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A Survey On-Food Supply Chain Management using Blockchain in Food Traceability

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***Abstract* - *Abstract*--The main aim of the project is to avoid the food adulteration and create transparent food supply chain. In this paper the block chain are inspired internet-of-things in the architecture for creating and manufacturing a food supply chain management. The architecture uses proof-of-object based on the authentication protocol, which is crypto-currency to the analogous to the proof-of-work in the protocol. The blockchain architecture aids in creating each and every data in the digital database of the food packages at each instance. To trace the food can identified the packing date, expiry date, packing place, ingredients are added etc like that each and every things can identified. A detailed security analysis was performed to investigate the vulnerability of the proposed architecture under different types of cyber-attacks. Nowadays people are suffering from the food illness disease. To avoid the illness we are tracing the food in many items starting from the farmer to the consumer. To trace the food items are updating in the block chain.**

Keywords---- Food Supply chain, Block chain, Food Traceability, Database, Mobile phone.

I. INTRODUCTION

Food is a major role in our day today life.Without food that we can't live in the world .We have seen many aspect of the food traceability from starting to end of the system. All aspect of food is cultivating from one place and is exporting from one place to another place. From exporting it is then shifted to local station to manufacturer company[1] .While tracing the food we can see packing date, expiry date ,ingredients are added, flavor added, sugar added from it is coming that is manufacturing place etc. While collecting the farmer at first he should update in the block chain likewise everyone should update in blockchain. After from the manufacturer the distributer will collect the product and he will sell the product through online shop[2].Seeing this Product in online the consumer will scan the product through mobile phone while scanning it will automatically display the product details. Seeing this we can buy the product. While doing this many of us can avoid the food borne illness.

II. OVERVIEW OF THE WORK

In tracing starting from the supplier for each product it contains the barcode number and its number will be passing through food API then ingredients will be taken out by using barcode number. First registration. The registration form contains supplier details. Then login. Supplier sells the products to all manufactures what the produce. Then manufacturer [3].The manufacturer initially creates the account. They will analyze the raw materials and the manufacturer will request the quantity of raw materials to the supplier. The manufacture will send the product ID, expiry date, number of packets, etc to the block chain and then the created product will be added to manufacturer shipment. From the block chain the manufacturer will retrieve the product [4].Then the Distributer First registration. The registration part contains distributer details. And login. The distributer will be seeing the product in the manufacturer cart and then buying product by the distributer will be added to the block chain. At last the Consumer First Registration. The registration form contains user details. The consumer scan the QR scan by using the mobile app and then view the product in the mobile such as manufacturing date, packing date etc. The consumer will check the product and the will buy the product by using online transaction.In addition to the food supply chan management produce the details in the block chain. It is in encryt format. It willnotunderstandclearly to others.

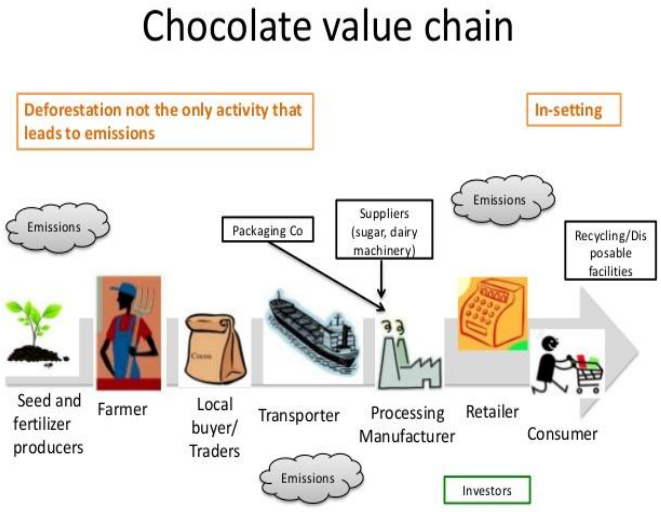

Fig:1 Chocolate Supply chain.

In order to improve safety and prevent wastage, modern IoT based technologies are required to monitor the food quality

and increase the visibility level of the monitored data. Sensing

Techniques compatible with existing tracking and tracing infrastructure are proposed for monitoring food products. These sensors can be invasive or non-invasive in monitoring the physical or chemical properties of food such as pH, conductivity, and permittivity or the packaging environment such as temperature, humidity, moisture or aroma. In general, these sensors are aimed to prevent defective products from reaching the consumers. We should add the all details in blockchain. Like product buying place and date, product ingredients buying date, product packaging date etc. Blockchain technology was proposed to improve the traceability of a food product. And most important we should use QR code Scanner wireless sensor for scan the product and create sensor ID. Each packaged food product with an embedded sensor ID travels through multiple stages of transactions at different terminals starting from packaging through transportation, storage and finally to a consumer for purchase. A data block is created containing the information about the package at each valid transaction. Once the transaction is verified, the transaction of the sensor ID is converted into a block of information and appended to its pre-existing data blocks thus forming a chain of information blocks and thus a blockchain.

III. DESCRIPTION

In the Modern world one of the country called Europe. In the country many people affected though the food borne illness. The government have noticed that our country had many disease through food .So they decided to trace the food from starting to the end, meanwhile they started from the chocolate. In chocolate they are started from cocoa .They collected the cocoa from different framer and they kept in the local station [5] .In local station to exporter and then to manufacturer company and then to retailer shop and then to consumer the find the tree structure of the chocolate. In that they find that while exporting they are mixing the old cocoa product and new cocoa product that is expiry product and new manufactured product are mixed together they form a new product sack they are mentioning the product id and packing date with this use of cocoa product contains diseases .this is cause for the people affected in Europe country [6].Sensing the integrated senor are inserted in fruits, vegetables, Meat and Fish etc. To keep on checking the temperature and humidity and the ph. level of the fruits, vegetables, fish and meat .Because if the fruits and vegetables are get rotten they much not produce the bad smell but fish and meat are not like that they as to keep on checking the product .It will produce the sculpture and nitrogen-di-oxide its bot get combined the bad smell will produce .While exporting from one to another it may takes three days or four days to export the product[7] .It should be good for the three to four days then only the product will sale. Thus the pineapple are kept in two different containers one is RFID temperature of cardboard containers another one is Traditional temperature of plastic box containers[8].It has to check with the normal temperature and refrigerator temperature but the audio frequency sensor has kept in left corner of the box (or)right bottom (or) middle of the box without affecting the pineapple the sensor has to inserted in both the containers[9].The cardboard box noted the normal room temperature and the plastic box containers noted the refrigerator temperature. Automatically the sensor will produce the result of the pineapple. Bit coins are called digital currency .It is used in share market to invest the amount .It is used in foreign countries fig:2 with the single input has no result at the same time it has multiple inputs it has definitely two inputs one for the payment and another one for the change.

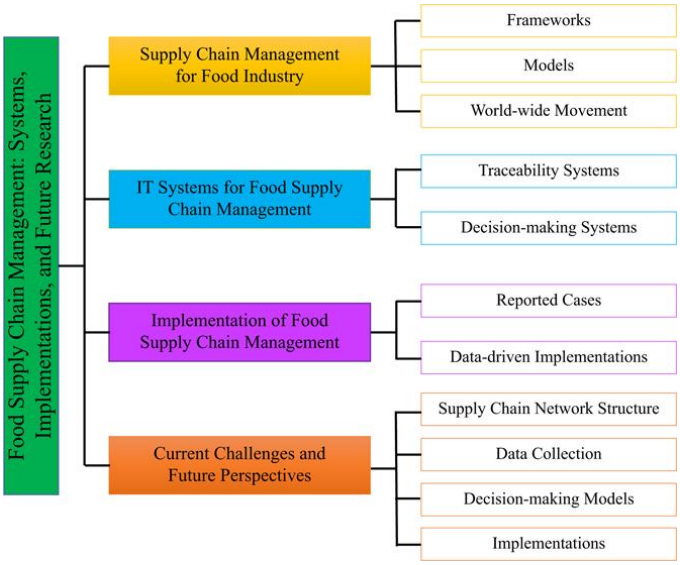

Fig:2 Food Supply Chain Management

Karma is called the bank details to A and B files are getting interchanging the file one has to decreased another has to increased. If A's file is interchanging to B[10]. The A is decreased B is increased. If B is interchanging the fie to A. The B is decreased and A is increased. This blockchain has used the internet of things in the protocol of 6lowpan, coap, Ipv6. Its has produce the way called internet of things .In existing system the RFID kit is used to get the product id ,product name etc. But in blockchain it is available in the protocol. If the RFID is physically damaged only the physical part will destroyed inside the RFID cad will not erase. This internet of things has the way o wearing the any tiny wearable devices in the world without the devices can't live in the world [11]. This algorithm states that the supplier first register the form in admin and then manufacturer also register the form in the admin then manufacturer give request to the supplier .supplier will accept the request and asked the extra quantity of the product then add the extra quantity product then rates of the product will discusses. Then manufacturer add the expiry date, packing date details in the product pack and there is tomcat will open and local host will open to the internet based system. Sensing data for

product in routing the base station from user service providers in the cost of the uplink and downlink communication cost minimization network [12].

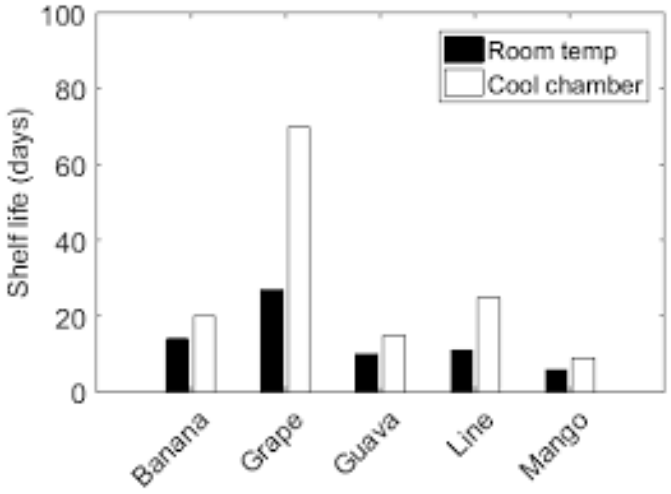

Fig 3: Temperature of the Food Level

Potential effect of the healthcare domain are improving the technology in smart cities environment in fig: 3. It leads the power and energy to consolidate the standardized applications will deals our own personalized data is not secure in web applications [13].It has send the request and response transmission of the supplier and manufacturer team then to the distributor team to the consumer. This product will buy no tension and to the no fear no eat the product is expiry are not the date of the packing and ingredients.

IV. System Features

In this the mobile devices are used in the form of hardware based technology and moreover the complexity of hardware is mainframe computers in fig:4 .(a)It will send the request and response through the client server computing of monitoring system in the advantages of low (or) high level of personal computers[14]. (b)Through the sense of internet computing the personal computers and mobile devices are highly farmable [15].

V. Network System Computing

The software system in that operating system is

Major play in:

- JDK 1.7
- J2EE
- Tomcat 7.0
- MySQL

role of Linux, Unix windows and application in server database. Microsoft windows are another operating system in the mobile devices [16]. The hardware system in that operating system is major play in:

- Hard Disk : 80GB and Above
- RAM : 4GB and Above
- Processor : P IV and Above

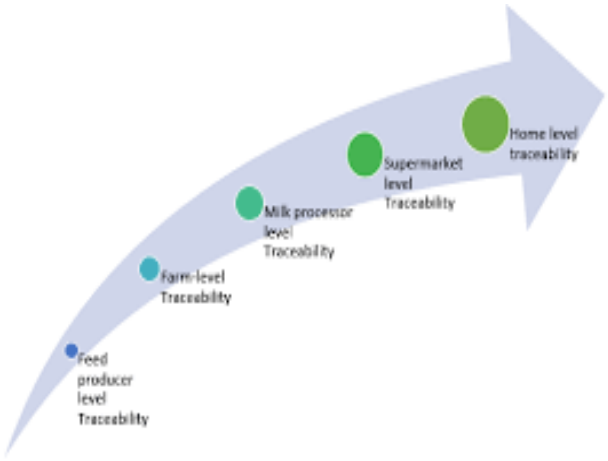

Fig: 4 Tracing the Food Level

VI. Client- Server /Request Response Computing

By default all the computing devices are in fig: 4 communication through the personal networks. Database Management system are transaction in client then the exclusive process are managed in the structure query language database in MySQL language [17].The pronix has the American product only will update in blockchain not has Indian product[18].The localhost has a link using the link it should be in format called url link. In blockchain will display the product details like what product had made and when it is made, when it is packed, and what it is the packing date and the expiry date all the details will display in encrypt format. Only can see what product it is and nobody can see when it is made and when it is packed and what ingredients are added that all can't able to understand. This encrypt format will not show the proper details using this blockchain many product are updated. Through this process can do clients sever transaction in data Base Management System in fig:-5.

VII. INTERNET COMPUTING

The storage of data in system characteristics in mainframe of network system computing and the client server data are stored in request response connectivity of the storage. It has the request server software application in that many process can stored the data information.

VIII. ORGANIZATION OF THE SYSTEM

The total cost of the devices are very high or low in nature of hardware and software in the applicant software system. It has security key usage while transmitting the data information from request to the server system. The personal computer will have the normal configuration to use the process in the blockchain step by step.

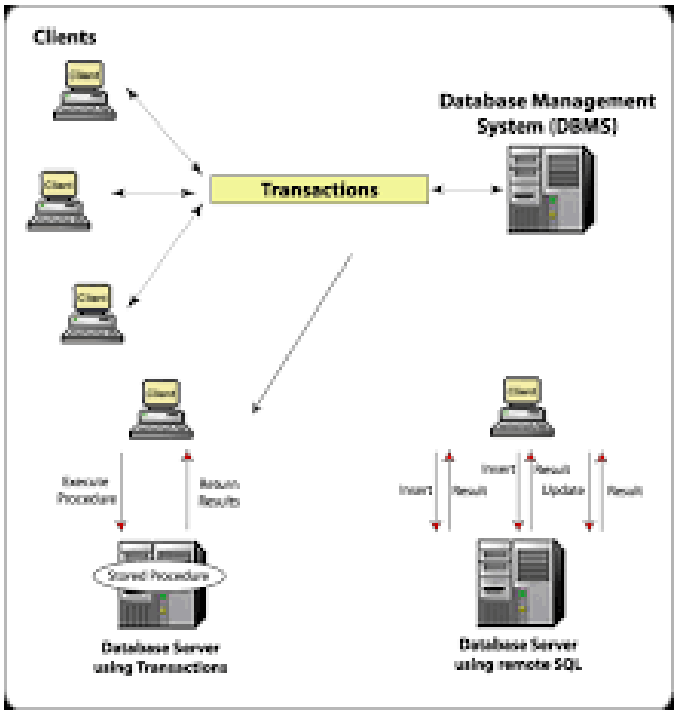

Fig .5 Request/Response server Transaction

This cloud process will have tree structures to have

The share market invest in bitcoins. It is created like node using this node only blockchain will create and update.

IX. Description of the Texture

From the above mention scenario many cases of food traceability in the system development are proposed very high performance through the internet computing by the usage of software development. It has security keys of technology used: J2EE (JSP, Servlets), JavaScript, HTML, CSS, AJAX.

- Hibernate Framework
- MVC Pattern

The transaction of the availability of the product cost and packing date and expiry date, etc. Through the blockchain all information are shared in it. Block chain are shared the networks space to the biometrics.

X. CONCLUSION

IOT is the major part of the system in the world. It survives many technology cameras, GPS, RFID tool kit. Next generation has follow the standardized tasks for trend appear in the smart cities. To keep trace the food many of them will buy the product by seeing the ingredients and expiry date of the product , packing date of the product .This mobile app will scan the QR code to monitor the product is good or not to eat .This complete process will run in laptop to mobile phone while doing this many of us can buy the product in no fear and no disease will occur in futures .IT will get high inflammable in nature to implant in Origen countries But not in many countries are invented to modify the product details in online itself. Mobile technology has disabling the rising cost of hospitalization it decreases the elder and younger population in illness through the better lifestyle environment will be designed.

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