

DISTRIBUTED LEDGER TECHNOLOGY FOR FREIGHT SYSTEM

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application No. 62/556,994 filed September 11, 2017, the entirety of which is hereby incorporated by reference.

TECHNICAL FIELD

[0002] This disclosure relates to distributed information management and, in particular, to managing transportation and logistical information with distributed ledger technology.

BACKGROUND

[0003] Transportation services rendered by truck, train, plane, ship, or other methods of transportation may involve agreements between parties for transporting freight. Traditional approaches to tracking the transportation of freight may involve inefficient processes, inaccurate data collection, and/or encumbered systems. In some Freight Bill Audit and Pay (FBAP) systems, transportation service providers may submit shipping information to satisfy the terms and conditions of a shipping agreement. Due to the deficiencies in current market solutions, the shipping information may be unverified and cumulative. Moreover, traditional approaches to FBAP processes may be prone to frequent errors, manually cumbersome, and/or unable to efficiently collect and process information in a timely manner.

SUMMARY

[0003a] According to a first aspect of the present invention, there is provided a method, comprising: receiving, by a server node in communication with a blockchain database, a vehicle tracking update created by a vehicle tracking device, the vehicle tracking update comprising geographic location information indicative of a geographic location of the vehicle tracking device; identifying, in a blockchain stored in a database, a smart contract including destination identifier and executable logic configured to determine a tracking metric; determining the tracking metric in response to receipt of the vehicle tracking update by calculating, using the

executable logic, the tracking metric based on a comparison of the geographic location information of the vehicle tracking update and previous geographic location information included in a previous datablock of the blockchain; appending a datablock to the blockchain, the datablock including the tracking metric and the geographic location information; determining a shipment associated with the vehicle tracking device has reached a destination corresponding to the destination identifier by detecting, using the executable logic and the vehicle tracking update, that at of at least one of the following conditions are satisfied: the vehicle tracking device has remained stationary for a predetermined amount of time included in the smart contract, or the vehicle tracking device is positioned in a geographic area, the geographic area identified by the smart contract; and synchronizing the blockchain with a plurality of blockchains stored in blockchain databases remote to the server node.

[0003b] According to a second aspect of the present invention, there is provided a system, comprising: a processor, the processor configured to: receive a tracking update created by a tracking device, the tracking update comprising geographic location information indicative of a geographic location of the tracking device; determine, using executable logic of a smart contract stored in a blockchain, the tracking metric in response to receipt of the tracking update; append a datablock to the blockchain, the datablock including the tracking metric; and synchronize the blockchain with a plurality of blockchains stored in respective blockchain databases configured at respective server nodes.

[0003c] According to a third aspect of the present invention, there is provided a non-transitory computer readable storage medium comprising computer executable instructions, the computer executable instructions executable by a processor, the computer executable instructions comprising: instructions executable to receive a tracking update created by a tracking device, the tracking update comprising geographic location information indicative of a geographic location of the tracking device; instructions executable to determine, using a smart contract stored in a blockchain, the tracking metric in response to receipt of the tracking update; instructions executable to append a datablock to the blockchain, the datablock including the tracking metric; and instructions executable to synchronize the blockchain with a plurality of blockchains stored in blockchain databases.