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(57) Abstract :
Systematic approach to manage processing of Internet of Things (IOT) data integrating the techniques of big data analytics and machine learning for classical data processing practice is the proposed invention. The invention focuses on classical data processing using machine learning algorithms and big data analytics. The Internet of Things (IOT) unit will send the alert messages to the concerned officials if in case the data is interpreted by unauthorized person or a third person.

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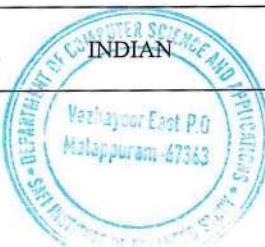
FORM 2

THE PATENTS ACT, 1970

(39 OF 1970)

AND

THE PATENT RULES, 2003

COMPLETE SPECIFICATION

(See section 10 and rule 13)

Title of Invention:

"SYSTEMATIC APPROACH TO MANAGE PROCESSING OF INTERNET OF THINGS (IOT) DATA INTEGRATING THE TECHNIQUES OF BIG DATA ANALYTICS AND MACHINE LEARNING FOR CLASSICAL DATA PROCESSING PRACTICE"

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The following specification describes the invention and the manner in which it is to be performed.

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FIELD OF INVENTION

The present invention relates to the field of designing & implementing a systematic approach for analysing the data that is transferred over network. The techniques of big data analytics and machine learning for classical data processing practice.

BACKGROUND OF INVENTION

[0001] Background description includes information that may be useful in understanding the present invention. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art.

[0002] Data processing occurs when data is collected and translated in to usable information. Data processing starts with data in the raw form and converts it in to a more readable format, giving it the format, giving it the form and context necessary to be interpreted by computers and utilized by employees throughout an organization. Data processing has to be done correctly as not be negatively affect the end product or data output.
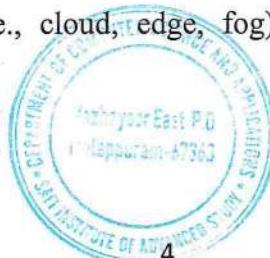
[0003] A number of different types of data processing systems that are known in the prior art. For example, the following patents are provided for their supportive teachings and are all incorporated by reference.

[0004] US20170006135A1 Systems, methods, and devices for a cyberphysical (IoT) software application development platform based upon a model driven architecture and derivative IoT SaaS applications are disclosed herein. The

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system may include concentrators to receive and forward time-series data from sensors or smart devices. The system may include message decoders to receive messages comprising the time-series data and storing the messages on message queues. The system may include a persistence component to store the time-series data in a key-value store and store the relational data in a relational database. The system may include a data services component to implement a type layer over data stores. The system may also include a processing component to access and process data in the data stores via the type layer, the processing component comprising a batch processing component and an iterative processing component. The IoT Platform disclosed herein is a platform as a service (PaaS) for the design, development, deployment, and operation of next generation cyberphysical software applications and business processes. The applications apply advanced data aggregation methods, data persistence methods, data analytics, and machine learning methods, embedded in a unique model driven architecture type system embodiment to recommend actions based on real-time and near real-time analysis of petabyte-scale data sets, numerous enterprise and extra rise data sources, and telemetry data from millions to billions of endpoints.

[0005]   Machine learning and data analytics for the IoT the Internet of Things (IoT) applications have grown in exorbitant numbers, generating a large amount of data required for intelligent data processing. However, the varying IoT infrastructures (i.e., cloud, edge, fog) and the limitations of the IoT

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application layer protocols in transmitting/receiving messages become the barriers in creating intelligent IoT applications. These barriers prevent current intelligent IoT applications to adaptively learn from other IoT applications. In this paper, we critically review how IoT-generated data are processed for machine learning analysis and highlight the current challenges in furthering intelligent solutions in the IoT environment. Furthermore, we propose a framework to enable IoT applications to adaptively learn from other IoT applications and present a case study in how the framework can be applied to the real studies in the literature. Finally, we discuss the key factors that have an impact on future intelligent applications for the IoT.

[0006]   Critical analysis of Big Data challenges and analytical methods Big Data (BD), with their potential to ascertain valued insights for enhanced decision-making process, have recently attracted substantial interest from both academics and practitioners. Big Data Analytics (BDA) is increasingly becoming a trending practice that many organizations are adopting with the purpose of constructing valuable information from BD. The analytics process, including the deployment and use of BDA tools, is seen by organizations as a tool to improve operational efficiency though it has strategic potential, drive new revenue streams and gain competitive advantages over business rivals. However, there are different types of analytic applications to consider. Therefore, prior to hasty use and buying costly BD tools, there is a need for organizations to first understand the BDA landscape. Given the significant

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nature of the BD and BDA, this paper presents a state-of-the-art review that presents a holistic view of the BD challenges and BDA methods theorized/proposed/employed by organizations to help others understand this landscape with the objective of making robust investment decisions. In doing so, systematically analyzing and synthesizing the extant research published on BD and BDA area. More specifically, the authors seek to answer the following two principal questions: Q1 – What are the different types of BD challenges theorized/proposed/confronted by organizations? and Q2 – What are the different types of BDA methods theorized/proposed/employed to overcome BD challenges? This systematic literature review (SLR) is carried out through observing and understanding the past trends and extant patterns/themes in the BDA research area, evaluating contributions, summarizing knowledge, thereby identifying limitations, implications and potential further research avenues to support the academic community in exploring research themes/patterns. Thus, to trace the implementation of BD strategies, a profiling method is employed to analyze articles (published in English-speaking peer-reviewed journals between 1996 and 2015) extracted from the Scopus database. The analysis presented in this paper has identified relevant BD research studies that have contributed both conceptually and empirically to the expansion and accrual of intellectual wealth to the BDA in technology and organizational resource management discipline.

[0007]   Importance of classical data processing includes increased productivity
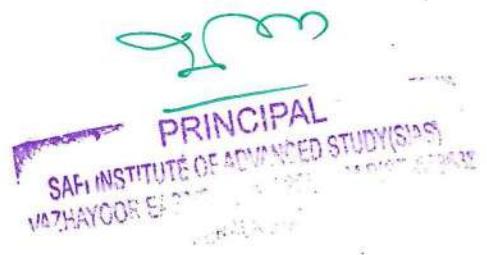
and profits, better decisions, more accurate and reliable. The purpose of data processing is to remove bad data (redundant, incomplete or incorrect data) so as to begin assembling high quality information such that it can be used for business intelligence. The proposed invention focuses on classifying the data using big data analytics and them machine learning to find the redundant data.

[0008]   Above information is presented as background information only to assist with an understanding of the present disclosure. No determination has been made, no assertion is made, and as to whether any of the above might be applicable as prior art with regard to the present invention.

[0009]   In the view of the foregoing disadvantages inherent in the known types of classical data processing systems now present in the prior art, the present invention provides an improved system. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new and improved classical data processing using the techniques of machine learning and big data analytics that has all the advantages of the prior art and none of the disadvantages.

SUMMARY OF INVENTION

[0010]   In the view of the foregoing disadvantages inherent in the known types of data processing systems now present in the prior art, the present invention provides an improved one. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new and improved classical data processing using the big data analytics and

algorithms of machine learning which has all the advantages of the prior art and none of the disadvantages.

[0011]   The Main objective of the proposed invention is to design & implement a framework of machine learning along with big data analytics to process the data effectively. The proposed invention focuses on including an Internet of Things (IOT) unit and intimate the concerned person regarding the redundant data.

[0012]   Yet another important aspect of the proposed invention is to include a database of classical data that will be transferred over the network. The intention is to predict and check for the redundant data that is attached to the data. The machine learning unit will send trigger messages to Internet of Things (IOT) unit. The Internet of Things (IOT) unit will alert message to the concerned persons.

[0013]   In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

[0014]   These together with other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out

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with particularity in the disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be had to the accompanying drawings and descriptive matter in which there are illustrated preferred embodiments of the invention.

BREIF DESCRIPTION OF DRAWINGS

[0015]   The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

Figure 1 illustrates the block diagram of systematic approach to manage processing of Internet of Things (IOT) data integrating the techniques of big data analytics and machine learning for classical data processing practice, according to the embodiment herein.

DETAILED DESCRIPTION OF INVENTION

[0016]   In the following detailed description, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that the embodiments may be combined, or that other embodiments may be utilized and that structural and logical changes may be made without departing from the spirit and scope of the present invention. The following detailed description

is, therefore, not to be taken in a limiting sense, and the scope of the present invention is defined by the appended claims and their equivalents.

[0017] While the present invention is described herein by way of example using several embodiments and illustrative drawings, those skilled in the art will recognize that the invention is neither intended to be limited to the embodiments of drawing or drawings described, nor intended to represent the scale of the various components. Further, some components that may form a part of the invention may not be illustrated in certain figures, for ease of illustration, and such omissions do not limit the embodiments outlined in any way. It should be understood that the drawings and detailed description thereto are not intended to limit the invention to the particular form disclosed, but on the contrary, the invention covers all modification/s, equivalents and alternatives falling within the spirit and scope of the present invention as defined by the appended claims. The headings are used for organizational purposes only and are not meant to limit the scope of the description or the claims. As used throughout this description, the word "may" be used in a permissive sense (i.e., meaning having the potential to), rather than the mandatory sense (i.e., meaning must). Further, the words "a" or "a" mean "at least one" and the word "plurality" means one or more, unless otherwise mentioned. Furthermore, the terminology and phraseology used herein is solely used for descriptive purposes and should not be construed as limiting in scope. Language such as "including," "comprising," "having," "containing," or

"involving," and variations thereof, is intended to be broad and encompass the subject matter listed thereafter, equivalents, and any additional subject matter not recited, and is not intended to exclude any other additives, components, integers or steps. Likewise, the term "comprising" is considered synonymous with the terms "including" or "containing" for applicable legal purposes. Any discussion of documents, acts, materials, devices, articles and the like are included in the specification solely for the purpose of providing a context for the present invention.

[0018]   In this disclosure, whenever an element or a group of elements is preceded with the transitional phrase "comprising", it is understood that we also contemplate the same element or group of elements with transitional phrases "consisting essentially of, "consisting", "selected from the group consisting of", "including", or "is" preceding the recitation of the element or group of elements and vice versa.

[0019]   Data processing is the organization and manipulation of large amounts of numeric data or in computer jargon, "number crunching". Some examples of data processing are calculation of satellite orbits, weather forecasting, statistical analyses and business applications such as accounting, payroll and billing. The raw data is collected, filtered, sorted, processed, analysed, stored and then presented in a readable format.

[0020]   Data processing involves various processes such as validation, sorting, summarization, aggregation, analysis, reporting and classification. Commercial

data processing involves a large volume of input data, relatively few computational operations and a large volume of output. The proposed invention focuses on analysing the data that are transferred over the cloud and monitoring their completeness. The Internet of Things (IOT) unit will alert the concerned persons as well in case of identifying redundant data.

[0021]   Reference will now be made in detail to the exemplary embodiment of the present disclosure. Before describing the detailed embodiments that are in accordance with the present disclosure, it should be observed that the embodiment resides primarily in combinations arrangement of the system according to an embodiment herein and as exemplified in FIG. 1

[0022]   Figure 1 illustrates the block diagram of systematic approach to manage processing of Internet of Things (IOT) data integrating the techniques of big data analytics and machine learning for classical data processing practice 100. The proposed system 100 includes a network 101 which is considered for the study of data analysis. The Data 102 is stored and fed in to the data processing unit 103. The Big data analytics 104 is applied on data 102. The analysed data 104 is fed in to the machine learning unit 105 for classifying the data based on primary key. The predictive unit 105 will predict the any fraudulent data and intimates the same to the Internet of Things (IOT) unit 106. The Internet of Things (IOT) unit 107 will send alert messages to the concerned person's electronic gadget 107.

[0023]   In the following description, for the purpose of explanation, numerous

specific details are set forth in order to provide a thorough understanding of the arrangement of the system according to an embodiment herein. It will be apparent, however, to one skilled in the art that the present embodiment can be practiced without these specific details. In other instances, structures are shown in block diagram form only in order to avoid obscuring the present invention.

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WE CLAIM

1. Systematic approach to manage processing of Internet of Things (IOT) data integrating the techniques of big data analytics and machine learning for classical data processing practice comprises of

   Predictive unit;

   IOT unit;

   Machine learning unit;

   Data processing unit and

   Electronic gadget.

2. Systematic approach to manage processing of Internet of Things (IOT) data integrating the techniques of big data analytics and machine learning for classical data processing practice, according to claim 1, includes a predictive unit, wherein the predictive unit will predict the redundant data in the data that will be transferred over the network.

3. Systematic approach to manage processing of Internet of Things (IOT) data integrating the techniques of big data analytics and machine learning for classical data processing practice, according to claim 1, includes an IOT unit, wherein the IOT unit will send alert messages to the concerned person.

4. Systematic approach to manage processing of Internet of Things (IOT) data integrating the techniques of big data analytics and machine learning for classical data processing practice, according to claim 1, includes a machine

learning unit, wherein the machine learning unit will analyse the data sets to look for redundant data.

5. Systematic approach to manage processing of Internet of Things (IOT) data integrating the techniques of big data analytics and machine learning for classical data processing practice, according to claim 1, includes a data processing unit, wherein the data processing unit will process the data using the various steps of data mining and big data analytics.

6. Systematic approach to manage processing of Internet of Things (IOT) data integrating the techniques of big data analytics and machine learning for classical data processing practice, according to claim 1, includes an electronic gadget, wherein the electronic gadget will receive the alert messages through the IOT unit.

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Date: 27/08/2022

ABSTRACT

SYSTEMATIC APPROACH TO MANAGE PROCESSING OF INTERNET OF THINGS (IOT) DATA INTEGRATING THE TECHNIQUES OF BIG DATA ANALYTICS AND MACHINE LEARNING FOR CLASSICAL DATA PROCESSING PRACTICE

Systematic approach to manage processing of Internet of Things (IOT) data integrating the techniques of big data analytics and machine learning for classical data processing practice is the proposed invention. The invention focuses on classical data processing using machine learning algorithms and big data analytics. The Internet of Things (IOT) unit will send the alert messages to the concerned officials if in case the data is interpreted by unauthorized person or a third person.

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