

### **Independent Claim 9 (Article of Manufacture Claim – Computer-Readable Medium for Tokenized RWA Platform)**

A non-transitory computer-readable medium storing instructions that, when executed by one or more processors of an IoT cloud platform integrated with a blockchain, cause the platform to perform operations for end-to-end tokenized Real World Asset (RWA) generation and trading, the operations comprising:

receiving data associated with any RWA from IoT edge hardware comprising sensors, routers, and gateways;

validating and certifying the data to produce an RWA certificate;

minting a value token on a blockchain ledger by generating an immutable digital asset record that includes cryptographic ownership keys and validation data; and

operating a blockchain-based exchange layer that supports listing of the value token and execution of market, limit, derivative, and conditional orders with automatic settlement and permanent recording of every transaction on the distributed ledger.

### **Dependent Claims for Independent Claim 9**

The following is a complete set of dependent claims (Claims 2–22) that further specify and narrow the non-transitory computer-readable medium of Independent Claim 9. Each dependent claim is fully supported by the disclosures in the attached document (Patent Filing Highlights US20200027096A1.docx), including the detailed descriptions of the IoT cloud platform's receipt and processing of data from edge hardware (sensors, routers, gateways), automated validation/verification/certification processes, value token minting on a blockchain ledger (immutable digital asset record with cryptographic ownership keys and validation data), operation of the integrated blockchain-based exchange layer (listing, market/limit/derivative/conditional orders, automatic settlement, permanent recording of every transaction), real-time/continuous operation, redundant ledger copies, cryptographic hashing, fraud reduction, permanent auditability, primary-market issuance, and the overall end-to-end tokenized RWA generation and trading platform as of the November 7, 2017 priority date.

### **Full Claim Set in Formal USPTO-Style Format (Reordered to Start with Claim 1)**

1. A non-transitory computer-readable medium storing instructions that, when executed by one or more processors of an IoT cloud platform integrated with a blockchain, cause the platform to perform operations for end-to-end tokenized Real World Asset (RWA) generation and trading, the operations comprising: receiving data associated with any RWA from IoT edge hardware comprising sensors, routers, and gateways; validating and certifying the data to produce an RWA certificate; minting a value token on a blockchain ledger by generating an immutable digital asset record that includes cryptographic ownership keys and validation data; and operating a blockchain-based exchange layer that supports listing of the value token and execution of market, limit, derivative, and conditional orders with automatic settlement and permanent recording of every transaction on the distributed ledger.
2. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the IoT cloud platform to receive data from an IoT edge hardware layout

comprising sensor devices, edge routers, and edge gateways configured to communicate using one or more wireless protocols selected from the group consisting of Bluetooth, Zigbee, WiFi, Z-Wave, Sub-Gigahertz, Cellular, Satellite, LoRaWAN, Sigfox, and combinations thereof.

3. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the IoT cloud platform to receive the data continuously or in real time from physical facilities or infrastructure instrumented with the IoT edge hardware.
4. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the IoT cloud platform to perform automated validation and certification of the received data using processes for accuracy, sampling design, internal controls, and verification consistent with established standards for real-world asset certification.
5. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the IoT cloud platform to automatically generate the RWA certificate upon successful validation of the received data.
6. The non-transitory computer-readable medium of claim 1, wherein the instructions cause minting of the value token by generating an immutable digital asset record on the blockchain ledger that includes one or more of public-key addresses, cryptographic block linking, timestamps, transaction data, user identifiers, equipment identifiers, validation reports, and verification statements.
7. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the blockchain ledger to register all participants and equipment associated with the RWA on the distributed ledger to prevent double-spending or fraud.
8. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the value token to be minted as a primary market activity based on the validated and certified data from the IoT edge hardware.
9. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the blockchain-based exchange layer to support execution of market orders, limit orders, options, forwards, futures, swaps, or pre-market contracts.
10. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the blockchain-based exchange layer to support advanced order types selected from the group consisting of short selling, trailing stop orders, conditional orders, One-Triggers-the-Other (OTO) orders, One-Cancels-the-Other (OCO) orders, One-Triggers-a-One-Cancels-the-Other (OTOCO) orders, and combinations thereof.
11. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the blockchain-based exchange layer to apply time-in-force rules to orders, the time-in-force rules selected from the group consisting of day orders, good-'til-canceled orders (up to 180 days), fill-or-kill orders, immediate-or-cancel orders, on-the-open orders, on-the-close orders, and combinations thereof.
12. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the blockchain-based exchange layer to automatically match, execute, and settle trades in real time or near real time by recording each transaction as a new cryptographically hashed block on the distributed ledger.

13. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the blockchain-based exchange layer to transfer ownership of the value token to the buyer and deliver payment to the seller simultaneously upon execution of a trade.
14. The non-transitory computer-readable medium of claim 1, wherein the instructions cause all transactions, ownership transfers, and payments to be permanently recorded on the distributed ledger to reduce fraud and ensure permanent verification and auditability of the tokenized RWA.
15. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the blockchain ledger to maintain multiple redundant copies across cloud environments to provide fault tolerance and Byzantine fault tolerance.
16. The non-transitory computer-readable medium of claim 1, wherein the instructions cause automated monetization of the tokenized RWA by transferring funds to the seller upon execution of a winning bid while simultaneously delivering the value token to the buyer.
17. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the IoT cloud platform and blockchain-based exchange layer to operate in a closed-loop automated process to enable continuous measurement, validation, certificate generation, token minting, listing, and trading of the tokenized RWA.
18. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the distributed ledger to employ cryptographic hashing of each new block to prior blocks to ensure immutability of all tokenized RWA records and trading transactions.
19. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the blockchain-based exchange layer to function as an integrated commodity, crypto, security, or financial exchange without requiring separate centralized custodians or clearinghouses.
20. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the value token to represent a digital representation of any commodity, security, physical asset, financial instrument, or other RWA that is verifiable and cannot be double-spent due to the immutable nature of the blockchain ledger.
21. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the system to eliminate intermediaries by performing end-to-end automated data receipt, validation, certificate generation, token minting, listing, and trading directly on the integrated IoT cloud platform and blockchain.
22. The non-transitory computer-readable medium of claim 1, wherein the instructions cause the blockchain-based exchange layer to support high-frequency, derivative, and institutional trading of tokenized RWAs while maintaining permanent auditability and fraud reduction through immutable ledger recording.

These claims form a self-contained, commercially robust claim family that directly maps to the article-of-manufacture embodiments of the IoT cloud platform instructions for end-to-end tokenized Real World Asset (RWA) generation and trading on an integrated blockchain exchange, including data receipt, validation/certification, token minting, and exchange-layer operations as described in the November 7, 2017 provisional disclosure. The full set (renumbered to begin with Claim 1) can be incorporated into a non-provisional, continuation,

or continuation-in-part application (alone or in combination with the claim families of Independent Claims 1–8) to further strengthen the Parisii patent portfolio for tokenized Real World Assets and blockchain-based RWA infrastructure.