A VERIFICATION METHOD

TECHNICAL FIELD

This invention relates generally to a verification method.

Background

Over the years the healthcare industry has been searching for methods to provide the correct dosage of medication and consumed by the patient at the correct time. However, the task of administering medications to a patient remains a manual process that is highly subject to human error. Typically, an assistant reads a patient's prescription, opens a bottle of pills with the intended medication, places the pills in a small container, and directs the patient to take the pills in the cup. There is no approach to confirm that the correct medication and number of pills are placed in the container, that the medications are delivered to the correct patient, or that the medication is being administered at the correct time.

Patients residing at home have to manage their own medications which can result in medication errors. Common errors in the home include taking the wrong dosage or quantity of pills, forgetting to take certain medications or doses, taking the medication at the wrong time, too many times a day, or not enough times a day, among other problems. For patients taking multiple medications a day or having medication regimes involving complex timing, careful day-to-day management of their medications can become quite difficult.

Pharmacists can dispense the wrong drug, quantity, or dosage, which are mistakes that can result in serious injury or even death of the patient. Pharmacists can make these types of mistakes as a result of being overworked or distracted, or even due to confusion between medication names that are similar, or pills that have similar physical appearances. There does not exist an approach for utilising reference data relating to medication, prescription and regimen for enabling on-site verification of physically dispensed medication or articles and determination of specific errors therein. Therefore, there exists a need for a verification method for addressing the foregoing problems.

Summary

In accordance with a first aspect of the invention, there is disclosed a verification method comprising determining measured data of at least one parameter of a batch of medication disposed at a measurement system. The measured data is generated by the measurement system through interacting with the batch of medication. The method further comprises obtaining reference data of the at least one parameter of the batch of medication and determining deviation of the measured data from the reference data. Wherein the batch of medication is verified based on the determined deviation of the measured data from the reference data and the determined deviation is usable for approximating at least one of absent medication and incorrect medication in the batch of medication.

In accordance with a second aspect of the invention, there is disclosed a verification system comprising a measurement system and a controller. The measurement system is for determining measured data of at least one parameter of a batch of medication disposed thereat. The measured data is generated by the measurement system through interacting with the batch of medication. The controller is for obtaining reference data of the at least one parameter of the batch of medication and for determining deviation of the measured data from the reference data with the measurement system being in signal communication with the controller. Wherein the batch of medication is verified based on the determined deviation of the measured data from the reference data and the determined deviation is usable for approximating at least one of absent medication and incorrect medication in the batch of medication.

In accordance with a third aspect of the invention, there is disclosed an article verification method comprising determining measured data of at least one parameter of a batch of articles disposed at a measurement system. The measured data is generated by the measurement system through interacting with the batch of articles. The method further comprises obtaining reference data of the at least one parameter of the batch of articles and determining deviation of the measured data from the reference data. Wherein the batch of articles is verified based on the determined deviation of the measured data from the

reference data and the determined deviation is usable for approximating at least one of absent article and incorrect article in the batch of articles.

Brief Description of the Drawings

FIG. 1 shows a system diagram of a verification system according to an aspect of the invention;

FIG. 2 shows a data flow diagram of the verification system of FIG. 1; and

FIG. 3 shows a process flow diagram of a verification process according to an aspect of the invention and implementable by the verification system of FIG. 1.

Detailed Description

An exemplary embodiment of the present invention, a verification system 20 utilising a verification method 100, is described hereinafter with reference to FIG. 1 and FIG. 2. The verification system 20 preferably comprises a controller 22, a measurement system 24 and a user interface (UI) system 26. It is preferred that each of the measurement system 24 and the UI system 26 are in signal and data communication with the controller 22. Communication between the controller 22 and each of the measurement system 24 and the UI system 26 can occur through wired or wireless means. The controller 22 is preferably also in signal and data communication with control computer systems 28 over a network 30. The control computer systems 28 may reside on a cloud platform.

The control computer systems 28 can represent various forms of server systems including, but not limited to a web server, an application server, a proxy server, a network server, or a server farm. In some implementations, the verification system 20 may communicate wirelessly through a communication interface (not shown), which may include digital signal processing circuitry where necessary. The communication interface may provide for communications under various modes or protocols, such as Global System for Mobile communication (GSM) voice calls, Short Message Service (SMS), Enhanced Messaging Service (EMS), or Multimedia Messaging Service (MMS) messaging, Code Division Multiple Access (CDMA), Time Division Multiple Access (TDMA), Personal Digital Cellular (PDC), Wideband Code Division Multiple Access (WCDMA), CDMA2000, or General Packet Radio System (GPRS), among others. For example, the communication may occur through a radio-frequency transceiver (not shown). In addition, short-range communication may occur, such as using a Bluetooth, WiFi, or other such transceiver.

The network 30 can be a large computer network, such as a local area network (LAN), wide area network (WAN), the Internet, a cellular network, or a combination thereof connecting any number of mobile clients, fixed clients, and/or servers. In some implementations, each client (e.g., the verification system 20) can communicate with one or more of the control computer systems 28 via a virtual private network (VPN), Secure Shell (SSH) tunnel, or

other secure network connection. In some implementations, the network 30 can include the Internet and a wireless service network. In other implementations, the network 30 may include a corporate network (e.g., an intranet) and one or more wireless access points.

In an implementation of the verification system 20, the verification method 100 initiates with determining measured data 32 of at least one parameter 34 of a batch of medication 36 disposed at the measurement system 24 in a step 102. The measured data 32 is preferably being generated by the measurement system 24 through interaction with the batch of medication 34. Next, or in conjunction with step 102, reference data 38 of the at least one parameter 34 of the batch of medication 36 is obtained in a step 104. Following steps 102 and 104, deviation of the measured data 32 from the reference data 38 is determined in a step 106. The batch of medication 36 is then verifiable based on the determined deviation of the measured data 32 from the reference data 38. Based on requirements, an acceptable deviation 40 may be pre-determined. Hence, should the deviation of the measured data 32 from the reference data 38 exceed the acceptable deviation 40, an alert event may be generated in a step 108 in response thereto. Further, the determined deviation of the measured data 32 from the reference data 38 is usable for approximating at least one of absent medication and incorrect medication in the batch of medication 34. As each unit or portion of each type of medication has a specific and typically unique parametric signature, for example a specific type of pill has a specific unit weight, dimension and the like parametric signature, an approximation of missing medication, incorrect medication and/or incorrect quantity of medication can be determined to a level of accuracy. Should various possibilities of missing medication, incorrect medication and/or incorrect quantity of medication be derived, the various permutations may be presented as the final approximation by the verification system 20 for on-site rectification procedures, or assistive data in the form of captured images and/or physical counters may be used to further reduce the number of permutations derived from the approximation of missing medication, incorrect medication and/or incorrect quantity of medication.

In the step 102 of determining measured data 32 of at least one parameter 34 of the batch of medication 36, weight of the batch of medication 36 is measurable by the measurement system 24 in a step 110. Preferably, the measurement system 24 can comprise one or more weight sensors 42 for enabling measurement of weight of the batch of medication 36 or other forms of articles disposed thereat for interaction therewith.

In the step 104 of obtaining the reference data 38 of the at least one parameter 34 of the batch of medication 36, a user 44 interacts with the UI system 26 to thereby generate the reference data 38 from user entry using the UI system 26 in a step 112. Interaction between the user 44 and the UI system 26 can be either by physical interaction or interaction via an intermediary device. The intermediary device can be, for example, a smart device (smart phone/smart tablet) through which the user 44 may input the reference data 38, or part thereof, which in turn will be transmitted to the UI system 26. Alternatively in the step 104, the reference data 38 is obtained from the control computer systems 28 in a step 114.

It is submitted that the reference data 38 is descriptive of type, quantity, unit weight, colour and shape of medication associated with the batch of medication 36. The medication can comprise one or more types of pills, emulsions, creams or the like type of medication for oral consumption, topical application or intravenous feed. The type, quantity, unit weight, colour and shape of medication associated with the batch of medication 36 corresponds with the at least one parameter 34 of the batch of medication 36. For example, if the type of medication to be dispensed, the unit weight for each item of a type of medication and the quantity for each type of medication to be dispensed is known, the total weight of the batch of medication 36 can be calculated as the reference data 38.

The step 114 of obtaining the reference data 38 from the control computer systems 28 comprises receiving an indication of patient data 50 in a step 120, identifying a medication regimen 52 associated with the patient data 50 by the plurality of control computer systems 28 in a step 122, and generating the reference data 38 from at least a portion of the medication regimen 52 in a step 124. The control computer systems 28 may reside within or be under the control of, for example, a pharmacy of a hospital or a hospital ward, a records department of a medical institution including a hospital or a data repository of the health authorities. Alternatively, the control computer systems 28 may be managed by a third-party institution or contractor.

The medication regimen 52 is descriptive of at least type of medication and quantity for each type of medication to be dispensed at a particular time as the batch of medication 36. The step 120 of receiving the indication of patient data 50 comprises obtaining the patient data 50 from the UI system 26 generated from at least one of user entry by the user 44 interacting with the UI system 26, biometric data captured from the user 44 by the UI system 26 and tag data captured from at least one tag presented for interaction with the UI system 26. The at least one tag may be worn or be possessed by the user 44.

The step 102 of determining measured data 32 of the at least one parameter 34 of the batch of medication 36 can further comprise capturing an image of the medication constituting the batch of medication 36 in a step 126 to thereby determine at least one of quantity, colour and shape of the medication therefrom. The measurement system 24 can further comprise one or more image capture device 54 to enable capture of the image thereby.

In the step 108, the alert event can comprise transmitting of an alert indicator or message to a central control system 56 controlling dispensing of the medication or sending of a message to one or more person to notify them of the deviation. The central control system 56 may be automated to withhold dispensing of the batch of medication 36 should the alert event be generated until rectification action has been taken, for example, to verify the deviation or to replace the batch of medication 36.

The verification system 20 may be implemented and incorporated with a medication dispenser 70. The medication dispenser 70 may comprise a dispenser controller in communication with the controller 22 of the verification system 70 for controlling operations thereof, or may be controlled directly by the controller of the verification system 20. The medication dispenser 70 may be partially automated, fully automated or manually operated. The medication dispenser 70 is adaptable for sorting medication at different levels. Examples of the different levels comprises a first sort level, a second sort level and a third sort level. At the first sort level, medication is sorted and segregated based on patient name, medication type and quantity per medication type. At the second sort level, medication is sorted and segregated based on patient name, date and time of the day, for example morning, afternoon and night. At the third sort level, the medication is grouped based on medication type and quantity. The third sort level is intended for pharmacies catering to multiple patients where additional sorting may be required, for example the first sort level and the second sort level based on prescription or medication regimen.

To address the first sort level and the second sort level, the measurement system 24 can comprise a first container configuration type. In the first container configuration type, there can exist a plurality of containers, each corresponding to a particular time of a day for a particular date.

For example, should medication be dispensed for an entire week with medication to be taken four times a day, twenty eight containers will be required with each container containing different types of medication in different quantities to form the batch of medication 36. A single weight sensor 42 may be employed to measure the weight, or other parameters 34, of the medication in all the containers or each of the plurality of container may be integrated or removably coupled to one of a plurality of the sensors 42 for measuring the weight of the medication in each of the containers. Other types of sensors may be used in tandem or incorporated with the weight sensors 42 to measure other parameters 34 of the batch of

medication 36. The containers can contain the medication in the form of tablets, pills, liquid state medication, etc. depending on the individual's prescription.

The authorized healthcare professional (such as a doctor, pharmacist) has the ability to send prescription data related to the medication regime such as time, medicine type, weight, shape, images, dosage to a cloud based computer system, the control computer systems 28, via wired or wireless devices. The cloud based computer system will automatically upload the necessary information to the verification system 24 as the reference data 38 in order to perform the necessary medication dispensing operations.

Alternatively, the cloud based computer system can send the notification to the verification system 20 when it is time to remind the patient to consume the medication. When it is time to consume the medication, the medication dispenser 70 notifies the patient. The notification can be done locally via the controller 22 or mobile communication devices, thus completely removing human errors.

In the measurement system 24, the plurality of containers removably couple to a single one of the weight sensor 42. The weight sensor determines the weight of each dosage and also determines whether the correct dosage is consumed by the patient at the correct time. The parameter which is used in this case is the weight because it is highly probable that each medicine has a unique weight signature. Alternatively, a plurality of the weight sensors 42 may be employed with each of the weight sensors being adapted for use with each of the multiple containers in order to provide improved accuracy in determining the weight. All measurements made, for example and including the measured data 32, are stored electronically.

The use of the first container configuration type has the option to integrate a camera, the image capture device 54. The camera captures an image of the medication before the consumption. The captured image is then processed with AI (Artificial Intelligence) module to determine the physical data such as shape, size, pattern, colour and quantity, which are compared with the reference data 38 to ensure is within the tolerance. If there is a discrepancy, an alert notification is sent to the care giver or patient or cloud based computing system.

To address the third sort level, the measurement system 24 can comprise a second container configuration type. In the second container configuration type, there can exist a group of canisters which contains the medication in the form of tablets, pills and liquid state medication depending on the individual's prescription. Preferably, each of the group of canisters is for containing only one type of medication.

Similar to the use of the second container configuration type by the measurement system 24, a single weight sensor 42 may be employed in the second container configuration type to measure the weight, or other parameters 34, of the medication in all the canisters or each of the plurality of canister may be integrated or removably coupled to one of a plurality of the sensors 42 for measuring the weight of the medication in each of the canisters. Other types of sensors may be used in tandem or incorporated with the weight sensors 42 to measure other parameters 34 of the batch of medication 36. The canisters can contain the medication in the form of tablets, pills, liquid state medication, etc. depending on the individual's prescription.

The authorized healthcare professional (such as a doctor, pharmacist) has the ability to send prescription data related to the medication regime such as time, medicine type, weight, shape, images, dosage to a cloud based computer system, the control computer systems 28, via wired or wireless devices. The cloud based computer system will automatically upload the necessary information to the verification system 24 as the reference data 38 in order to perform the necessary medication dispensing operations.

Alternatively, the cloud based computer system can send the notification to the verification system 20 when it is time to remind the patient to consume the medication. When it is time to consume the medication, the medication dispenser 70 notifies the patient. The notification can be done locally via the controller 22 or mobile communication devices, thus completely removing human errors.

Further with the use of the second container configuration type and prior to dispensing the medication, a notification is sent to the patient's mobile communication device, for example by the central control system 56, to notify the patient that the medication will be dispensed within a pre-defined period of time. This feature enables the patient to consume the medication at the correct time. Any anomaly result is notified electronically to the caregivers.

When employing the second container configuration type, the measurement system 24 is in data communication with the cloud based computing system, preferably via the controller 22, in order to receive the instructions according to respective prescriptions. The information related to the prescription can be sent by the authorized healthcare personnel via any type of wired or wireless medium to the cloud based computing system. The authorized healthcare personnel can send the relevant information by using a mobile communication device or a desktop computer to the cloud based computing system. The cloud computing system determines the medication regime from the received data and notifies the dispenser system 70 when the medication must be dispensed and the type and dosage of the medicine which must be dispensed. Alternatively, the cloud based computing system can upload the relevant instructions to the controller 22. After uploading, the dispenser system 70 will continue to dispense the medication according to the stored instructions.

Before dispensing the medication, a notification is sent to the patient's mobile communication device to notify the patient that the medication will be dispensed within a pre-defined period of time. This feature enables the patient to consume the medication at the correct time. Any anomaly result is notified electronically to the caregivers.

Once the dispensing is completed, the verification process is initiated. In the verification process, three main parameters are preferably used. These three main parameters are weight, quantity and visual observations. The visual parameters are considered to be pattern, size and colours of the medication. The visual parameters may further include the quantity of the medication. The weight is determined by the scale integrated with the group of canisters in the second container configuration type. The size and colours are determined by the images captured by the camera integrated to the group of canisters or measurement system 24. The quantity is determined by the sensors which are integrated to the canisters. The captured data relating to the main three parameters are then compared against the stored data and the verification is complete. When the integrated controller outputs the verification result, the user is notified using means of audio and visual method and the results are stored electronically. Any anomaly result is notified electronically to the care givers.

In order to provide convenience in distributing the correct dosage of medicine for in-house patients, the verification system 20 can also be attached to a medical/medication trolley. The verification system 20 may further comprise a Radio Frequency Identification (RFID) receiver 72 and an integrated camera. When the medical trolley is moved near a patient's bed, the RFID receiver gathers the relevant data from the RFID tag attached to the patient's bed. This data mainly consists of the patient particulars, medicine dosage and the types of the medication. The integrated camera captures an image of the patient and processes the image using a facial recognition algorithm. In order to verify, the facial recognition results and the RFID tag data is transmitted to the cloud based computing system to associate the data with the database and confirm that the correct patient receives the correct dosage.

Once confirmed, the canisters dispense the correct dosage to a tray or a medicine cup. When the dispensing is completed a verification process similar to the process mentioned above, is initiated to verify and confirm that the correct dosage and medicine type is dispensed. The verification process uses weight, size and amount parameters. The components which are used to gather the parameter values are also as same as mentioned above. When the verification process is completed, the authorized healthcare professional is prompted a message via the integrated display, to verify if the dispensed dosage is correct for the particular patient. This display can be of touch screen type or a display connected to a keyboard. If the information is correct, the authorised healthcare personnel can confirm the dosage via any type of biometric input or by pressing the respective button on the integrated keyboard incorporated with the UI system 26.

One or both of the medication dispenser 70 and the measurement system 24 can further comprise a counter sensor to determine the amount of the medicine dispensed. These collected parameters are then processed and compared against the attributes of the medicines described by the reference data 38. Further, a number of parameters are usable to determine is the medical trolley actually stopped at the patient bed or not. These parameters may include the distance between the trolley and the bed, the time which the trolley has stopped at the bed, and the like parameters. The controller 22 initiates a process which these parameters are used to determine whether the trolley actually stopped at the patient's bed in order to continue with the medicine dispensing.

The results of the processes, particularly that of the verification method 100 employed by the verification system 20, are stored in the cloud based computing system or an on-board storage in signal communication with the controller 22. This provides the authorized medical personnel with the relevant data to evaluate and track the status of the patient's medication consumption and any discrepancies in the generated results. Alternatively, the medical personnel have the ability to request the information on-demand via any type of wireless communication device. Hence, an audit trail which provides information

regarding the consumed medication type, pattern, colour, weight, quantity, and the like data is generated and available for future referencing and analysis.

The verification method 100 may be implemented through use of a machine-readable medium having stored therein a plurality of programming instructions, which when executed, the instructions cause the machine to determine measured data of at least one parameter of a batch of medication disposed at a measurement system. The measured data being generated by the measurement system through interacting with the batch of medication. The plurality of programming instructions, when executed, further cause the machine to obtain reference data of the at least one parameter of the batch of medication, and determine deviation of the measured data from the reference data. Wherein the batch of medication is verified based on the determined deviation of the measured data from the reference data, and the determined deviation is usable for approximating at least one of absent medication and incorrect medication in the batch of medication.

Besides being used for verifying dispensed medication, the verification method 100 and the verification system 20 can be applied as an article verification method and an article verification system respectively for verifying articles being dispensed, or grouped, at the measurement system or any location or station adapted for taking measurements of a batch of articles. For example, when applied in a logistics or warehouse management environment, the article verification method and the article verification system may be used to verify articles in a batch.

The article verification method comprises steps of the verification method 100 while the article verification system comprises the sub-components and modules of the verification system 20 for application to general articles beyond just medication. The batch of article may consist of goods and parcels being collected from various locations or being dispensed at a particular station. To verify that the correct items have been picked or dispensed, the measurement system 24 may be used to determine the measured data 32, for example the weight of the various items forming the batch of articles, for comparing against the

reference data 38, for example the reference weight of the batch of articles determined from the known reference weight of each of the articles, to thereby verify the dispensed batch of articles. If the measured data 32 of the batch of articles deviate beyond a tolerable threshold from the referenced data 38 thereof, an alert event or corrective actions may be initiated. The alert event may include the withholding of the batch of articles at the measurement system 24 from progressing through a materials supply chain till corrective actions till corrective actions, for example the replacement of wrong articles, removal of additional artiicles or the dispensing of missing articles, have been carried out.

As each unit of article has a specific and typically unique parametric signature, for example a specific article, packaged or unpackaged, has a specific unit weight, dimension and the like parametric signature, an approximation of missing article, incorrect article and/or incorrect quantity of articles can be determined to a level of accuracy. Should various possibilities of missing article, incorrect article and/or incorrect quantity of articles be derived, the various permutations may be presented as the final approximation by the article verification system for on-site rectification procedures, or assistive data in the form of captured images and/or physical counters may be used to further reduce the number of permutations derived from the approximation of missing article, incorrect article and/or incorrect quantity of articles.

Hence, similar to the verification method 100, the article verification method may be implemented through use of a machine-readable medium having stored therein a plurality of programming instructions, which when executed, the instructions cause the machine to determine measured data of at least one parameter of a batch of articles disposed at a measurement system. The batch of articles may be dispensed in a collection bin, a container, a pallet or the like apparatus to enable collective handling of the articles. The measured data being generated by the measurement system through interacting with the batch of articles. The plurality of programming instructions, when executed, further cause the machine to obtain reference data of the at least one parameter of the batch of articles, and determine deviation of the measured data from the reference data. Wherein the batch of

articles is verified based on the determined deviation of the measured data from the reference data, and the determined deviation is usable for approximating at least one of absent article and incorrect article in the batch of articles.

Aspects of particular embodiments of the present disclosure address at least one aspect, problem, limitation, and/or disadvantage associated with existing verification and article verification methods and systems. While features, aspects, and/or advantages associated with certain embodiments have been described in the disclosure, other embodiments may also exhibit such features, aspects, and/or advantages, and not all embodiments need necessarily exhibit such features, aspects, and/or advantages to fall within the scope of the disclosure. It will be appreciated by a person of ordinary skill in the art that several of the above-disclosed structures, components, or alternatives thereof, can be desirably combined into alternative structures, components, and/or applications. In addition, various modifications, alterations, and/or improvements may be made to various embodiments that are disclosed by a person of ordinary skill in the art within the scope of the present disclosure, which is limited only by the following claims.

Claims

1. A verification method comprising:

determining measured data of at least one parameter of a batch of medication disposed at a measurement system, the measured data being generated by the measurement system through interacting with the batch of medication;

obtaining reference data of the at least one parameter of the batch of medication; and

determining deviation of the measured data from the reference data,

wherein the batch of medication is verified based on the determined deviation of the measured data from the reference data, and the determined deviation is usable for approximating at least one of absent medication and incorrect medication in the batch of medication.

2. The verification method as in claim 1, further comprising:

initiating an alert event in response to the deviation of the measured data from the reference data being unacceptable.

3. The verification method of claim 1, determining measured data of at least one parameter of a batch of medication disposed at a measurement system comprising:

measuring weight of the batch of medication by the measurement system.

4. The verification method as in claim 1, obtaining reference data of the at least one parameter of the batch of medication comprising:

obtaining the reference data from a user-interface (UI) system generated from user entry by a user interacting with the UI system.

5. The verification method as in claim 1, obtaining reference data of the at least one parameter of the batch of medication comprising:

obtaining the reference data associated with the batch of medication from a plurality of control computer systems.

6. The verification system as in claim 5, the reference data being descriptive of type, quantity, unit weight, colour and shape of medication associated with the batch of medication.

7. The verification method of claim 6, determining measured data of at least one parameter of a batch of medication disposed at a measurement system comprising:

capturing an image of the medication constituting the batch of medication to thereby determine at least one of quantity, colour and shape of the medication therefrom.

8. The verification method as in claim 5, obtaining reference data of the at least one parameter of the batch of medication comprising:

receiving an indication of patient data;

identifying a medication regimen associated with patient data by the plurality of control computer systems; and

generating the reference data from at least a portion of the medication regimen.

9. The verification method as in claim 8, the medication regimen being descriptive of at least type of medication and quantity for each type of medication to be dispensed at a particular time as the batch of medication.

10. The verification method as in claim 8, receiving an indication of patient data comprising:

obtaining patient data from a user-interface (UI) system generated from at least one of user entry by a user interacting with the UI system, biometric data captured from the user by the UI system and tag data captured from at least one tag presented for interaction with the UI system.

11. A verification system comprising:

a measurement system for determining measured data of at least one parameter of a batch of medication disposed thereat, the measured data being generated by the measurement system through interacting with the batch of medication; and

a controller for obtaining reference data of the at least one parameter of the batch of medication and for determining deviation of the measured data from the reference data, the measurement system being in signal communication with the controller,

wherein the batch of medication is verified based on the determined deviation of the measured data from the reference data and the determined deviation is usable for approximating at least one of absent medication and incorrect medication in the batch of medication.

12. The verification system as in claim 11, further comprising a user interface (UI) system for receiving an indication of patient data for provision to the controller being in signal communication therewith, the controller identifying a medication regimen associated with patient data by the plurality of control computer systems and generating the reference data from at least a portion of the medication regimen,

wherein the reference data being descriptive of type, quantity, unit weight, colour and shape of medication associated with the batch of medication and the medication regimen being descriptive of at least type of medication and quantity for each type of medication to be dispensed at a particular time as the batch of medication.

13. The verification system as in claim 11, the measurement system comprising at least one of:

at least one weight sensor for measuring the weight of the batch of medication; and

at least one image capture device for capturing an image of the medication constituting the batch of medication to thereby determine at least one of quantity, colour and shape of the medication therefrom

14. The verification system as in claim 11, wherein the patient data is generated by the UI system from at least one of user entry by a user interacting with the UI system, biometric data captured from the user by the UI system and tag data captured from at least one tag presented for interaction with the UI system.

15. A dispensed article verification method comprising:

determining measured data of at least one parameter of a batch of articles dispensed to a measurement system, the measured data being generated by the measurement system through interacting with the batch of articles;

obtaining reference data of the at least one parameter of the batch of articles; and

determining deviation of the measured data from the reference data,

wherein the batch of articles dispensed at the measurement system is verified based on the determined deviation of the measured data from the reference data and the determined deviation is usable for approximating at least one of absent article and incorrect article in the batch of articles.