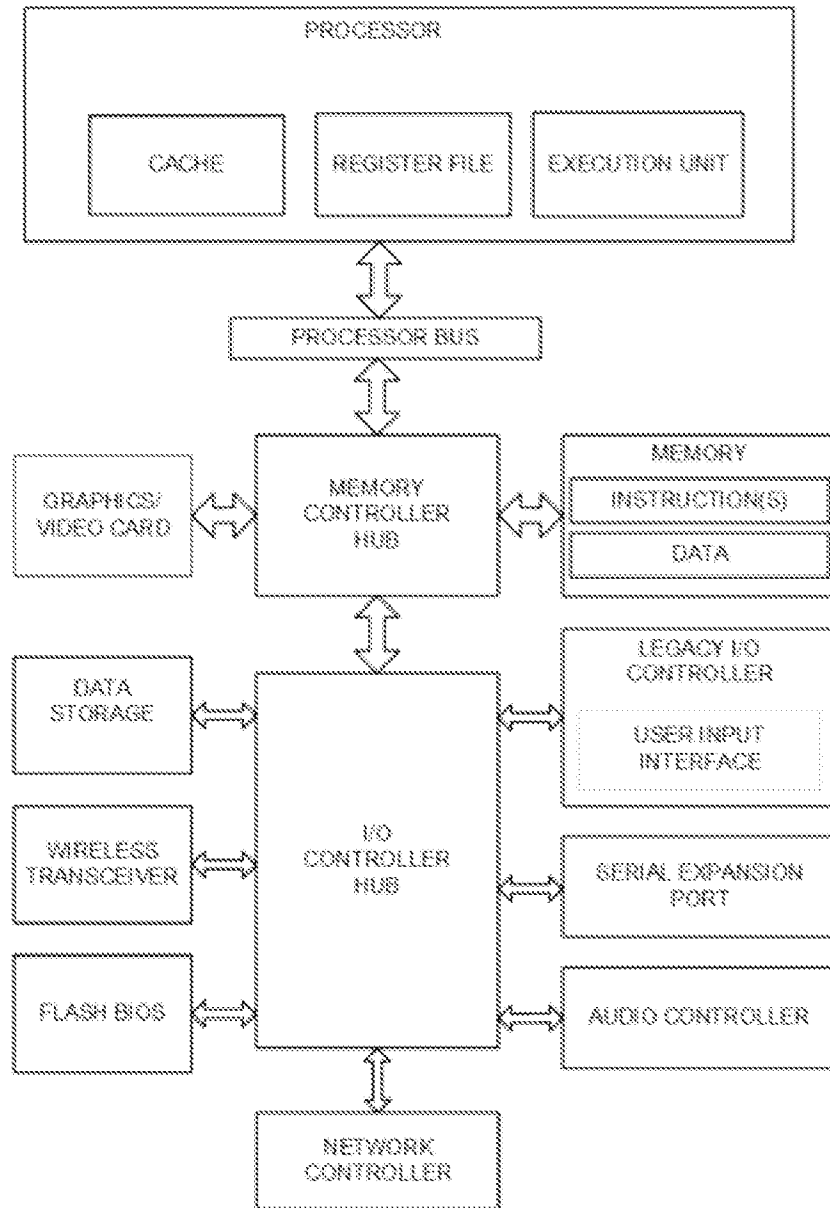


FIG. 3

[0020] FIG. 3 is a block diagram illustrating an example computer system (or client device, etc.) on which aspects of the various embodiments may be performed. As understood, there may

be various other components arranged in similar or alternative designs, including those available today or subsequently developed, which may be used to implement these aspects. This may be a system with interconnected devices and components, a system-on-a-chip (SOC) or some combination thereof formed with a processor that may include execution units to execute an instruction, according to at least one embodiment. In at least one embodiment, computer system may include, without limitation, a component, such as a processor to employ execution units including logic to perform algorithms for process data, in accordance with present disclosure, such as in embodiment described herein. In at least one embodiment, computer system may include processors, such as one or more CPUs or GPUs. In at least one embodiment, computer system may execute a version of WINDOWS' operating system available from Microsoft Corporation of Redmond, Wash., although other operating systems (UNIX and Linux for example), embedded software, and/or graphical user interfaces, may also be used.

[0021] In at least one embodiment, computer system may include, without limitation, processor that may include, without limitation, one or more execution units 1008 to perform machine learning model training and/or inferencing according to techniques described herein. In at least one embodiment, computer system is a single processor desktop or server system, but in another embodiment computer system may be a multiprocessor system. In at least one embodiment, processor may include, without limitation, a complex instruction set computer ("CISC") microprocessor, a reduced instruction set computing ("RISC") microprocessor, a very long instruction word ("VLIW") microprocessor, a processor implementing a combination of instruction sets, or any other processor device, such as a digital signal processor, for example. In at least one embodiment, processor may be coupled to a processor bus that may transmit data signals between processor and other components in computer system.

[0022] In at least one embodiment, processor may include, without limitation, a Level 1 ("L1") internal cache memory ("cache"). In at least one embodiment, processor may have a single internal cache or multiple levels of internal cache. In at least one embodiment, cache memory may reside external to processor. Other embodiments may also include a combination of both

internal and external caches depending on particular implementation and needs. In at least one embodiment, register file may store different types of data in various registers including, without limitation, integer registers, floating point registers, status registers, and instruction pointer register.

[0023] In at least one embodiment, execution unit, including, without limitation, logic to perform integer and floating point operations, also resides in processor. In at least one embodiment, processor may also include a read only memory (“ROM”) that stores microcode for certain macro instructions. In at least one embodiment, execution unit may include logic to handle a packed instruction set. In one or more embodiments, many multimedia applications may be accelerated and executed more efficiently by using full width of a processor’s data bus for performing operations on packed data, which may eliminate need to transfer smaller units of data across processor's data bus to perform one or more operations one data element at a time.

[0024] In at least one embodiment, system logic chip may be coupled to processor bus and memory. In at least one embodiment, system logic chip may include, without limitation, a memory controller hub (“MCH”), and processor may communicate with MCH via processor bus. In at least one embodiment, MCH may provide a high bandwidth memory path to memory for instruction and data storage and for storage of graphics commands, data and textures. In at least one embodiment, MCH may direct data signals between processor, memory, and other components in computer system and to bridge data signals between processor bus, memory, and a system I/O. In at least one embodiment, system logic chip may provide a graphics port for coupling to a graphics controller. In at least one embodiment, MCH may be coupled to memory through a high bandwidth memory path and graphics/video card may be coupled to MCH through an Accelerated Graphics Port (“AGP”) interconnect.

[0025] In at least one embodiment, computer system may use system I/O that is a proprietary hub interface bus to couple MCH to I/O controller hub (“ICH”). In at least one embodiment, ICH may provide direct connections to some I/O devices via a local I/O bus. In at least one embodiment, local I/O bus may include, without limitation, a high-speed I/O bus for connecting

peripherals to memory, chipset, and processor. Examples may include, without limitation, an audio controller, a firmware hub (“flash BIOS”), a wireless transceiver, a data storage, a legacy I/O controller containing user input and keyboard interfaces, a serial expansion port, such as Universal Serial Bus (“USB”), and a network controller. Data storage may comprise a hard disk drive, a floppy disk drive, a CD-ROM device, a flash memory device, or other mass storage device.

[0026] In at least one embodiment, FIG. 3 illustrates a system, which includes interconnected hardware devices or “chips”, whereas in other embodiments, FIG. 3 may illustrate an exemplary System on a Chip (“SoC”). In at least one embodiment, devices may be interconnected with proprietary interconnects, standardized interconnects (e.g., PCIe) or some combination thereof. In at least one embodiment, one or more components of computer system are interconnected using compute express link (CXL) interconnects.

[0027] Other variations are within spirit of present description. Thus, while the described techniques are susceptible to various modifications and alternative constructions, certain illustrated embodiments thereof are shown in drawings and have been described above in detail. It should be understood, however, that there is no intention to limit description to specific form or forms described, but on contrary, intention is to cover all modifications, alternative constructions, and equivalents falling within spirit and scope of description, as defined in appended claims.

[0028] Terms such as “comprising,” “having,” “including,” and “containing” are to be construed as open-ended terms (meaning “including, but not limited to,”) unless otherwise noted. “Connected,” when unmodified and referring to physical connections, is to be construed as partly or wholly contained within, attached to, or joined together, even if there is something intervening. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within range, unless otherwise indicated herein and each separate value is incorporated into specification as if it were individually recited herein. In at least one embodiment, use of term “set” (e.g., “a set of items”)

or “subset” unless otherwise noted or contradicted by context, is to be construed as a nonempty collection comprising one or more members. Further, unless otherwise noted or contradicted by context, term “subset” of a corresponding set does not necessarily denote a proper subset of corresponding set, but subset and corresponding set may be equal.

[0029] Conjunctive language, such as phrases of form “at least one of A, B, and C,” or “at least one of A, B and C,” unless specifically stated otherwise or otherwise clearly contradicted by context, is otherwise understood with context as used in general to present that an item, term, etc., may be either A or B or C, or any nonempty subset of set of A and B and C. For instance, in illustrative example of a set having three members, conjunctive phrases “at least one of A, B, and C” and “at least one of A, B and C” refer to any of following sets: {A}, {B}, {C}, {A, B}, {A, C}, {B, C}, {A, B, C}. Thus, such conjunctive language is not generally intended to imply that certain embodiments require at least one of A, at least one of B and at least one of C each to be present. In addition, unless otherwise noted or contradicted by context, term “plurality” indicates a state of being plural (e.g., “a plurality of items” indicates multiple items). In at least one embodiment, number of items in a plurality is at least two, but can be more when so indicated either explicitly or by context. Further, unless stated otherwise or otherwise clear from context, phrase “based on” means “based at least in part on” and not “based solely on.”

[0030] Use of any and all examples, or exemplary language (e.g., “such as”) provided herein, is intended merely to better illuminate embodiments of the description and does not pose a limitation on scope of description unless otherwise claimed. No language in specification should be construed as indicating any non-claimed element as essential to practice of the description.

[0031] Although descriptions herein set forth example implementations of described techniques, other architectures may be used to implement described functionality, and are intended to be within scope of this description. Furthermore, although specific distributions of responsibilities may be defined above for purposes of description, various functions and responsibilities might be distributed and divided in different ways, depending on circumstances.

Furthermore, although subject matter has been described in language specific to structural features and/or methodological acts, it is to be understood that subject matter claimed in appended claims is not necessarily limited to specific features or acts described. Rather, specific features and acts are described as exemplary forms of implementing the claims.

CLAIMS

1 1. A computer-implemented method comprising:
2 receiving, by one or more processors, a transaction request associated with a transaction
3 from a user device, the transaction request indicating a payment amount in a fiat currency;
4 converting the payment amount from the fiat currency to a cryptocurrency equivalent
5 based on a current exchange rate;
6 transmitting, from a settlement bank, the cryptocurrency equivalent to an account
7 associated with a receiver;
8 recording a transaction ledger associated with the transaction on a blockchain; and
9 communicating a confirmation of the transaction to a merchant device.

1 2. The method of claim 1, wherein the transaction request received from the user
2 device includes a quick response (QR) code scan from the user device to facilitate the transaction
3 at a point of sale.

1 3. The method of claim 1, further comprising verifying an identity associated with a
2 user that initiated the transaction request using a decentralized identity management system
3 before initiating the transaction.

1 4. The method of claim 1, further comprising conducting an anti-fraud analysis
2 using historical transaction data to ensure a legitimacy of the transaction prior to completing the
3 settlement.

1 5. The method of claim 1, further comprising conducting a refund process associated
2 with the transaction responsive to receiving a refund request.

6. A system for performing the method of any of claims 1-5.
7. A non-transitory computer-readable storage medium storing instructions to perform the method of any of claims 1-5.

ABSTRACT

Approaches disclosed herein provide digital payment processing that integrates cryptocurrency transactions with traditional banking systems through the use of, for example, blockchain technology in a streamlined digital payment process. As an example, a digital payment processing system may integrate cryptocurrency with exchanges and banking systems via APIs. Such integration allows for the determination and use of real-time exchange rates, as well as almost immediate transfer of funds between cryptocurrency and fiat (traditional) or other such currency. By automating the exchange process and connecting directly to financial institutions for instant fiat settlement, such approaches can effectively avoid the usual delays of blockchain (or other distributed ledger-based) confirmations. Such a system may also utilize other technologies for facilitating a faster transaction process, such as off-chain solutions or layer-2 scaling solutions.

PDX Beam Customer App

PDX Beam Customer App

Search location...

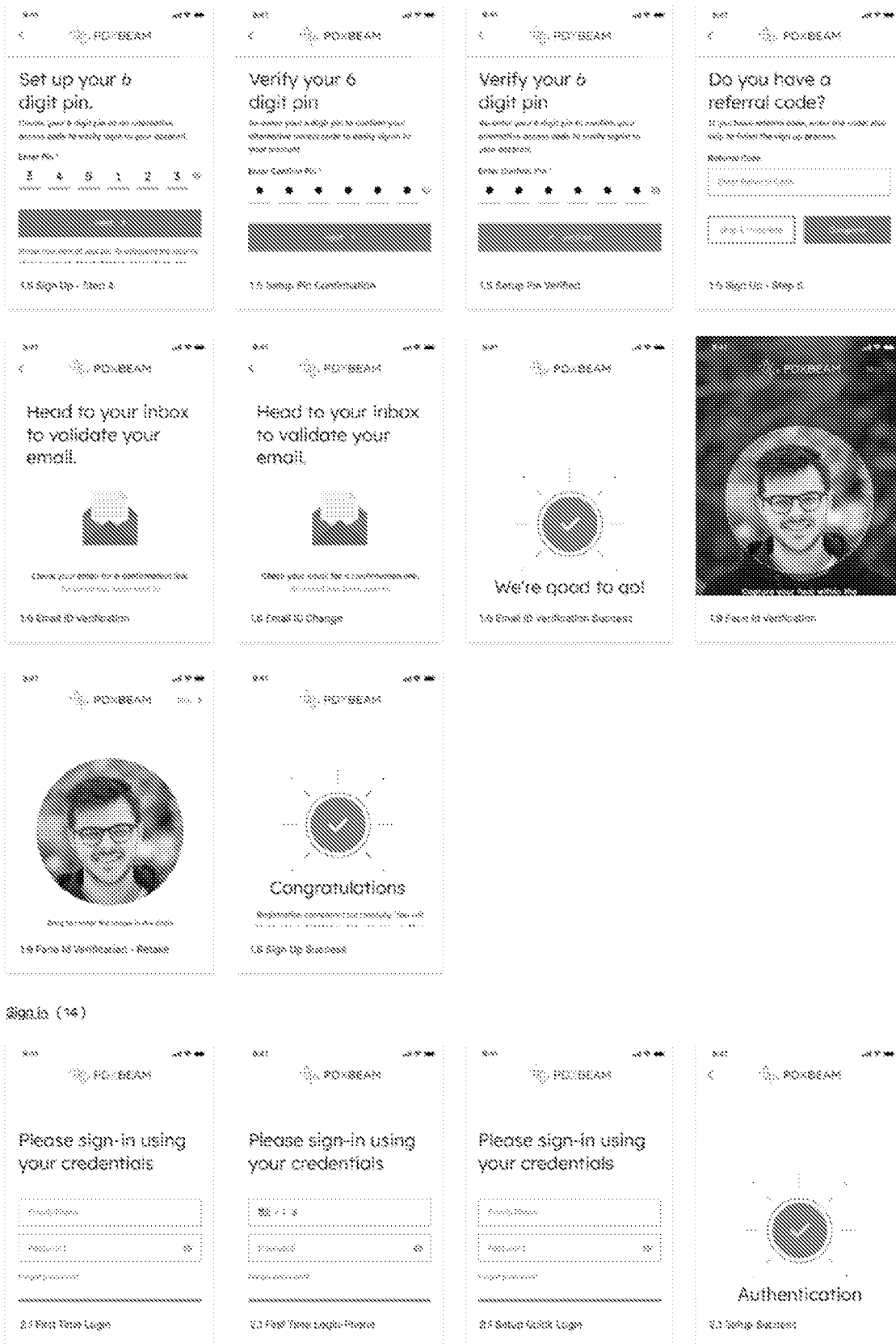
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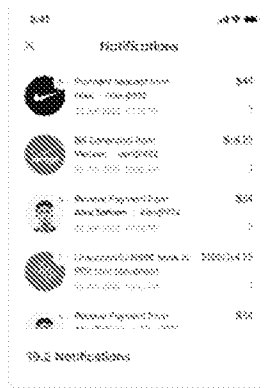
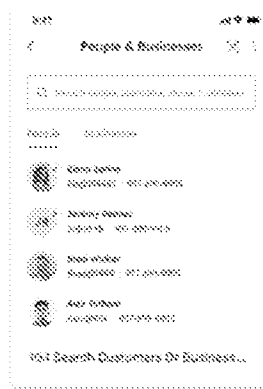
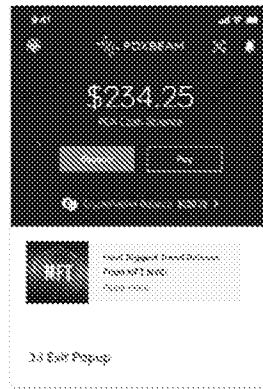
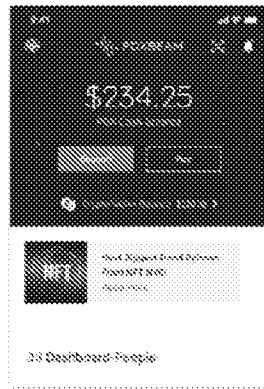
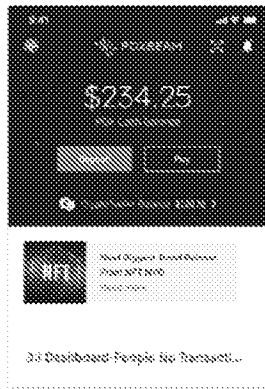
The grid displays 26 mobile app screens for the PDX Beam Customer App, organized into a 5x4 grid with the last row containing 2 screens. Each screen is a mobile device mockup with a status bar at the top showing the time (9:41) and battery level (90%).

- 1.1 Splash Screen:** A dark screen with a white signal icon.
- 1.2 Text 1:** A white screen with the PDX BEAM logo and a QR code on a smartphone.
- 1.3 Text 2:** A white screen with the PDX BEAM logo and a smartphone displaying a QR code.
- 1.4 Text 3:** A white screen with the PDX BEAM logo and a smartphone displaying a QR code.
- 1.5 Device Permission:** A screen titled "Required app permissions" with three items: Location, Device, and Camera.
- 1.6 Device Permission 2:** A screen titled "Required app permissions" with three items: Location, Device, and Camera.
- 1.7 Phone Number Select:** A screen titled "Swipe right to proceed" with two phone numbers: +1 800-880-2254 and +1 512-465-7822.
- 1.8 Phone Number Enter For iOS:** A screen titled "Verify your phone number" with a text input field and a "Verify" button.
- 1.9 Change Country Code:** A screen titled "Location" with a dropdown menu showing country codes like +1, +32, +33, etc.
- 1.10 Phone Number Verification Error:** A screen titled "Verify your phone number" with a numeric keypad and a "Didn't receive the code?" link.
- 1.11 Phone Number Verification:** A screen titled "Verify your phone number" with a numeric keypad and a "Didn't receive the code?" link.
- 1.12 Phone Number Verified:** A screen titled "Verify your phone number" with a numeric keypad and a "Didn't receive the code?" link.
- 1.13 Sign Up - Step 0:** A screen titled "Create your password" with a "Password" input field.
- 1.14 Sign Up - Step 1:** A screen titled "We'll need some details to start" with "Full Legal Name" and "Email" input fields.
- 1.15 Sign Up - Step 2:** A screen titled "Create unique username" with a "Username" input field.
- 1.16 Sign Up - Step 3:** A screen titled "Create your password" with a "Password" input field.

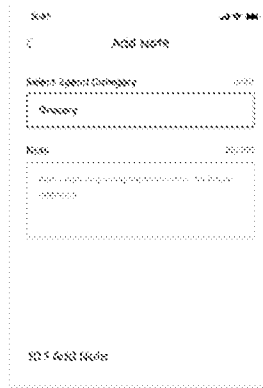
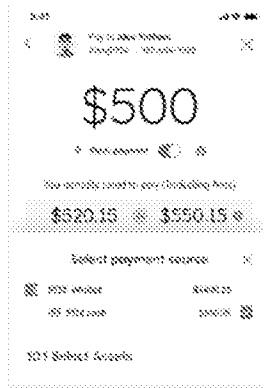
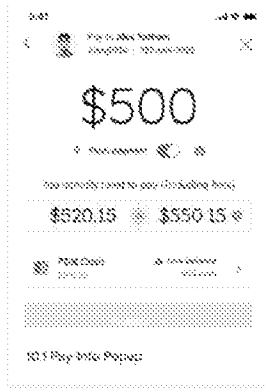
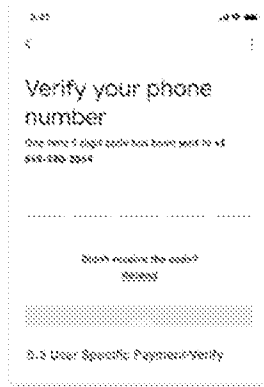
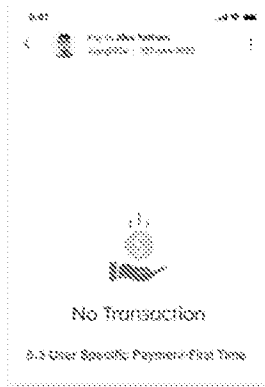
USER INTERFACE DESIGNS - A BRIEF SNAPSHOT



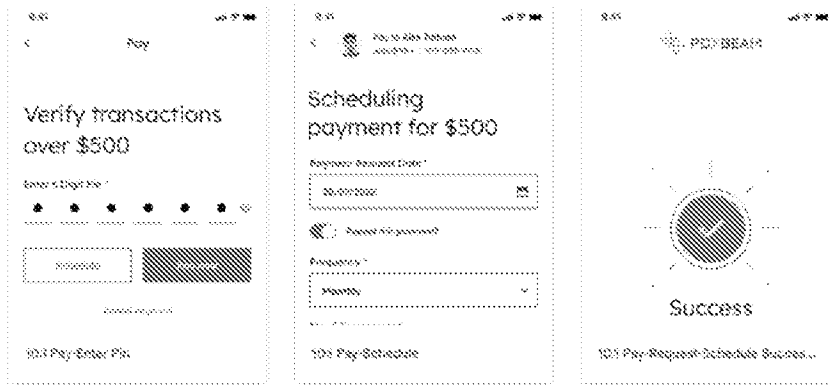
USER INTERFACE DESIGNS - A BRIEF SNAPSHOT



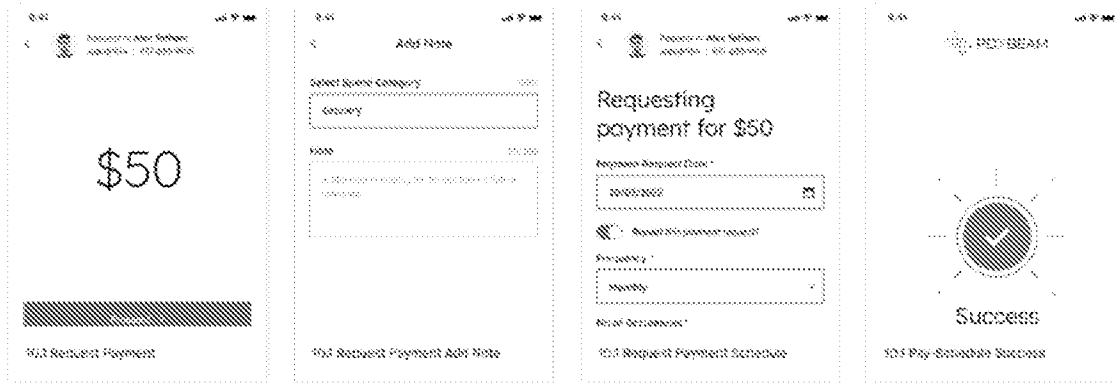
Payment (11)



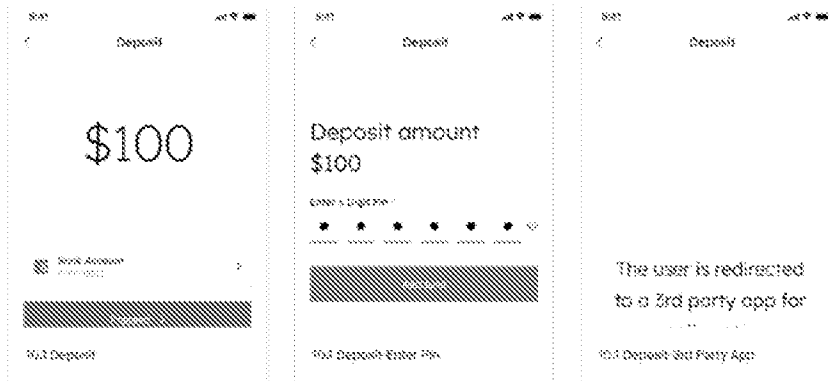
USER INTERFACE DESIGNS - A BRIEF SNAPSHOT



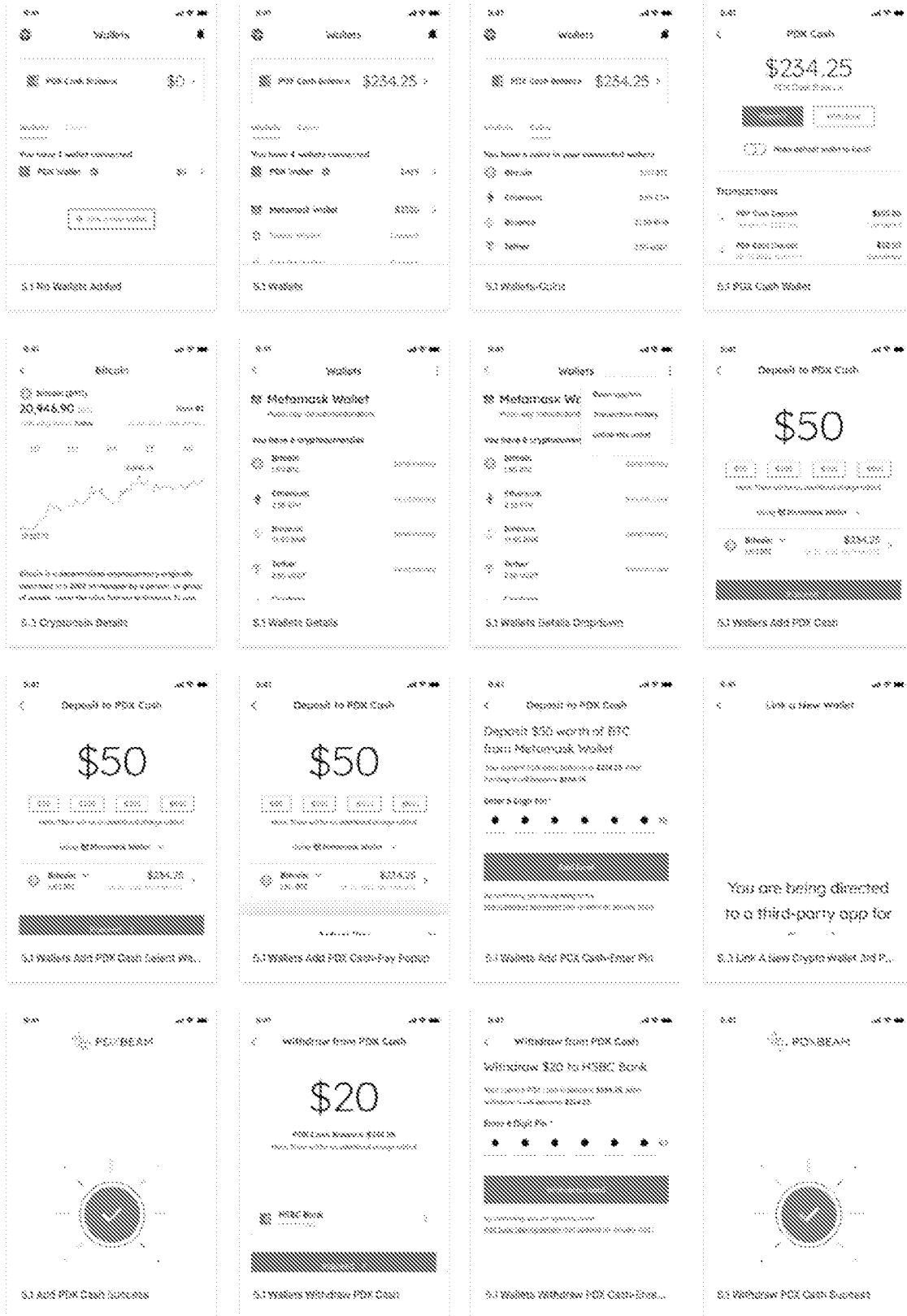
Payment Request (6)



Deposit (3)



USER INTERFACE DESIGNS - A BRIEF SNAPSHOT



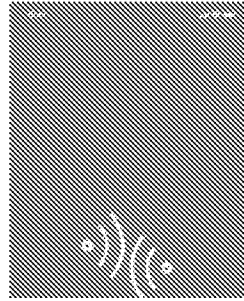
PDX Beam Merchant App

PDX Beam Merchant App

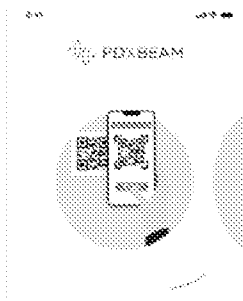
Search account...

Thumbnail: 128

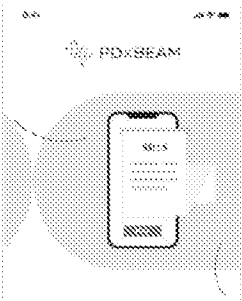
Signin (24)



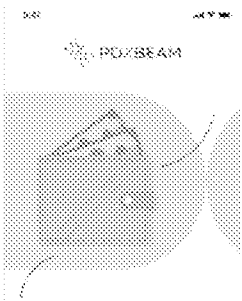
1.1 Merchant Splash Screen



Merchant Flow 1



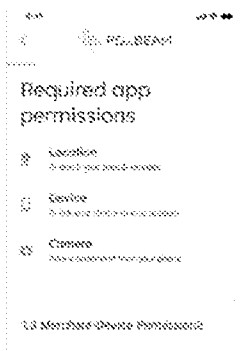
Merchant Flow 2



Merchant Flow 3



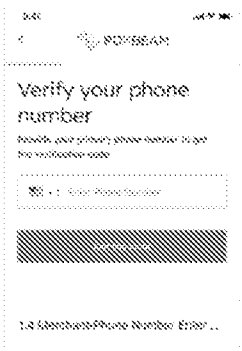
1.2 Merchant Device Permissions



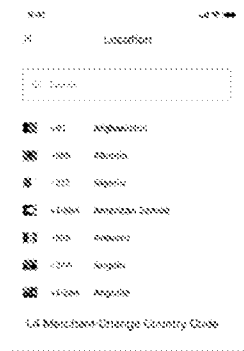
1.3 Merchant Device Permissions



1.4 Merchant Phone Number Select



1.4 Merchant Phone Number Enter



1.4 Merchant Change Country Code



1.4 Merchant Phone Number Verify



1.4 Merchant Phone Number Verify



1.5 Merchant Sign Up - Step 1



1.5 Merchant Sign Up - Step 2



1.5 Merchant Sign Up - Step 3

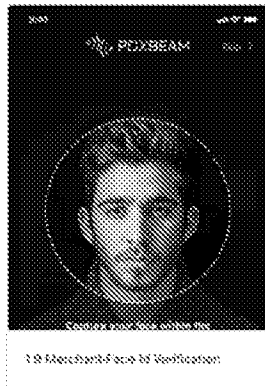
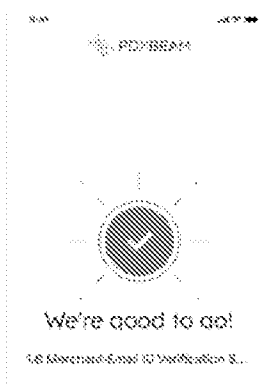
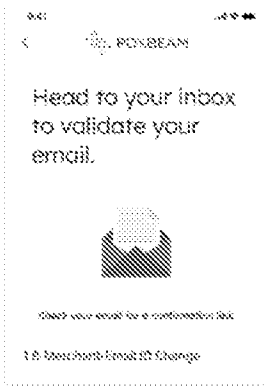
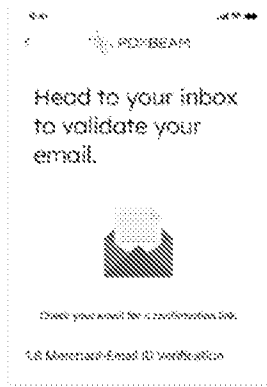
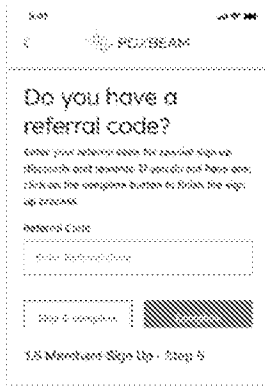
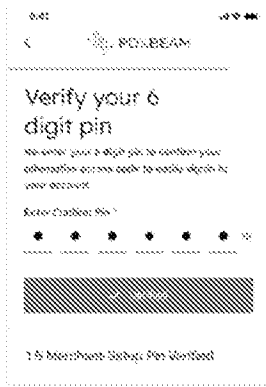


1.5 Merchant Sign Up - Step 4

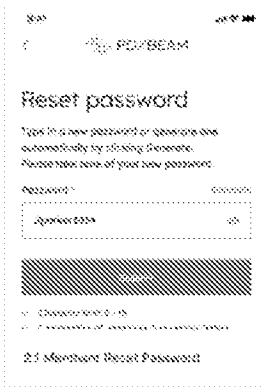
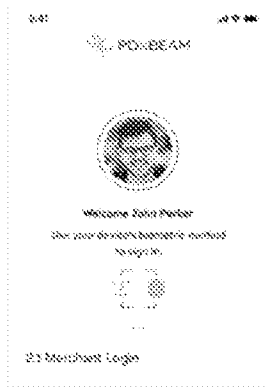
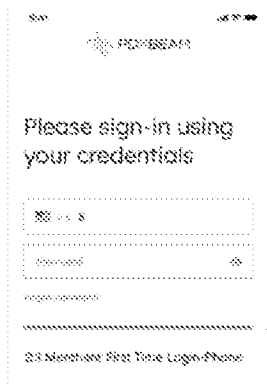
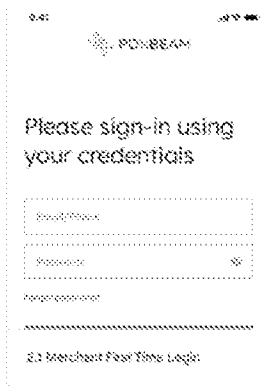


1.5 Merchant Setup Pin Confirmation

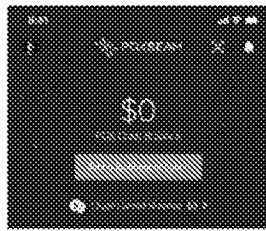
USER INTERFACE DESIGNS - A BRIEF SNAPSHOT



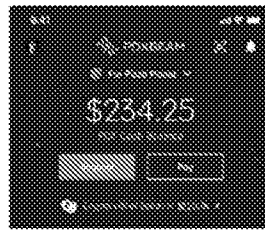
Signin (14)



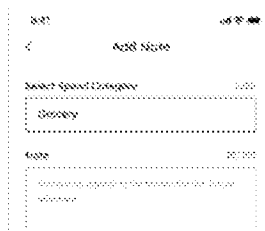
USER INTERFACE DESIGNS - A BRIEF SNAPSHOT



3.1 Merchant Dashboard-First View



3.1 Merchant Dashboard



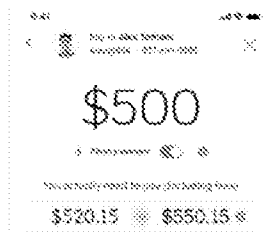
3.1 Pay To Merchant-Add Note



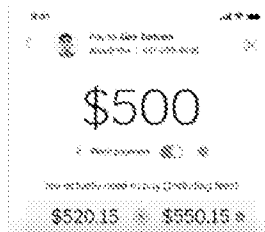
3.1 Pay To Merchant



3.1 Pay To Merchant-Info-Preview



3.1 Pay To Merchant-Next Payment



3.1 Pay To Merchant-Select Assets



3.1 Pay To Merchant-Enter Pin



3.1 Pay To Merchant-Success

Business Lists & Details (43)



3.2 Merchant-Add Business Info 1



3.2 Merchant-Add Business Info 2

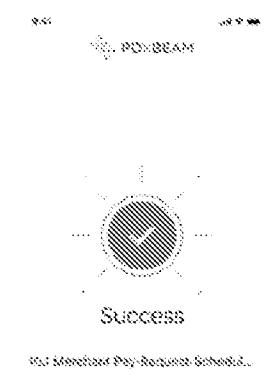
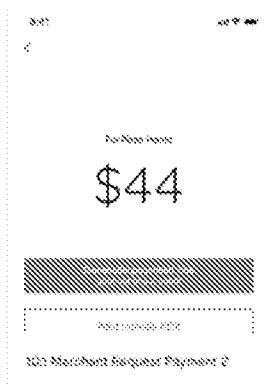
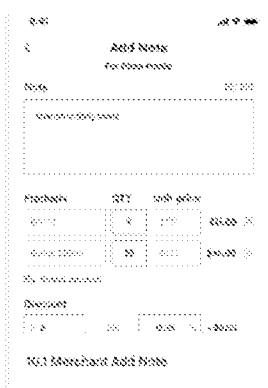
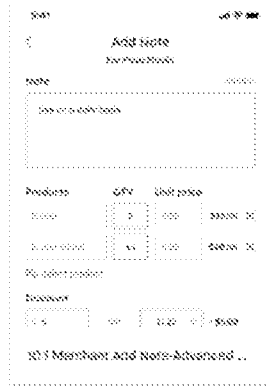
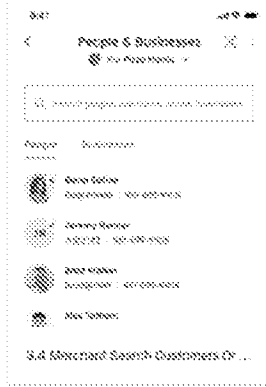
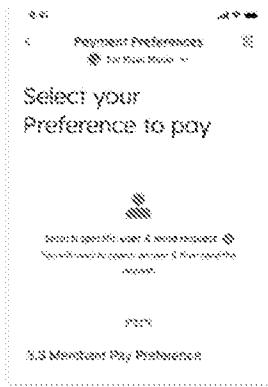


3.2 Merchant-Add Business Info 3

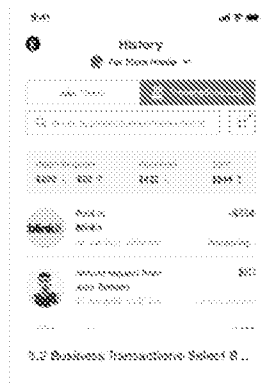
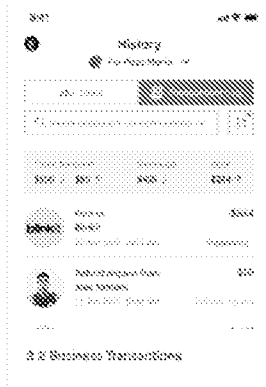
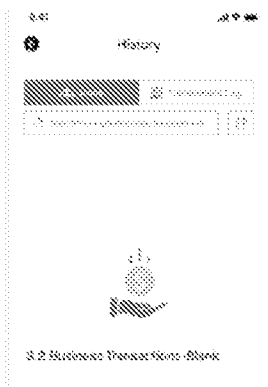


3.2 Merchant-Add Business Info 4

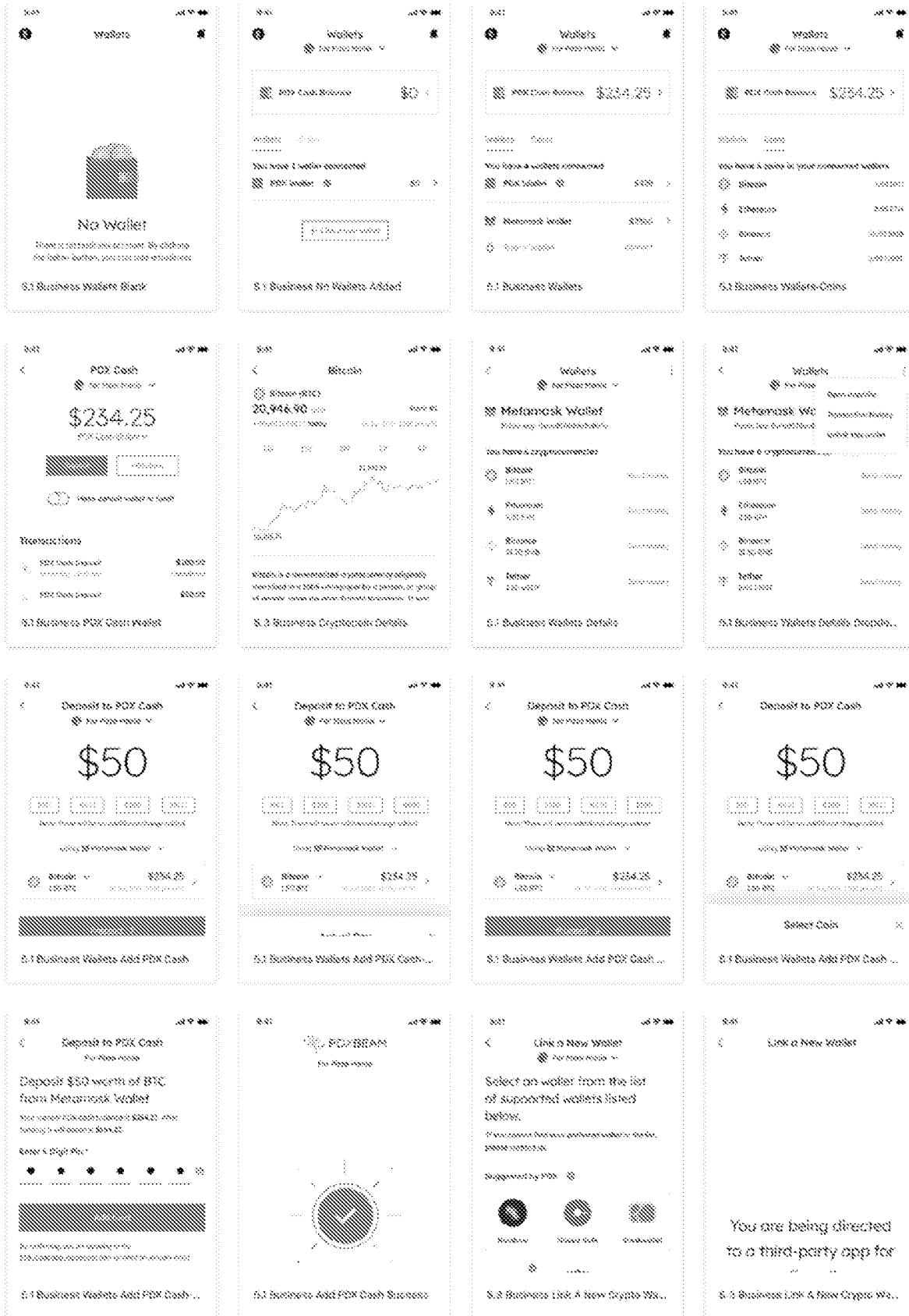
USER INTERFACE DESIGNS - A BRIEF SNAPSHOT

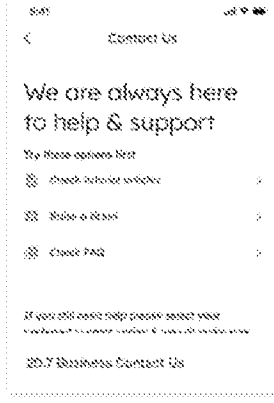
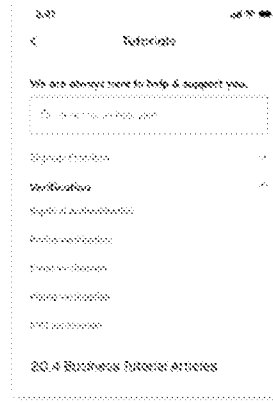
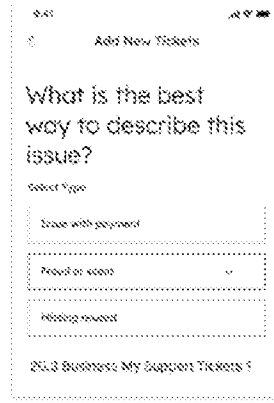
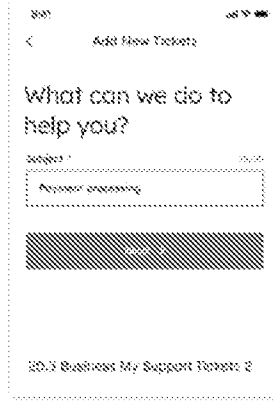
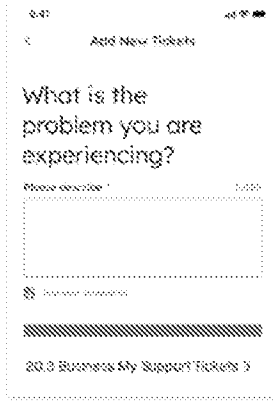
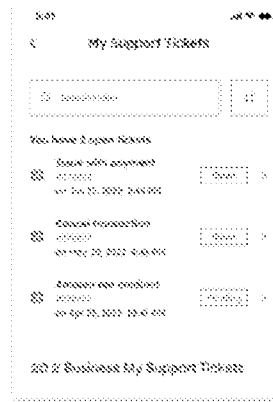
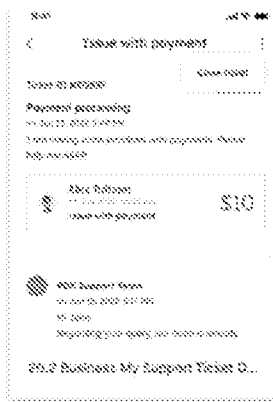
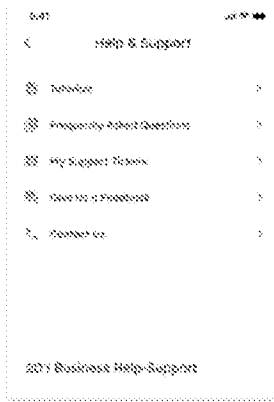


Transactions (9)



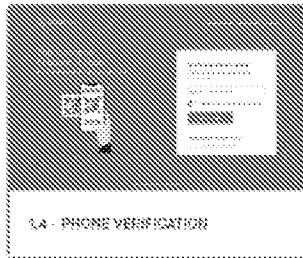
USER INTERFACE DESIGNS - A BRIEF SNAPSHOT



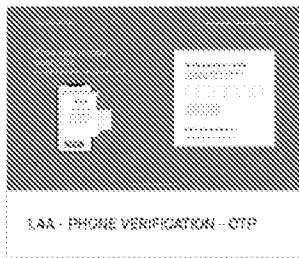


PDX Beam Customer - Web

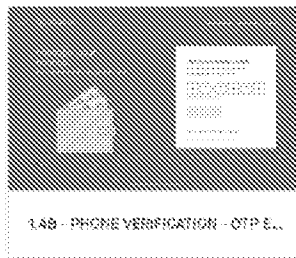
USER INTERFACE DESIGNS - A BRIEF SNAPSHOT



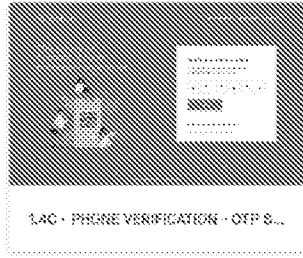
1.4 - PHONE VERIFICATION



1.4A - PHONE VERIFICATION - OTP



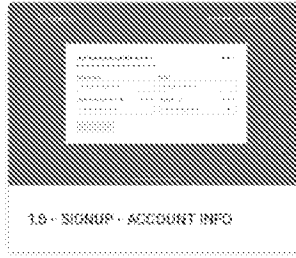
1.4B - PHONE VERIFICATION - OTP E...



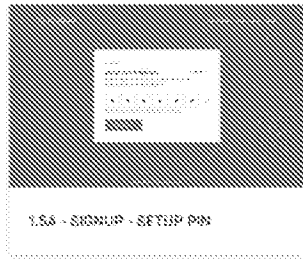
1.4C - PHONE VERIFICATION - OTP S...



1.4D - PHONE VERIFICATION - RESE...



1.5 - SIGNUP - ACCOUNT INFO



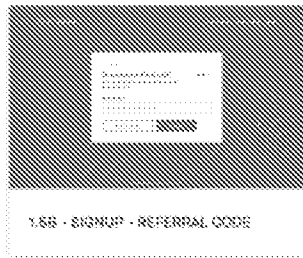
1.5A - SIGNUP - SETUP PIN



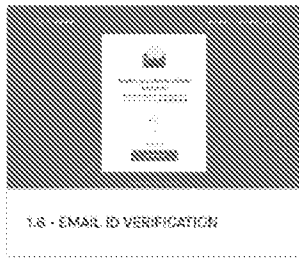
1.5A.1 - SIGNUP - SETUP PIN - CONF...



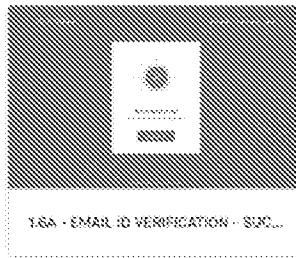
1.5A.2 - SIGNUP - SETUP PIN - VER...



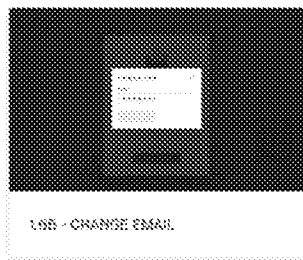
1.5B - SIGNUP - REFERRAL CODE



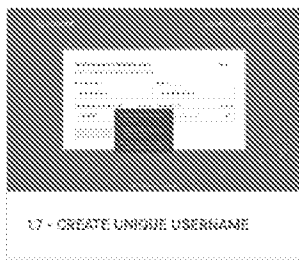
1.6 - EMAIL ID VERIFICATION



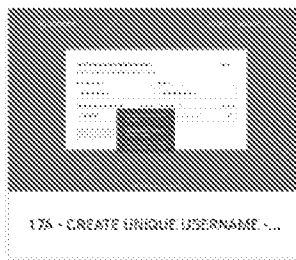
1.6A - EMAIL ID VERIFICATION - SUC...



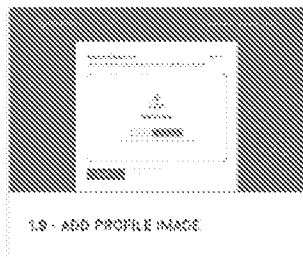
1.6B - CHANGE EMAIL



1.7 - CREATE UNIQUE USERNAME



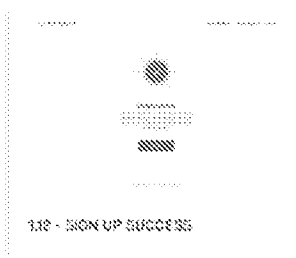
1.7A - CREATE UNIQUE USERNAME - ...



1.8 - ADD PROFILE IMAGE

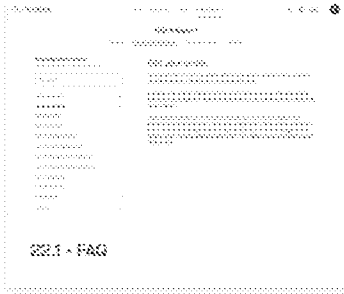
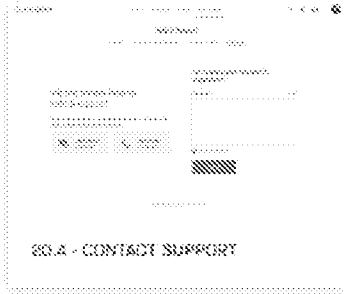
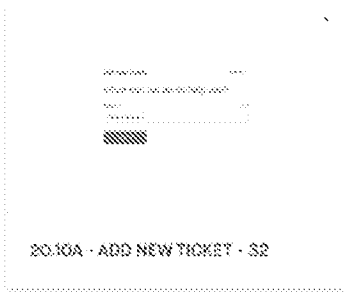
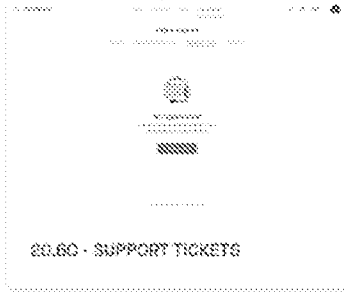
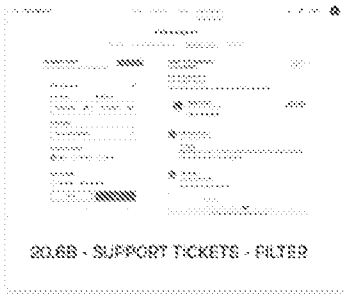
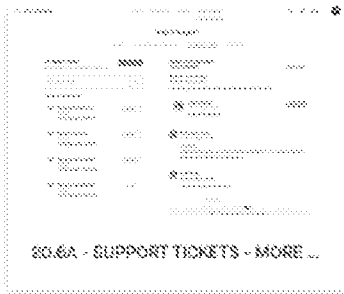
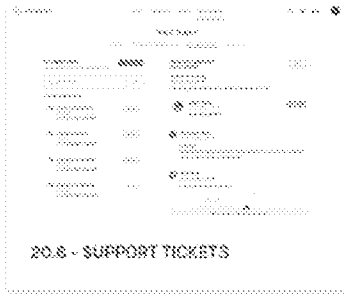
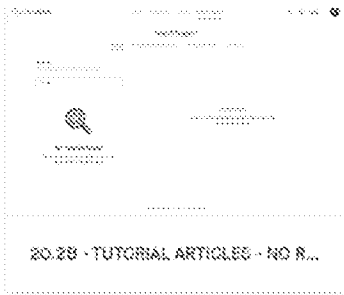
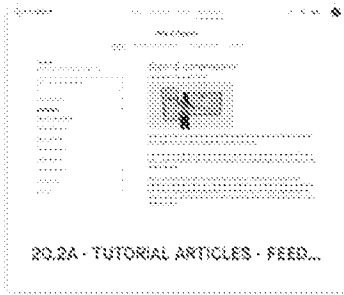
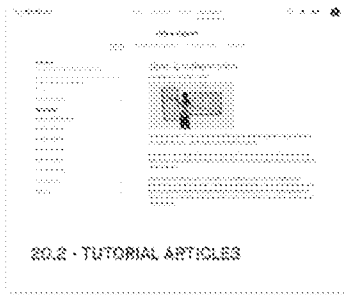


1.8A - ADD PROFILE IMAGE - UPLOAD

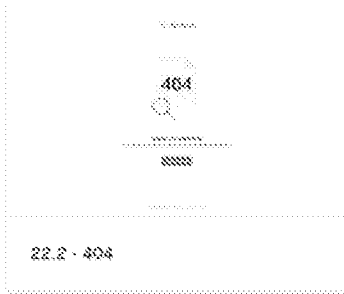


1.10 - SIGN UP SUCCESS

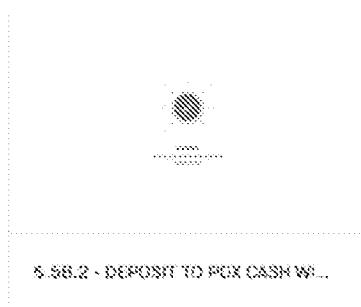
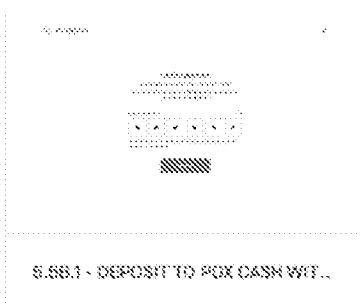
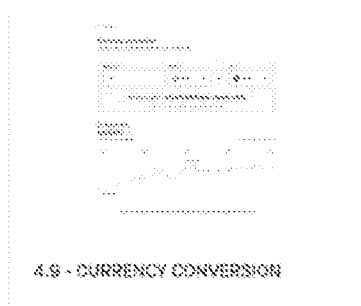
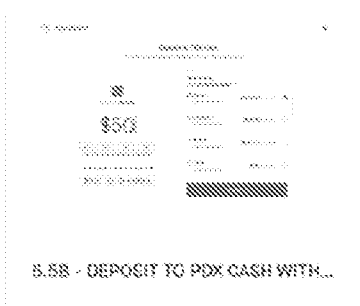
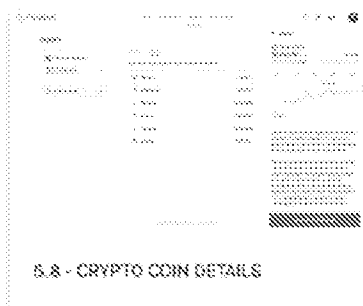
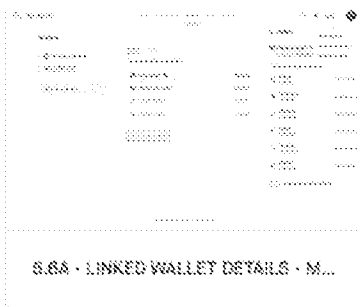
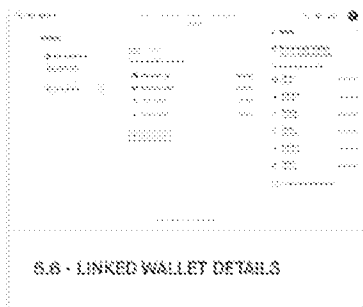
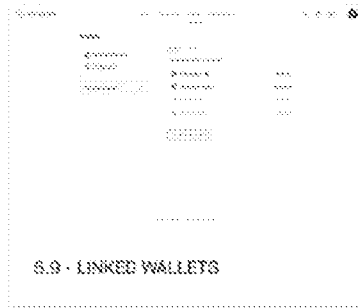
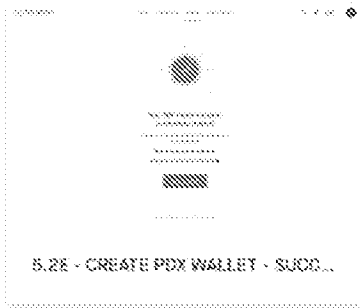
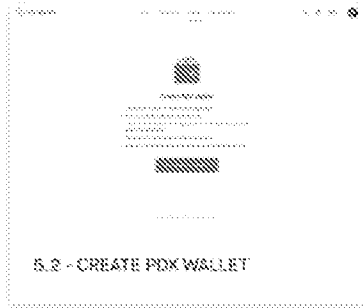
USER INTERFACE DESIGNS - A BRIEF SNAPSHOT



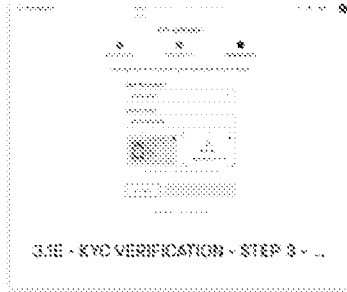
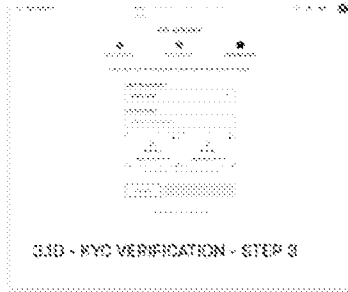
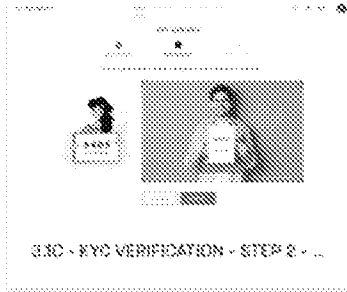
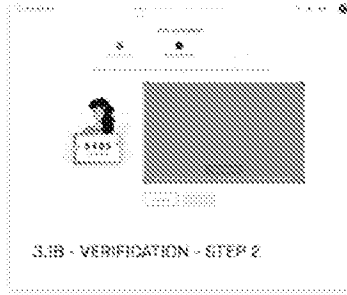
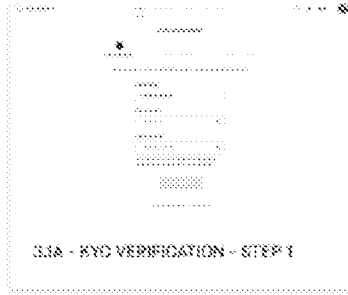
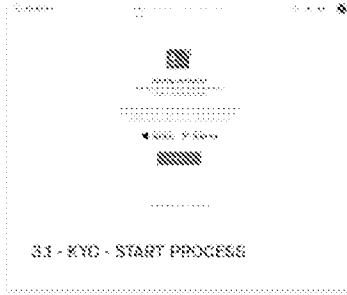
MISC (0)



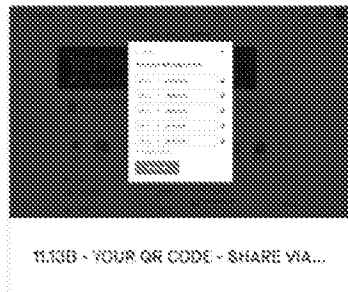
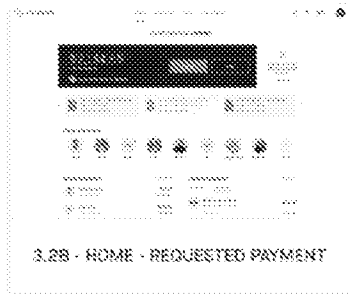
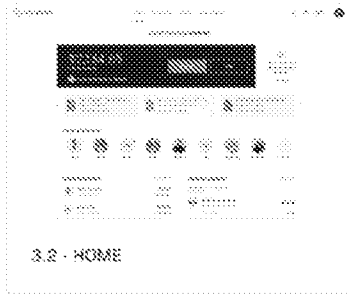
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USER INTERFACE DESIGNS - A BRIEF SNAPSHOT

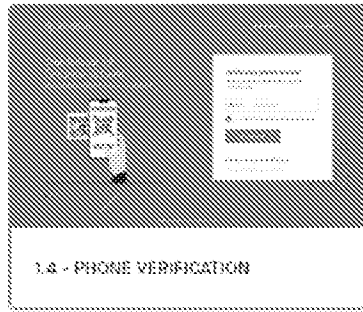


HOME / DASHBOARD (8)

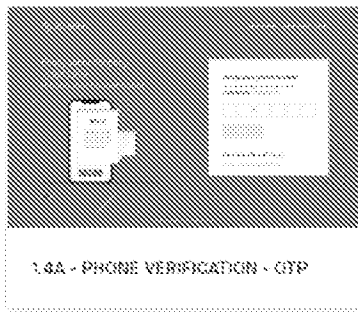


PDX Beam Merchant - Web

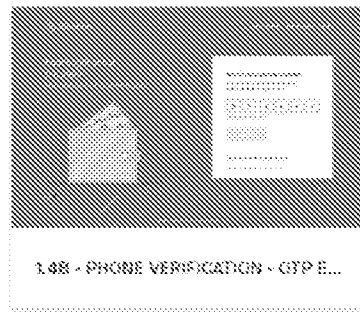
USER INTERFACE DESIGNS - A BRIEF SNAPSHOT



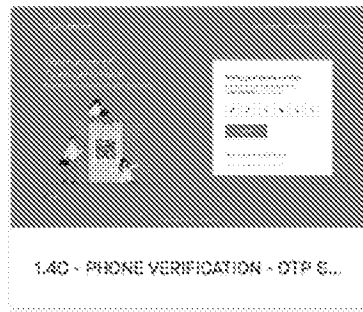
1.3 - PHONE VERIFICATION



1.3A - PHONE VERIFICATION - CYP



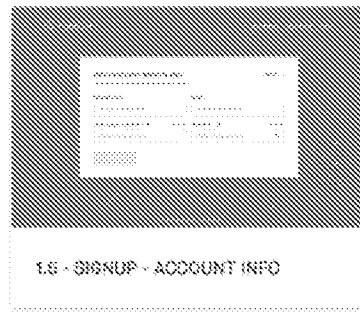
1.3B - PHONE VERIFICATION - CTP E...



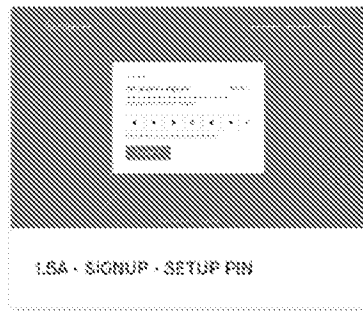
1.4C - PHONE VERIFICATION - OTP S...



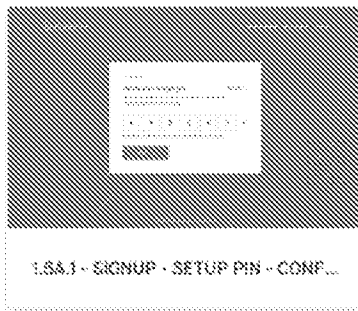
1.4D - PHONE VERIFICATION - RESE...



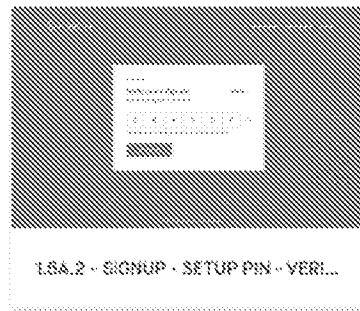
1.5 - SIGNUP - ACCOUNT INFO



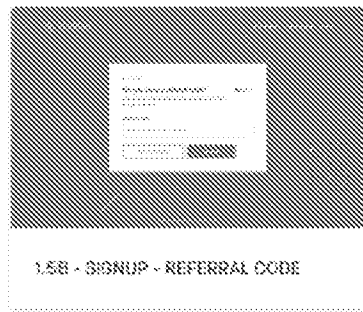
1.5A - SIGNUP - SETUP PIN



1.5A.1 - SIGNUP - SETUP PIN - CONF...



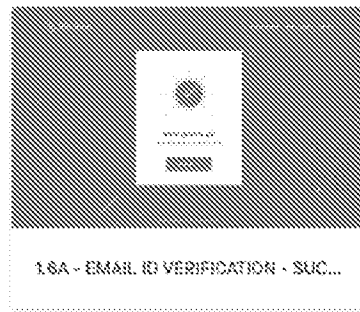
1.5A.2 - SIGNUP - SETUP PIN - VERI...



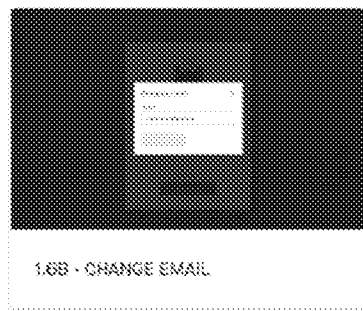
1.5B - SIGNUP - REFERRAL CODE



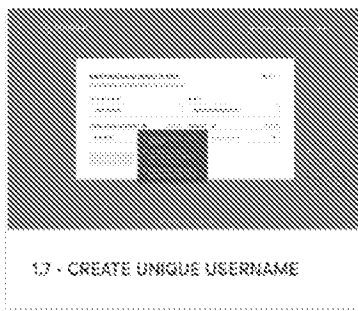
1.6 - EMAIL ID VERIFICATION



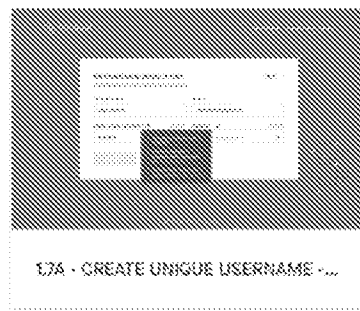
1.6A - EMAIL ID VERIFICATION - SUC...



1.6B - CHANGE EMAIL

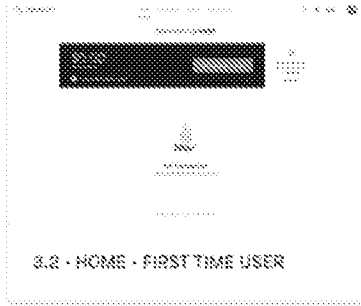


1.7 - CREATE UNIQUE USERNAME

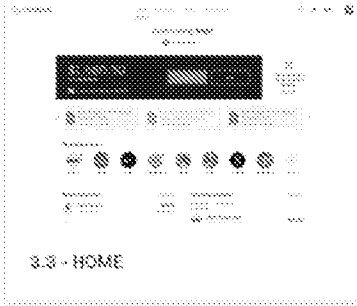


1.7A - CREATE UNGUE USERNAME -...

USER INTERFACE DESIGNS - A BRIEF SNAPSHOT



3.2 - HOME - FIRST TIME USER



3.3 - HOME



3.3A - DOWNLOAD APP



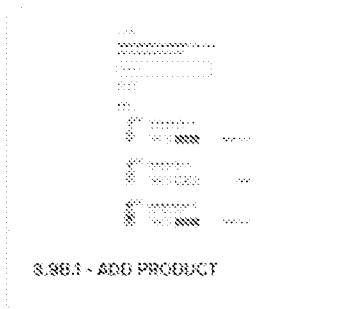
3.9 - SEND PAYMENT REQUEST - SE...



3.9A - SEND PAYMENT REQUEST - S...



3.9B - SEND PAYMENT REQUEST - ...



3.9B.1 - ADD PRODUCT



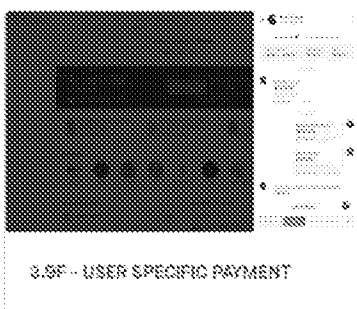
3.9C - SEND PAYMENT REQUEST - E...



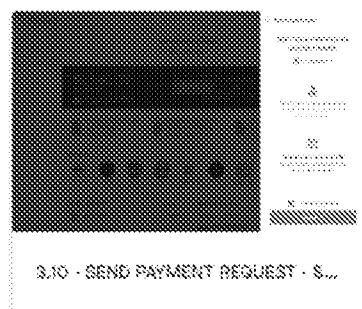
3.9D - SEND PAYMENT REQUEST - ...



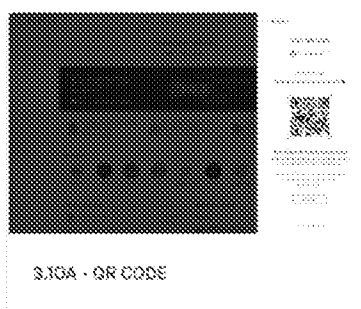
3.9E - SEND PAYMENT REQUEST - S...



3.9F - USER SPECIFIC PAYMENT



3.10 - SEND PAYMENT REQUEST - S...

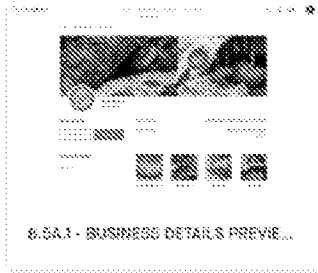
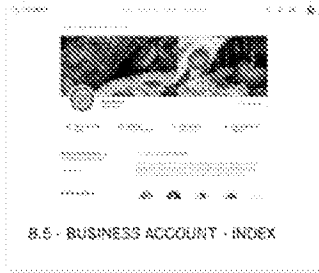
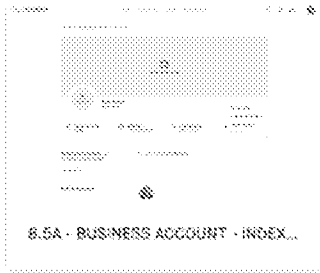


3.10A - QR CODE

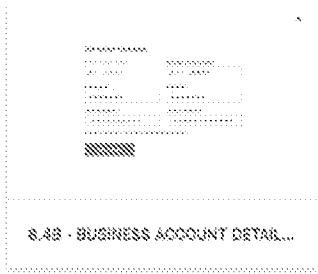
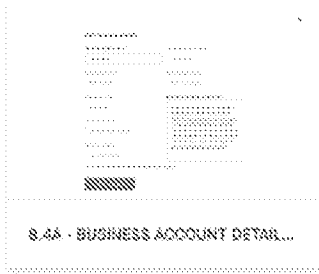
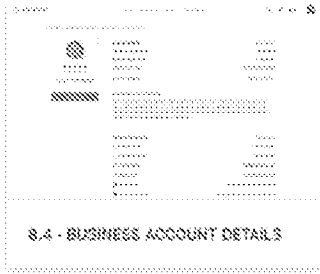


3.1 - WELCOME MESSAGE FOR MEM...

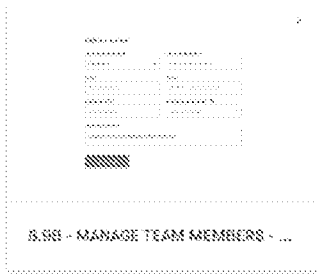
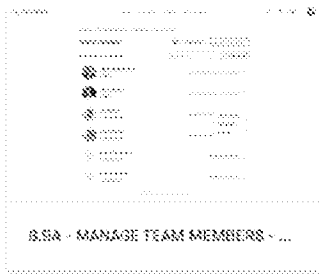
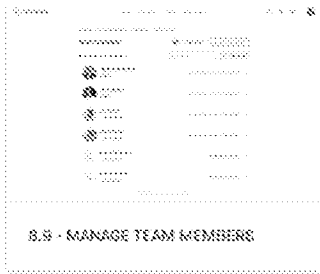
USER INTERFACE DESIGNS - A BRIEF SNAPSHOT



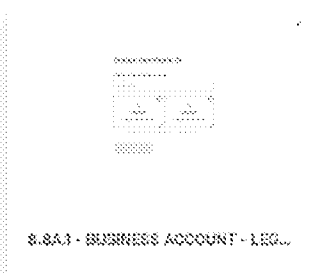
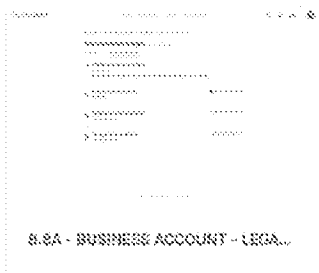
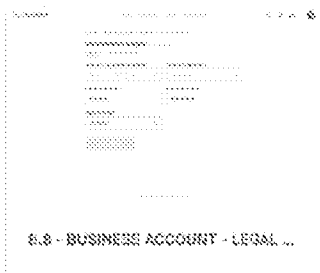
BUSINESS ACCOUNT DETAILS (3)



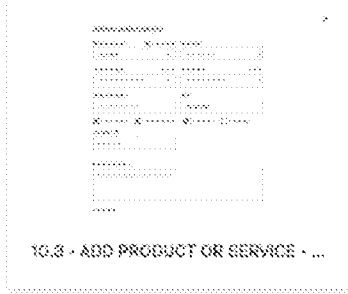
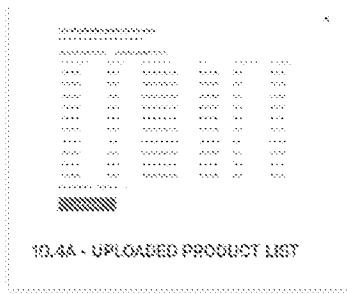
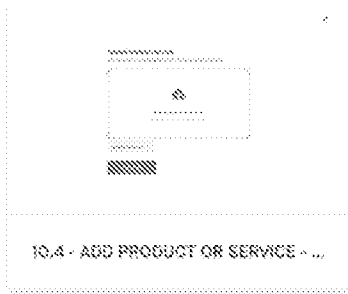
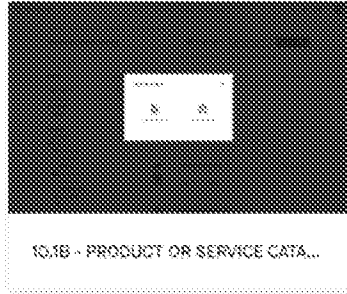
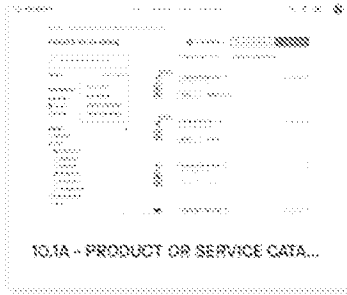
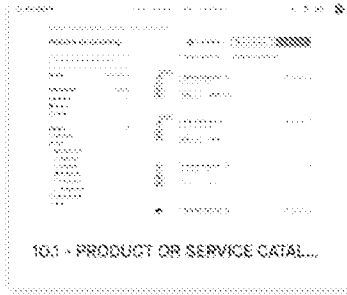
BUSINESS MEMBERS (4)



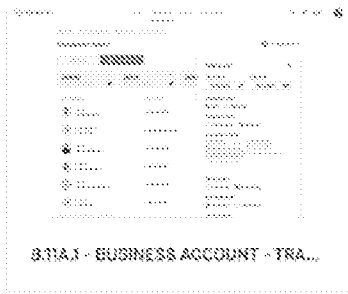
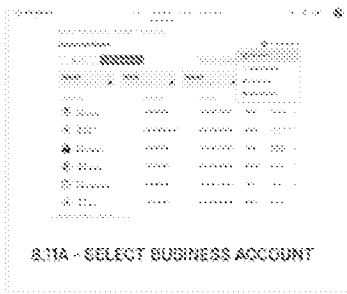
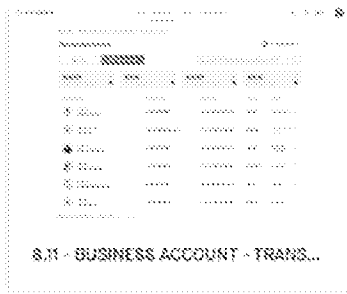
BUSINESS DOCUMENTATION & LEGAL (4)



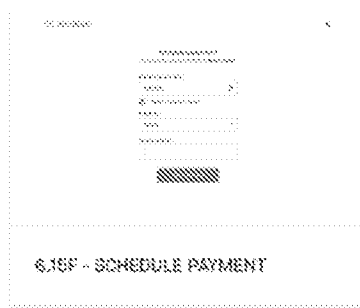
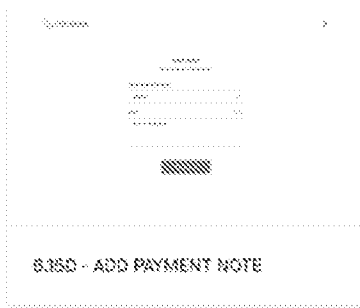
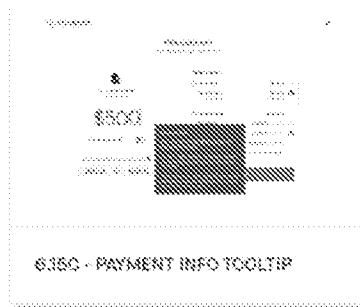
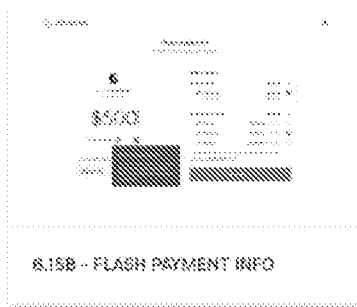
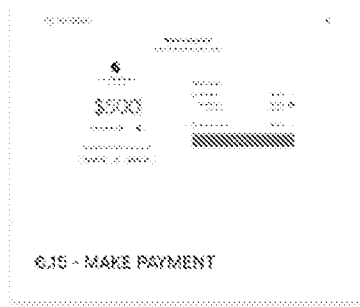
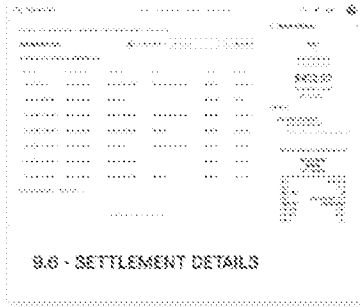
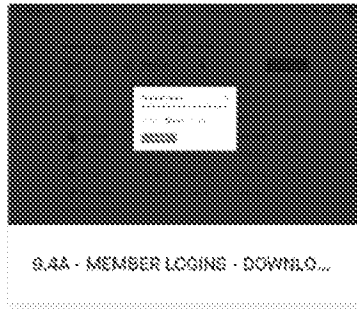
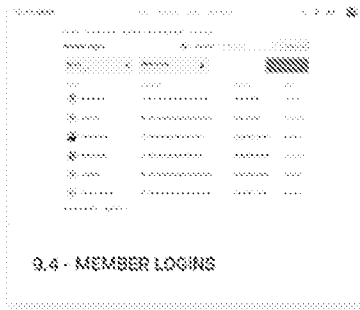
USER INTERFACE DESIGNS - A BRIEF SNAPSHOT

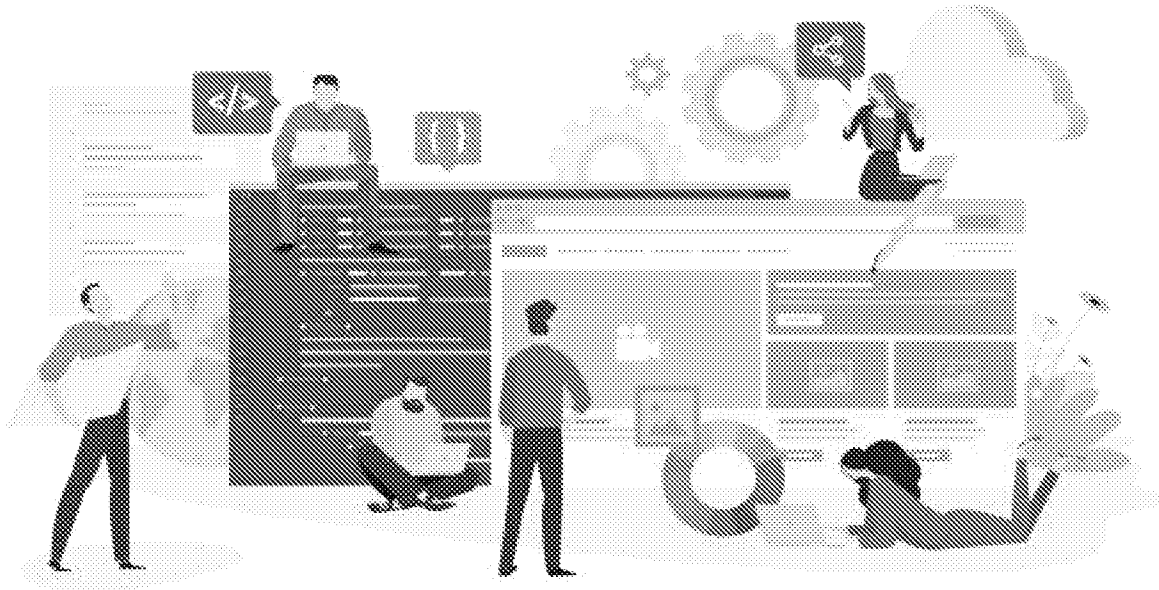


TRANSACTIONS (10)



USER INTERFACE DESIGNS - A BRIEF SNAPSHOT





Patent and Trademark Guidelines

for PDX Pay Solutions

Version - 1.0, March 2024



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Application of Polygon blockchain

This patent application pertains to a ground breaking digital application which shall enable PDX that harnesses the power of Kraken's Polygon blockchain technology enabled features, integrating seamlessly through APIs to deliver a comprehensive solution covering key product functionalities, security and compliance, while ensuring optimal performance. The inventive combination of Kraken's Polygon blockchain and PDX digital application represents a novel approach to address the evolving needs of the digital landscape wherein "casual" users/companies/organizations get benefit from use of cryptocurrency for any real-world transactions or purchases. The financial services ecosystem developed with the technological handshaking with a global, virtual, and digital banking capability – a mobile-enabled crypto-to-fiat payments platform that will effectively be a full payments platform on a phone. At the heart of this global payments system is PDX Pay - an energy-backed, legally compliant cryptocurrency supported by independently certified proved recoverable oil and gas reserves.

In recent years, the blockchain technology landscape has witnessed significant advancements, with a particular focus on scalability, interoperability, and security. Kraken's Polygon blockchain technology has emerged as a leading solution, offering a robust infrastructure for decentralized applications (dApps) and smart contracts. The integration of this technology into PDX-Pay digital application provides a unique and powerful platform for users to interact with various services securely and efficiently.

Key Product Functionalities:

PDX-Pay digital application stands out in the market due to its innovative features and functionalities, driven by the utilization of Kraken's Polygon blockchain technology. These key functionalities include:

1. Decentralized Identity Management:

- Secure and immutable user identity verification leveraging Kraken's Polygon blockchain.
- Enhanced user privacy and control over personal data.

2. Smart Contract Automation:

- Utilization of smart contracts on the Polygon blockchain to automate and enforce agreements.
- Transparent and tamper-proof execution of contractual obligations.

3. Tokenized Assets and Transactions:

- Facilitation of tokenized assets and transactions on the Polygon blockchain.
- Streamlined and secure asset management through cryptographic tokens.

Security and Compliance:

The PDX-Pay application also addresses the critical aspects of security and compliance to ensure the trustworthiness of the digital application:

1. End-to-End Encryption:

- Implementation of robust encryption protocols to secure data transmission and storage.
- Protection against unauthorized access and data breaches.

2. Regulatory Compliance:

- Adherence to relevant data protection and financial regulations.
- Integration of compliance mechanisms within the digital application to ensure legal conformity.

Performance:

The proposed invention emphasizes optimal performance, leveraging Kraken's Polygon blockchain technology and APIs:

1. Scalability:

- Efficient handling of a large number of concurrent users through the scalability features of the Polygon blockchain.
- Seamless scalability to accommodate future growth and increased demand.

2. Latency Reduction:

- Minimization of transaction processing times through the utilization of Kraken's Polygon blockchain technology.
- Enhanced user experience through low-latency interactions.

Challenges addressed with the Application development

The development of the PDX application addressed the problem of crypto payments not being instant. The application handled and addressed this issue leading to payments via crypto an instant settlement.

A. Problem of Delayed Crypto Payments: One of the challenges with cryptocurrency transactions, especially for mainstream adoption, has been the delay in settling transactions. Traditional banking systems often provide instant settlement for transactions, but cryptocurrencies like Bitcoin and Ethereum typically require confirmation on the blockchain, which can take time (from several minutes to hours depending on network congestion).

B. Development of the PDX Application: Developers recognized this problem and created the PDX application to address it. The application likely involved creating a new system or flow by using the blockchain technology enabled features for facilitating cryptocurrency transactions in a faster and more efficient manner.

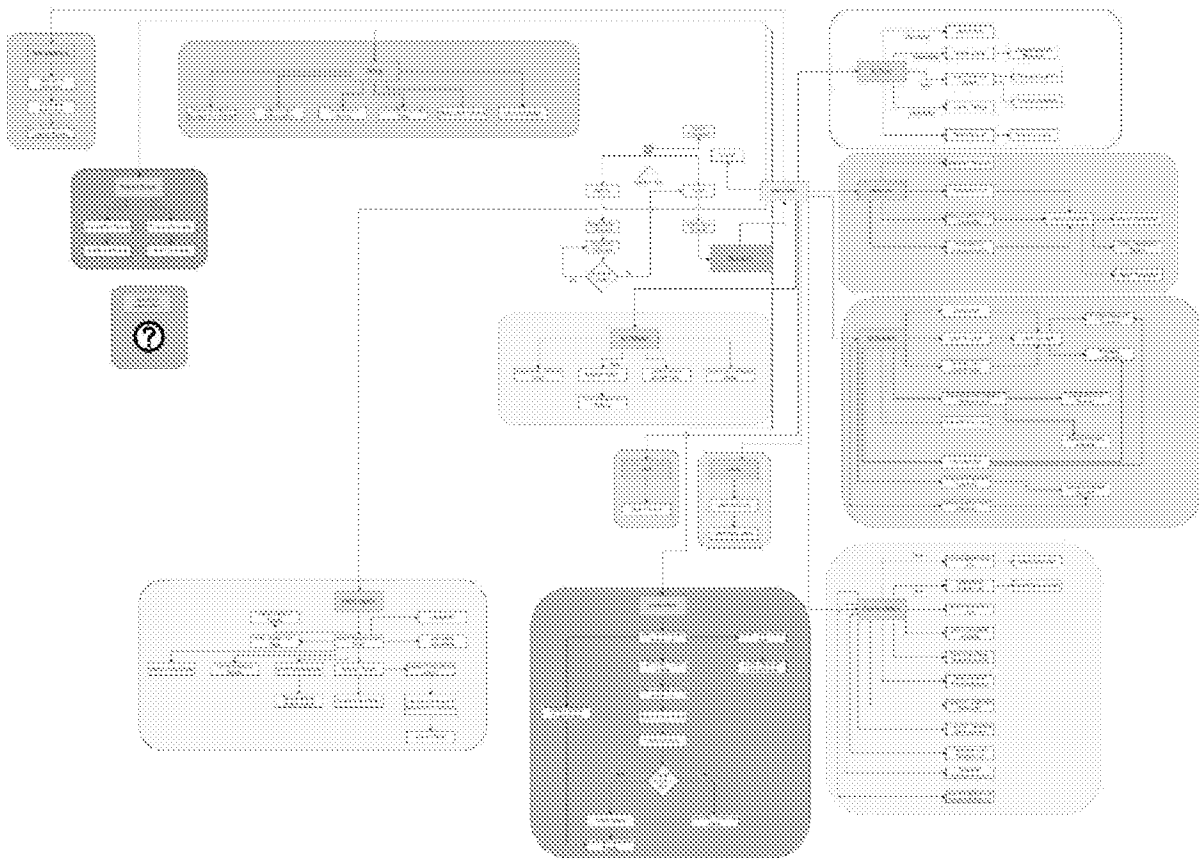
C. Instant Settlement: By leveraging blockchain technology enabled features, the PDX application could ensure that transactions made using cryptocurrencies were settled instantly. This means that once a

transaction was initiated, the recipient would receive the cryptocurrency almost immediately, without having to wait for confirmations on the blockchain.

D. Addressing Technical Challenges: Achieving instant settlement in the realm of cryptocurrency payments requires overcoming various technical challenges. This might involve implementing off-chain solutions, using layer-2 scaling solutions like the Lightning Network (for Bitcoin), or employing consensus mechanisms that allow for faster confirmation times without sacrificing security.

E. User Experience Improvement: Instant settlement not only benefits the users receiving cryptocurrency payments but also enhances the overall user experience. It makes cryptocurrency transactions more comparable to traditional payment methods in terms of speed and efficiency, which could encourage broader adoption of cryptocurrencies for everyday transactions.

High-Level Product Flow



System Component Architecture

A. API & Business Logic Layer

Microservice architecture had been used here for the application development. The microservices software-development pattern had provided a method to build a single, unified service out of a collection of smaller services. Each microservice component focuses on a set of loosely coupled actions on a small, well-defined dataset. Each microservice includes an independent storage system so that all of its data is located in a single location. By reducing the number of blocking operations on the data-storage backend, this architecture enables the microservice to scale horizontally, increasing capacity by adding more nodes to the system rather than just increasing the resources (RAM, CPUs, storage) on a single node.

Over the years its been seen that there are technological advances in the system components as systems became more complex & had more traffic to handle and considering that the developers went from a single unit architecture to a multiple part micro architecture.

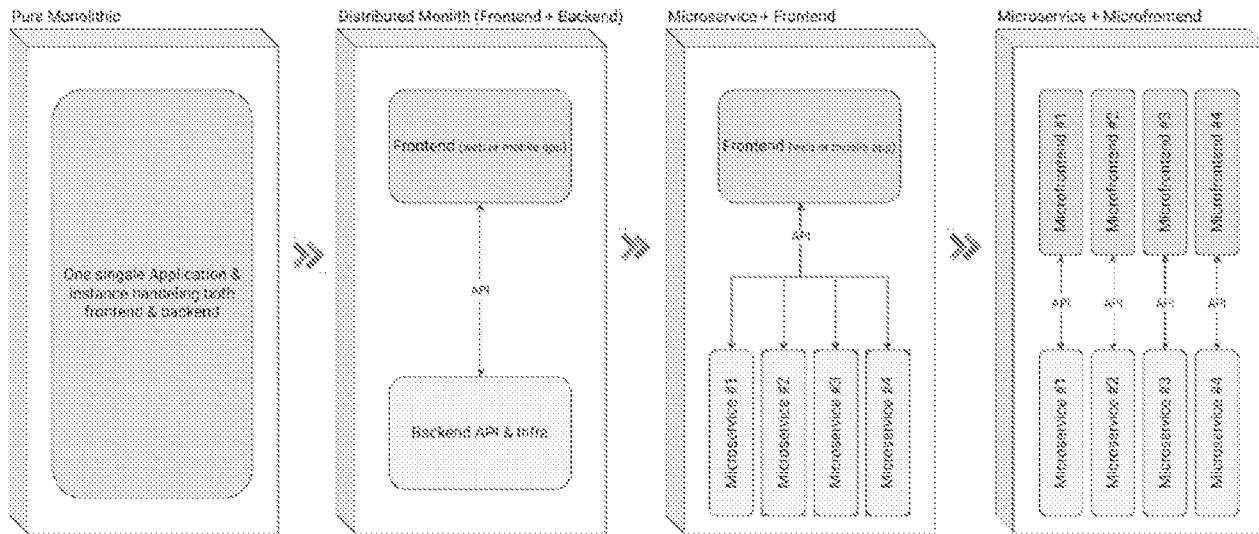
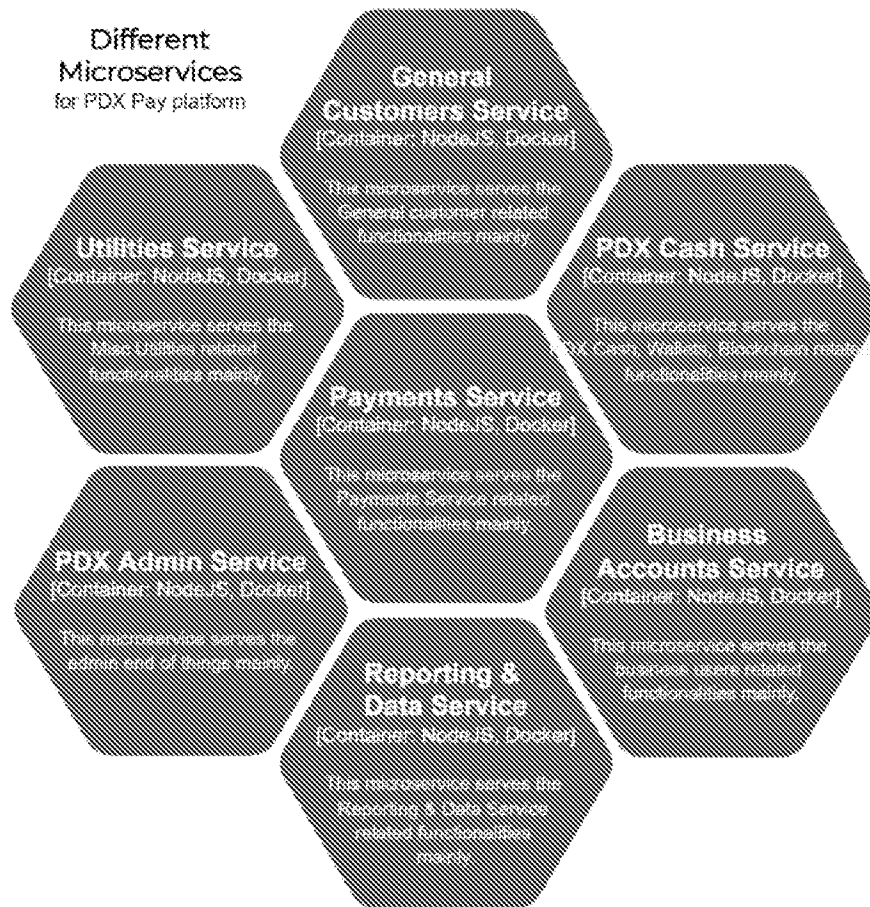
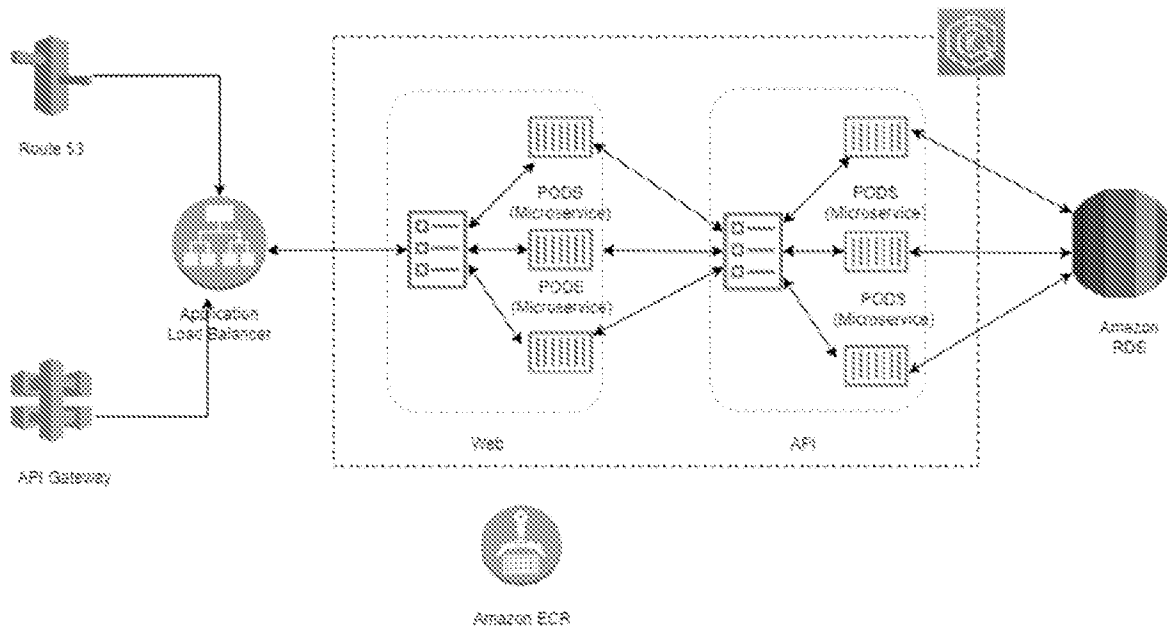


Fig. Journey from Monolithic to Fronted and Microservices architecture.

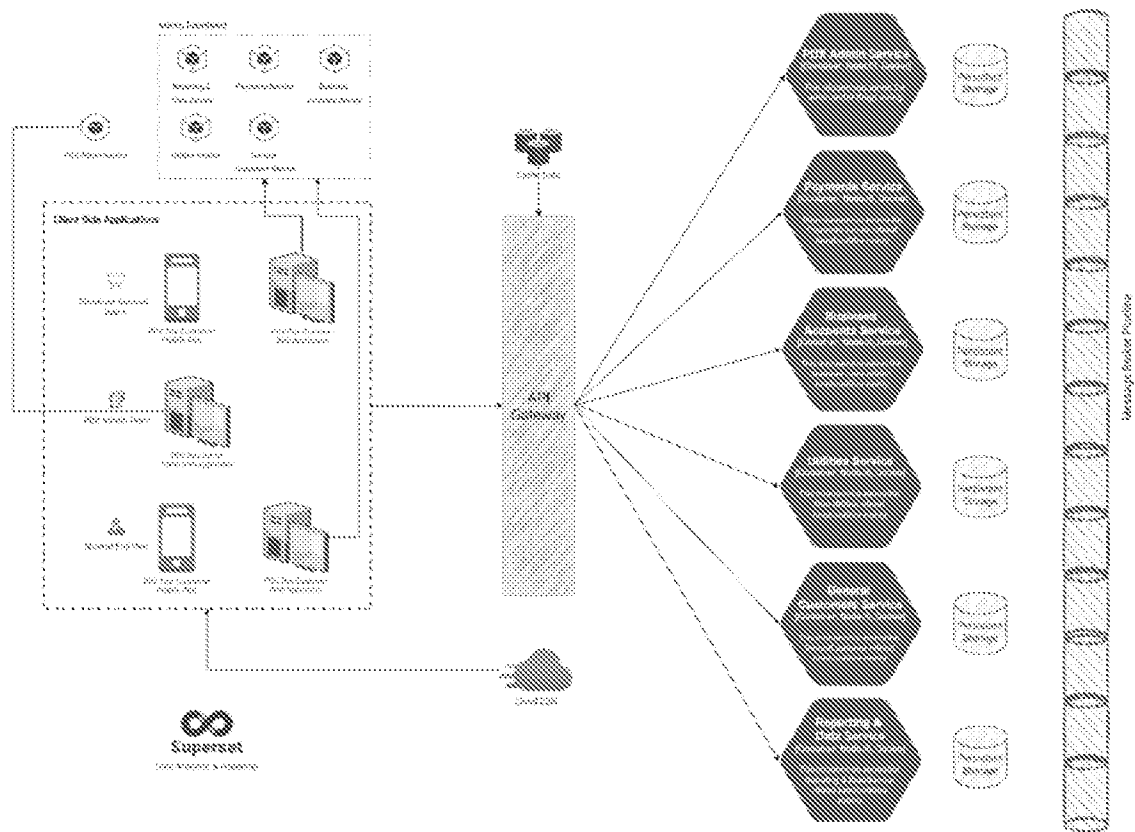
B. Microservices Breakdown (or Macroservices)



Micro Service Structure with Amazon EKS



System Component Architecture Diagram



Logo

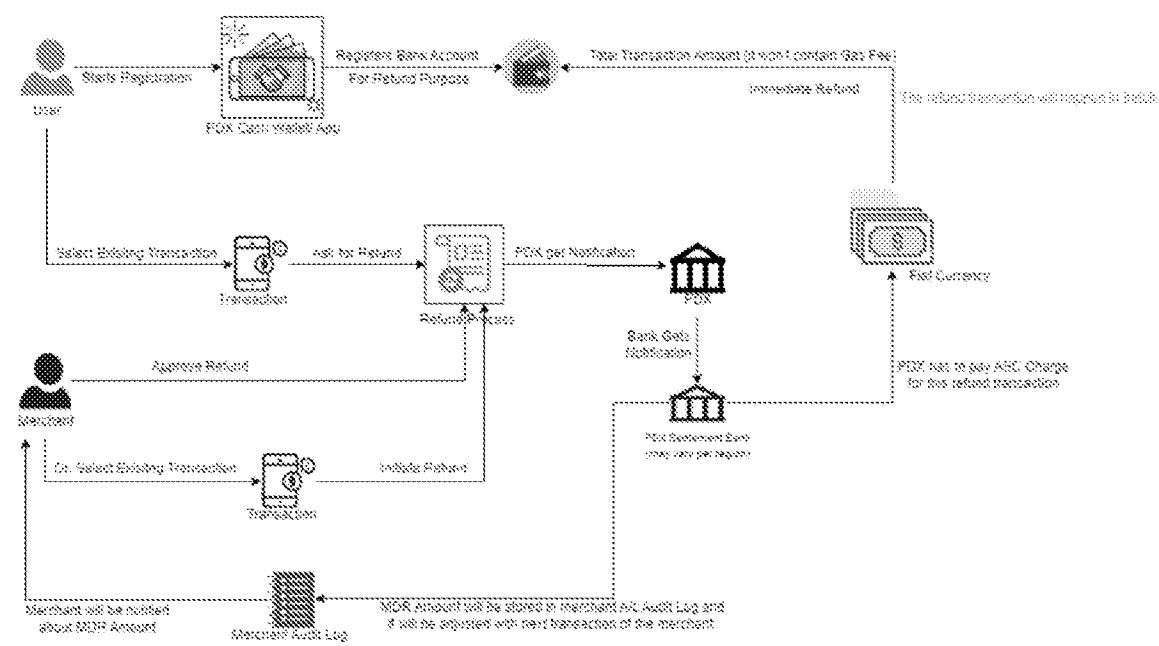


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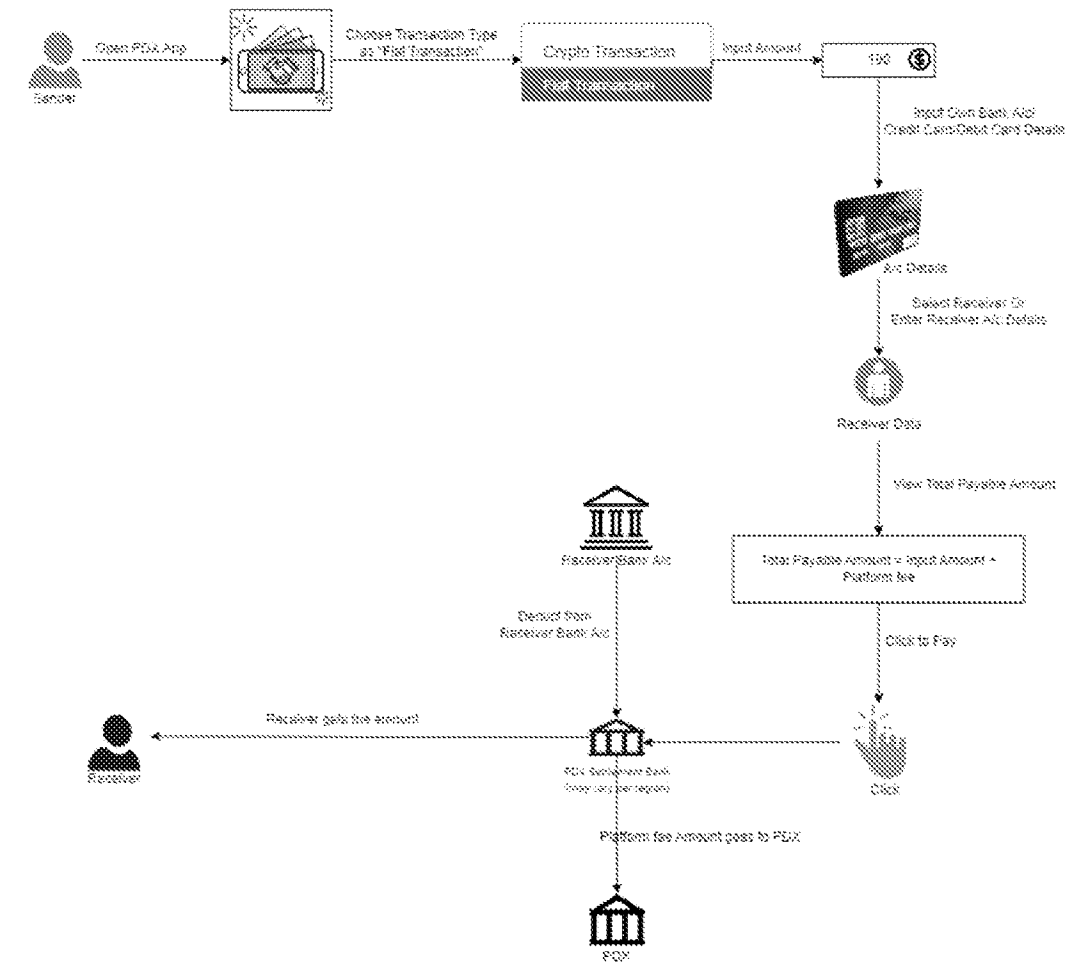
Patent and Trademarks Guidelines, PDX Pay

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Refund Flow



Fiat to Fiat Transaction Flow



POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

135627

OR

I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

The address associated with the above-mentioned Customer Number

OR

The address associated with Customer Number:

OR

Firm or Individual Name

Address

City

State

Zip

Country

Telephone

Email

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

PDX GLOBAL PTE. LTD.

- Inventor or Joint Inventor (title not required below)
- Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature

Date (Optional)

Name

Shane X.G. Rodgers

Title

Director, Chairman and CEO of PDX GLOBAL PTE. LTD.

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
63/638,056

RECEIPT DATE / TIME
04/24/2024 02:28:32 PM Z ET

ATTORNEY DOCKET #
777365.000003

Title of Invention

INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND METHODS

Application Information

APPLICATION TYPE	Utility - Provisional Application under 35 USC 111(b)	PATENT #	-
CONFIRMATION #	2929	FILED BY	Teri Nelmark
PATENT CENTER #	65227437	FILING DATE	-
CUSTOMER #	135627	FIRST NAMED INVENTOR	Shane X.G. Rodgers
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Denise Tang

Documents

TOTAL DOCUMENTS: 5

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
777365.000003-ADS.pdf	8	Application Data Sheet	1245 KB
777365.000003- Provisional_Application_Final _To_File.pdf	61	Specification	9949 KB
777365.000003_Declaration_ Rodgers.pdf	2	Oath or Declaration filed	193 KB
777365.000003- Provisional_Cover_Sheet.pdf	3	Provisional Cover Sheet (SB16)	2563 KB
777365.000003_POA.pdf	3	Power of Attorney	324 KB

Warning: The PDF file has been signed with a digital signature and the legal effect of the document will be based on the contents of the file not the digital signature.

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
777365.000003-ADS.pdf	5DAFACE4B2FC9009C87185E6B1191CA5E61B618306955D3EE C39FA36AD9A1AA5706EEDE061E518DB39B16D783A34B42A48 8BC89240422B5B8E16346654BD05EE
777365.000003- Provisional_Applicaiton_Final_T o_File.pdf	11C3C5A7EE2F8EE2B03648DAAE05E0BD786833D0CB74C5D7 A62BB6619C0656F1C826CF4D144B27571E2C9EDB82B3C9344 9547AD2E6D2AE3F97C67DF83305CBA4
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

**Title of
Invention**

Integrated Cryptocurrency-Based Payment Systems and Methods

As the below named inventor, I hereby declare that:

This declaration
is directed to:

The attached application, or

United States application or PCT international application number _____

filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: SHANE X.G. RODGERS

Date (Optional) : _____

Signature: _____

DocuSigned by:

Shane X.G. Rodgers

E97C85846EAD418...

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC PAYMENT RECEIPT

APPLICATION #
63/638,056

RECEIPT DATE / TIME
04/24/2024 02:28:32 PM Z ET

ATTORNEY DOCKET #
777365.000003

Title of Invention

INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND METHODS

Application Information

APPLICATION TYPE	Utility - Provisional Application under 35 USC 111(b)	PATENT #	-
CONFIRMATION #	2929	FILED BY	Teri Nelmark
PATENT CENTER #	65227437	AUTHORIZED BY	Denise Tang
CUSTOMER #	135627	FILING DATE	-
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Shane X.G. Rodgers

Payment Information

PAYMENT METHOD DA / 501349	PAYMENT TRANSACTION ID E20244NE29376300	PAYMENT AUTHORIZED BY Teri Nelmark
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FEE CODE	DESCRIPTION	ITEM PRICE(\$)	QUANTITY	ITEM TOTAL(\$)
2005	PROVISIONAL APPLICATION FILING FEE	120.00	1	120.00
			TOTAL AMOUNT:	\$120.00

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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Provisional Application for Patent Cover Sheet

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c)

Inventor(s)

Inventor 1

Given Name

Middle Name

Family Name

City

State

Country ;

Shane

X.G.

Rodgers

New York City

NY

US

All Inventors Must Be Listed – Additional Inventor Information blocks may be generated within this form by selecting the **Add** button.

Title of Invention

INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND METHODS

Attorney Docket Number (if applicable)

777365.000003

Correspondence Address

Direct all correspondence to (select one):

The address corresponding to Customer Number

Firm or Individual Name

Customer Number

135627

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

No.

Yes, the invention was made by an agency of the United States Government. The U.S. Government agency name is:

Yes, the invention was under a contract with an agency of the United States Government. The name of the U.S. Government agency and Government contract number are:

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

Entity Status

Applicant asserts small entity status under 37 CFR 1.27 or applicant certifies micro entity status under 37 CFR 1.29

- Applicant asserts small entity status under 37 CFR 1.27
- Applicant certifies micro entity status under 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent.
- No

Warning

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

Signature

Please see 37 CFR 1.4(d) for the form of the signature.

Signature	/Denise Tang/			Date (YYYY-MM-DD)	2024-04-24
First Name	Denise	Last Name	Tang	Registration Number (If appropriate)	L1401

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. This form can only be used when in conjunction with EFS-Web. If this form is mailed to the USPTO, it may cause delays in handling the provisional application.**

Privacy Act Statement

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	777365.000003
		Application Number	
Title of Invention	INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND METHODS		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2:

<input type="checkbox"/>	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
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Inventor Information:

Inventor 1 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Shane	X.G.	Rodgers	
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service				
City	New York City	State/Province	NY	Country of Residence US
Mailing Address of Inventor:				
Address 1	745 Fifth Avenue Suite 500			
Address 2				
City	New York City	State/Province	NY	
Postal Code	10151	Country	US	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.				Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
<input type="checkbox"/> An Address is being provided for the correspondence information of this application.	
Customer Number	135627
Email Address	Add Email Remove Email

Application Information:

Title of the Invention	INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND METHODS		
Attorney Docket Number	777365.000003	Small Entity Status Claimed	<input checked="" type="checkbox"/>
Application Type	Provisional		
Subject Matter			
Total Number of Drawing Sheets (if any)		Suggested Figure for Publication (if any)	

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	777365.000003
	Application Number	
Title of Invention	INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND METHODS	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:
 Request Early Publication (Fee required at time of Request 37 CFR 1.219)

Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	<input checked="" type="radio"/> Customer Number	<input type="radio"/> US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)
Customer Number	135627		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status			<input type="button" value="Remove"/>
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	777365.000003
	Application Number	
Title of Invention	INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND METHODS	

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
			Remove
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

- This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
- NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	777365.000003
	Application Number	
Title of Invention	INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND METHODS	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	777365.000003
	Application Number	
Title of Invention	INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND METHODS	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section. Clear

Assignee

 Legal Representative under 35 U.S.C. 117

 Joint Inventor

Person to whom the inventor is obligated to assign.

 Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here.

Organization Name PDX Global PTE. LTD.

Mailing Address Information For Applicant:

Address 1	68 Circular Road #02-01		
Address 2			
City	Singapore	State/Province	
Country	SG	Postal Code	049422
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	777365.000003
	Application Number	
Title of Invention	INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND METHODS	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here.

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1				
Address 2				
City		State/Province		
Country ⁱ	Postal Code			
Phone Number		Fax Number		
Email Address				

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the **INITIAL** filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Denise Tang/		Date (YYYY-MM-DD)	2024-04-24	
First Name	Denise	Last Name	Tang	Registration Number	L1401

Additional Signature may be generated within this form by selecting the Add button.

Add

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	777365.000003
	Application Number	
Title of Invention	INTEGRATED CRYPTOCURRENCY-BASED PAYMENT SYSTEMS AND METHODS	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.