

FIELD OF THE INVENTION

The present invention relates to the field of blockchain and supply chain management and particularly to a present invention relates to a dynamic supply chain management system based on blockchain.

5

BACKGROUND OF THE INVENTION

Transactions, smart contract/s, and the archives thereof are important aspects of any business and also of the economic system, and the legal system. The transactions, smart contract/s and the archives thereof are meant to conserve assets, create, and authenticate identities and register events. These smart contract/s, transactions and the archives thereof dictate interactions between various entities which include countries, organizations, communities, and even individuals.

10
15
However, with the advent of the digital age, there has been a phase lag between these tools mentioned herein above and the digital transformations. These have led to various issues which needs to be resolved immediately.

Blockchain comes in to address exactly these issues and aids in resolving them. A blockchain may be defined as a shared or

distributed immutable ledger that aids in facilitating the process of archiving the smart contract/s, transactions, and archives thereof relating to one or more assets in a business network or the like settings. The asset under consideration can be both tangible, intangible
5 and combinations thereof.

A blockchain differs from the conventional databases, wherein all the data not stored at a central location but is distributed all over the network. The data is stored in locations called blocks. Any additional data or new data which culminates over a period of time or as and
10 when the events occur, is added into the blockchain as a fresh block and appended to the previous block through a consensus mechanism. A blockchain records the data as mentioned herein above which is hard or impossible to alter, hack, or cheat the system.

For example, blockchain has been employed for supply chain
15 management related events. However, the conventionally known blockchain-based supply chain management systems are static.

Thus, there is felt a need for overcoming one or more drawbacks associated with the conventional systems, and provide a system that is not static and is rather dynamic.

OBJECTS OF THE INVENTION

Some of the objects of the presently disclosed invention, of which at the minimum one object is fulfilled by at least one embodiment disclosed herein are as follow:

- 5 An object of the present invention is to provide an alternative, which overcomes at least one drawback encountered in the existing prior art;

Another object of the present invention is to provide a blockchain based dynamic system for supply chain management;

- 10 Still another object of the present invention is to provide a blockchain based dynamic system for supply chain management which is simple and economic; and

Yet another object of the present invention is to provide a blockchain based dynamic system for supply chain management which enables generation of one or more smart contract/s.

- 15 Other objects and benefits of the present invention will be more apparent from the following description which is not intended to bind the scope of the present invention.

SUMMARY OF THE INVENTION

The present invention relates to a dynamic supply chain management system based on blockchain.

In accordance with the embodiments of the present invention, a
5 blockchain based dynamic system for supply chain management is disclosed. The system comprising a plurality of computing devices connected to and with each other via a network.

The plurality of computing devices comprising at least one processor capable of executing one or more instructions, and at least one non-
10 transitory computer readable medium cooperating with the at least one processor.

The at least one non-transitory computer readable medium is configured for storing instructions translatable by the at least one processor, when the processor cause the system for executing one or
15 more instructions,

The system further includes a user interface cooperating with the at least one processor, the user interface configured to receive inputs from at least one user and convert the received inputs into one or more electrical signals, which being received by the at least one processor.

The system includes a plurality of modules implemented within the at least one non-transitory computer readable medium and being executed by the at least one processor,

The plurality of modules comprising the following modules.

- 5 A first module for creating a supply chain for one of a product, process, service, and any combinations thereof.

A second module configured for receiving data relating to at least one user, process the received data and store the data within the at least one non-transitory computer readable medium.

- 10 A third module configured for receiving data relating to at least one product or service, process the received data and store the data within the at least one non-transitory computer readable medium.

- A fourth module configured for allowing the at least one user to retrieve and track the product, process, service, and any combinations thereof.
- 15

A fifth module configured for permitting the at least one user to add data to all of the plurality of computing devices, and enabling creation

of a user-friendly block diagram and view the block diagram along with functions of all the blocks.

A sixth module configured for generating smart contract/s, altering code of the system, compiling the altered code.

- 5 A seventh module configured for deploying the compiled code along with displaying entire code and supply chain.

An eighth module configured for accessing the supply chain for the product, process, service, and any combinations thereof by the at least one user, permitting access to selected functions of the system to the
10 at least one user, wherein the access to selected functions being based on hierarchy of the at least one user, permitting of addition of lower hierarchy levels within the system by the at least one user, and permitting the at least one user to chat via a decentralized chat application configured therein.

15 **BRIEF DESCRIPTION OF THE ACCOMPANYING
DRAWING**

The present invention will now be described with the help of the accompanying drawing, in which

FIG. 1A illustrates a schematic block diagram of a blockchain based dynamic system for supply chain management in accordance with the embodiments of the present invention;

FIG. 1B illustrates a schematic block diagram of a computing device
5 in accordance with the embodiments of the present invention; and

FIG. 1C illustrates a schematic block diagram of a plurality of modules implemented within the Non-transitory computer readable medium in accordance with the embodiments of the present invention.

LIST OF NUMERALS

10 The following is the list of numerals and their meaning as used in the present specification.

100 – System

102 – Computing devices

102a – Processors

15 102b – Non-transitory computer readable medium

104 – Network

106 – User interface

108 – Plurality of modules

108a – First module

- 108b – Second module
- 108c – Third module
- 108d – Fourth module
- 108e – Fifth module
- 5 108f – Sixth module
- 108f1 – Sub-module
- 108g – Seventh module
- 108h – Eighth module

DETAILED DESCRIPTION

10 All the terms and expressions, which may be technical, scientific, or otherwise, as used in the present invention have the same meaning as understood by a person having ordinary skill in the art to which the present invention belongs, unless and otherwise explicitly specified.

In the present specification, and the claims, the articles “a”, “an”, and
15 “the” include plural references unless the context clearly dictates otherwise.

The term “comprising” as used in the present specification and the claims will be understood to mean that the list following is non-exhaustive and may or may not include any other extra suitable
20 features or elements or steps or constituents as applicable.

Further, the terms “about” or “approximately” used in combination with ranges relating to sizes of parts, or any other physical properties or characteristics, are meant to include small variations that may occur in the upper and/or lower limits of the ranges of the sizes.

- 5 The present invention relates to a dynamic supply chain management system based on blockchain technology, which overcomes one or more drawbacks associated with the conventional systems.

The present invention is now described with reference to the accompanying drawing wherein FIG. 1A illustrates a schematic block
10 diagram of a blockchain based dynamic system for supply chain management in accordance with the embodiments of the present invention, FIG. 1B illustrates a schematic block diagram of a computing device in accordance with the embodiments of the present invention, and FIG. 1C illustrates a schematic block diagram of a
15 plurality of modules implemented within the Non-transitory computer readable medium in accordance with the embodiments of the present invention.

In accordance with the embodiments of the present invention, the system 100 comprising a plurality of computing devices 102 connected to and with each other via a network 104.

5 In accordance with one embodiment of the present invention, the each of the plurality of computing devices 102 comprises at least one processor 102a which being capable of executing one or more computer readable instructions, and at least one non-transitory computer readable medium 102b which cooperates with the at least one processor 102a.

10 In accordance with the embodiments of the present invention, the at least one non-transitory computer readable medium 102b is configured for storing instructions translatable by the at least one processor 102a, when the at least one processor 102a cause the system 100 for executing one or more instructions.

15 In accordance with the embodiments of the present invention, the system 100 further includes a user interface 106 cooperating with the at least one processor 102a. The user interface 106 is configured to receive inputs from at least one user and convert the received inputs

into one or more electrical signals, which being received by the at least one processor 102a.

In accordance with one embodiment of the present invention, the user interface 106 may be a key board, and a touch screen display, but is not limited to these. Any other user interface 106 is well within the ambit of the present invention.

In accordance with one embodiment of the present invention, the processor 102a may be a general-purpose processor or other general-purpose processor of the type commonly used in desktop, laptop, or other computers. In accordance with another embodiment of the present invention, the processor 102a may be a special-purpose processor. For example, the special type of processor can be one selected from the group consisting of cryptographic processor, cryptographic co-processor, communications processor, network processor, graphics processor, co-processor, embedded processor, and digital signal processors. Further, the present invention is not limited to the above-mentioned processors.

In accordance with one embodiment of the present invention, the at least one non-transitory computer readable medium 102b can be a tangible and/or non-transitory computer readable medium 102b.

In accordance with one embodiment of the present invention, the tangible and/or non-transitory computer readable medium 102b may include computer readable mediums like a floppy diskette, an optical storage medium, an optical disk, an optical data storage device, a CD-ROM, a magnetic disk, a magneto-optical disk, a read only memory (ROM), a programmable ROM (PROM), an erasable-and-programmable ROM (EPROM), an electrically-erasable-and-programmable ROM (EEPROM), a random access memory (RAM), a static-RAM (SRAM), a dynamic-RAM (DRAM), a Flash memory, a phase-change memory, a phase-change data storage material, a non-volatile memory, a non-volatile data storage device, a non-transitory memory, a non-transitory data storage device, or the like.

In accordance with one embodiment of the present invention, the network 104 can be any type of network 104 of computing devices 102. In accordance with one embodiment of the present invention, the network 104 is at least one type of network selected from the group consisting of wired, non-wired, and any combination thereof.

In accordance with the embodiments of the present invention, the system 100 further includes a plurality of modules 108 implemented within the at least one non-transitory computer readable medium 102b and being executable by the at least one processor 102a.

5 In accordance with one embodiment of the present invention, the plurality of modules 108 may include the following modules, but is not limited to these, and may include other standard modules which are generally present in the system of this kind and which are essential for carrying out the normal functioning of the system which are not
10 described herein as a person skilled in the art is well aware of these. Only the modules which are pertinent to the present invention are described at length herein.

In accordance with the embodiments of the present invention, the system 100 includes a first module 108a. The first module 108a is
15 configured to create or generate a supply chain. The supply chain can be for one of a product, process, service, and any combinations thereof. Any user can employ the presently disclosed system for creating a new supply chain and can further input data relating to the product, process, service, and any combinations thereof, the details of
20 which being described herein below in detail.

In accordance with the embodiments of the present invention, the system 100 further includes a second module 108b. the second module 108b is configured for receiving data relating to at least one user, process the received data and store the data within the at least one non-transitory computer readable medium 102b. The data can be received from the at least one user via the user interface 106.

In accordance with the embodiments of the present invention, the system 100 further includes a third module 108c. The third module 108c is configured to receiving data relating to at least one product, or service, or process and further configured to process the received data and store the data within the at least one non-transitory computer readable medium 102b. For example, the at least one user may input data relating to a product. The data may include product description, product design, product pricing, product category, and the like information, but is not limited to this. Further, in case of service or process, the user may input data relating to the service type, process type, parameters related thereto and the like information which is pertinent to the service and/or process under consideration.

In accordance with the embodiments of the present invention, the system further includes a fourth module 108d which being configured

for allowing the at least one user to retrieve and track the product, process, service, and any combinations thereof. The tracking of the information or data or the details of the product, process, service, and combinations thereof can be done by any authorized user having
5 access thereto.

In accordance with the embodiments of the present invention, the system further includes a fifth module 108e which is configured for permitting the at least one user to add data to all of the plurality of computing devices, and enabling creation of a user-friendly block
10 diagram and view the block diagram along with functions of all the blocks.

In accordance with the embodiments of the present invention, the system further includes a sixth module 108f which is configured for generating smart contract/s, altering code of the system, compiling the
15 altered code.

In accordance with the embodiments of the present invention, the system further includes a seventh module 108g which is configured for deploying the compiled code along with displaying entire code and supply chain.

In accordance with the embodiments of the present invention, the system further includes an eighth module 108h which is configured for accessing the supply chain for the product, process, service, and any combinations thereof by the at least one user, permitting access to
5 selected functions of the system to the at least one user, wherein the access to selected functions being based on hierarchy of the at least one user, permitting of addition of lower hierarchy levels within the system by the at least one user, and permitting the at least one user to chat via a decentralized chat application configured therein.

10 In accordance with one embodiment of the present invention, the sixth module 108f further includes a sub-module 108f1 which is configured to confirm creation of the supply chain by the at least one user, and generate smart contract/s address, transaction hash, and a public address of the at least one user of the supply chain. Further, the sub-
15 module 108f1 is further configured to open a meta mask wallet interface for permitting the at least one user to pay a transaction fees relating to creation of the supply chain based on Ethereum blockchain, wherein the transaction fees are received by the meta mask wallet.

In accordance with the embodiments of the present invention, the system is accessible via a web portal or via a phone application or combinations thereof.

In accordance with the embodiments of the present invention, the at
5 least one user being permitted access to the system upon inputting a private key or a seed phrase.

In accordance with the embodiments of the present invention, the system permits addition of one or more smart contract/s.

In accordance with the embodiments of the present invention, the
10 system allows tracking of product or services or process based on product/process/service identification number, lot identification number, and a combination thereof.

In accordance with the embodiments of the present invention, the system permits access to the information relating to existing smart
15 contract/s, wherein the information may include, but is not limited to, company name, product name, product type, product owner, owner's meta mask account, manufacturer data, dealer name and address, distributor name and address, and retailer name and address, meta mask account address and manufacturer meta mask account.

**TECHNICAL ADVANCES AND ADVANTAGES OF THE
INVENTION**

The presently disclosed invention, as described herein above, provides several technical advances and advantages. The presently disclosed
5 system is a blockchain based dynamic system for supply chain management.