# Big Data Analytics in Shape of IoT to High Better Ground of Decision Making (BDASI)

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*Abstract: This paper survey the impact of data collected in terms of internet of things and the use of big data analytics tool to handle that datum. The handling of the datum will lead us to have a better decision making on consumer applications. The consumer applications which this paper is ponder upon is health center. various tools are being used in medical fields such interconnected servers for sharing-time, where one department can access the result of a patient in order to pursue a treatment, patients have the wearable devices to measure the status of their health. The external analytics is needed to help the advanced technology to improve their quality of services as well as to improve the health. The suggest analytics way of solving and contributing to this internet of thing we have a Spark and Scala. The datum will be gather in Spark regarding any source provider, where Scala will process those data from future prediction concerning diseases. As technology is progressing the computer skill will carry on to be implemented in diverse fields so that the life of many will be raised from sickness to sound bodies. If better prediction is given to the healthcare it will be far better than having treatment. In this paper The Internet of Things is considered as ground of data which can be accessible easily and Spark and Scala is considered as predictor.*

*Index Terms: Big Data, Healthcare, Internet of Things, Spark Scala*

## I. INTRODUCTION

The computer trends have gone beyond of counting data in size of Gigabytes and petabyte to the so-called Big Data. This term Big Data has widely opened door to the computer scientist for the purpose of solving the gigantic problems of receiving unhandled data. The knowledge hid in those data needs to be analysis for making a company or any institution on high ground of serving the client as well as customers the best services. Except among the computer field, the data had for ages been locked up in written notes, oral and other ways of guarding them. Those data had been accessed rarely due to be huge and difficult to find the past records. Healthcare system is the preeminent focus of delving the hidden data for the sake of health amelioration. The analytics in healthcare come as a result of large healthcare data that are being gathered electronically. The captured datasets should be carefully studied which result what is so called big data analytics. These analytics are done to improve the service quality. IoT is continually educing and is an ardent area where chances are unnumbered. brainstorms which have put it on the verge of reshaping the current form of internet into a modified and integrated version. The number of devices availing internet services is increasing every day and having all of them connected by wire or wireless will put a powerful source of information at our finger tips. The main concept of internet of things(IoT) is to minimize the time a person or a living can spend on particular task in terms of gathering information for a particular purpose. By employing this technology IoT the life of people will be facilitated in very easy way. IoT, as you can guess by its name, is the approach of converging data obtained from different kinds of things to any virtual platform on existing Internet infrastructure [1].

The notion of IoT dates back to 1982 at time of altered coke m the drinks contained and that whether the drinks were cold [4]. Later, in 1991, a contemporary of ubiquitous computing was first given by Mark Weiser [5]. However, in 1999, Bill Joy gave a clue about Device to Device communication in his taxonomy of internet [6]. In the very same year, Kevin Ashton proposed the term" Internet of Things" to describe a system of interconnected devices [7]. The basic idea of IoT is to allow autonomous exchange of useful information between invisibly embedded different uniquely identifiable real world devices around us, fueled by the leading technologies like Radio-Frequency IDentification (RFID) and Wireless Sensor Networks (WSNs) [2] which are sensed by the sensor devices and further processed for decision making, on the basis of which an automated action is performed [8] Indian Internet of Things (IoT) market is intended to grow to $15 billion by 2020 from the current $5.6 billion, according to a report by Nasscom released on in Bengaluru, as part of its design and engineering summit. The IoT sector is intended to grow in very tremendous way where the industries of IoT will be boosted from the 60% of the current accounts of market use IoT and includes many integration of physical machinery which are tagged with sensors to enable them to provide fast services.

### A. Internet of Things in Healthcare

There are two things which everyone who is living in this generation should be aware of: the first thing is to have information and second to live a better life. As technology growing everyday people are receiving a lot of information from various sources. If people are well informed with accurate information, the great number will be living in life which is better than before. The internet of things come in to inform people by uniting them together.

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Not only unifying people it is also human to things, machine to machine. The communication between men and surrounded object has improved via IoT. Accessing information from anywhere, anytime with anything it is the aim of Internet of Things. The IoT can be defined as connect anything with everything to establish the interaction between them. Figure 1 shows it



**Figure 1. Connect Anything with Everything Anywhere Internet of Things to Anything**

In the health care, Internet-connected devices have been introduced to patients in various forms. Fetal monitors, temperature monitors, electrocardiograms or blood glucose level monitor requires follow-up interaction with a healthcare professional [9].



**Figure 2. Collected Data from Hospital To**

As the above figure2 illustrate, the data are collected from different source within single organization. This way of handling data and providing intended services is applied in any place. From hospital point of views, the patients are able to contribute to their wellbeing by helping the physician to take some test and send them to their concerned department. The IoT in healthcare is helped by Radio Frequency Identification (RFID) which is embedded into hospital materials, on patients, staffs and on many items which are used in hospital. It works as one of the system to track the patient status and staffs. The identification of each thing in hospital has an IP address which helps the internet to establish the interaction between them. The data are collected in such ways in terms of big data.

## II. RELATED WORK

In literature [10] describes the collection of information from various area such as patient, pharmacology, physician desk and and again a patient receive result in their devices. The IoT plays a good role to track the patient as well the health persons in order to maintain better health. A patient may

forget to take prescribe medicine in that scenario the IoT comes on scene to notify the nurse and patient that something is not done, if a patient takes an excess tablets a monitor will notify. A carefully study should be made on that collected information so that the disease prevention and disease treatment will be carried smoothly. In [11], authors trust wearable tags and ambient tags as they developed a system for watching the patient at night, a system noting down the sleeping constant. As the research is still progressing a new method is implemented to help to reduce the time taken to analyze the data.

## III. ANALYSIS OF BIG DATA USING SPARK

Network cluster has become a norm application in different organizations. There was a first foot to analyze data that was MapReduce and Hadoop, recently a new tool has born that is known as apache Spark which is written in Scala language. Scala is an object oriented like java, it can perform several tasks such as no checked exceptions, raw strings. It can also perform algebraic operator. On the top of Scala programming there is an apache spark which is used to process a large dataset, it is an open source platform which is capable to analyze streaming data in another words the live data. It also contains in it the MLlib to analysis the dataset from machine learning.

### A. Comprehensive Spark Framework

Spark gives the very meaning and bring to the central point of managing big data processing, and accept diverse of data sets include text, graphics, audio, real-time and so on. It is capable to execute a program in very fast time as blink an eye if you compare to the other framework like Hadoop. Spark has an advanced DAG (directed acrylic graph) execution engine that provides support for cyclic data flow and in-memory data sharing across DAGs to execute different jobs with the same data [12]

## IV. TECHNOLOGICAL CHALLENGES IN HEALTHCARE

The use of any application to gather information in the name of internet of things we have gained the low cost of sharing information even in healthcares. But these way of sharing information has some challenges which healthcares are not omitted to face. Those challenges are as follow:

### A. Interoperability

Anything with any form can be used to help the patient to interact with it as so long as it provides the information the hospital wants. For this scenario anything has its own nature which can lead it to behave in a way different from its own purpose of made. It can provide some addition information or to lack some information.

### B. Data Volume

The size of data may be huge while a user is transferring the information. A smart object may be full of memory, In a system to analyze each object data is needed so that the challenges maybe avoidable.

### C. Power Supply

As internet of things uses RFID (Radio Frequency Identification), and it is a must to be charged. The object with a tag should be charged anytime. The challenge will occur when a patient ran out battery. The information will not be handled over to the concerned people

### D. Misinformation

There is case of losing the intended data due to have different objects with RFID. Like mobile phone can lead other electronic devices to collect wrong information. Internet of things is everywhere to interact with things as well with people, this include healthcare centers. There is a needed analysis to the given information from IoT

### E. Security and Privacy

Security is the main concern in every aspect. Without security of data everything will be in mess, chaos will be hard to handle. The receive and sent data should be well secured so that fraud is avoided. In healthcare the user of internet of things may lack their privacy by exposing their bios. To protect these data some encryption should be done in very sophisticated way. Hash-key can achieve this security.

## V. CONCLUSION

In this paper we surveyed the state of Internet of things over the big data analytics in healthcare system. There is a very relationship between them, if one exists other also has life. However, in this paper one way of analysis big data from internet of things has been introduced as a third party analyst in order to prevent the misinterpretation which can lead to mistreatment. It suggested spark to be in good and fast method of analysis big data in healthcare system

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