Analysis and Efficiency of Protecting and Securing Consumer Data

E.Padma
Assistant Professor, Dept of CSE
SCSVMV(Deemed to be University), Enathur

Abstract- *In the modern world of business practices, data are exchanged and transformed without any protection in the digital world. Nowadays, more businesses are committed through online system. The digitization of data can be carried through the information gateways without any higher protection. The transactions for the goods that are purchased in the digital world can be integrated with legal system for better protection of personal data and information. The consumers are sharing their information through payment gateway. The consumer's information is stolen without their knowledge by the unauthorized parties. A series of measures can be taken to ensure consumers including people with disabilities have easy and reliable access to the web content by providing quality of services, specification about the new technologies, monitoring network layers for providing more security. Information Communication Technology is the one way of providing knowledge for the people about the network security services. Many consumers are lagging for communication with the available knowledge through ICT. More enhanced services are to be provided for securing their data. As a new way of communication technology through sensors and actuation object, IoT has been taken its tremendous way of exchanging the information. Security and Privacy policies are to be maintained in their operational feature.*

Keywords- Network Security, ICT, IoT, Legal System, Protection of Data

I. INTRODUCTION

In the recent days of businesses, all consumers are exchanging their information through Information and Communication Technology. ICT provides all basic information about the knowledge of securing data. Many services are launched for the usage of the consumers like SOA, SOAP etc., The innovation of business practice deals with protecting and securing the data. The integrated legal systems are effectively protected for personal data and information is paramount for digital world. Consumer data is at the core of many e-commerce services and elevates privacy and security risks. Nowadays, many businesses deal with the transaction through e-payment gateway. The security protection for the payment gateway is lagging in providing services to the consumers. Businesses must be strict in maintaining the reviews about their products. Businesses must ensure about the advertisement and services to the consumers. Innovative business must account to the knowledge of global nature with its own effective implementation and procedures which allow consumers to adapt for the environment of e-commerce to receive unsolicited commercial messages. To overcome present digital world business environment, all the Business and social resources are connected. The real world and the cyber world are connected. Then social values are brought to the real world by the IoT systems. Internet of Things (IoT) technology is being implemented broadly for information technology and industry applications. The industry initiative in IoT research would expect a realization of commercial product that instantly impact humans life. IoT is generally characterized by real world and small things with limited storage and processing capacity, and consequential issues regarding reliability, performance, security, and privacy. IoT becomes the future generation platform for advancement in computing. The main idea is to integrate each single physical entity with internet technologies for real time production oriented data.

IoT Service applications for innovative businesses are need to grow gradually to match with the market demands of digital world. IoT has multiple elements such as identification parameters which are enclosed with naming and addressing. Secure device and Secure Communications are the important principle for IoT security.

II. LITERAURE REVIEW

P.Mahalle et al in their paper [1]Requirement for identity is not adequately met in networks, especially given the emergence of ubiquitous computing devices that are mobile and use wireless communications. Addressing identity problem requires changes to the architecture for naming, addressing, and discovery. Challenges include resource discovery; ways to expose relevant privacy distinctions to users, naming and addressing that restricts precise knowledge of identity to authorized parties

J.Gubbia et al in their paper [5] sensors and actuators blend seamlessly with the environment around us, and the information is shared across platforms in order to develop a common operating picture (COP). Fuelled by the recent adaptation of a variety of enabling device technologies such as RFID tags and readers, near field communication (NFC) devices and embedded sensor and actuator nodes, the IoT has stepped out of its infancy and is the the next revolutionary technology in transforming the Internet into a fully integrated Future Internet. As we move from www (static pages web) to web2 (social networking web) to web3 (ubiquitous computing web), the need for data-on-demand using sophisticated intuitive queries increases significantly.

D.Yang et al [6] Things are active participants in business, information and social processes where they are enabled to interact and communicate among themselves and with the environment by exchanging data and Informations are sensed about the environment, while reacting autonomously to the real/physical world events and influencing it by running processes that trigger actions and create services with or without direct human intervention

S.Khan et al [7] in their paper The Internet is continuously changing and evolving. The main communication form of present Internet is human-human. IoT provides connectivity for everyone and everything. The IoT embeds some intelligence in Internet-connected objects to communicate, exchange information, take decisions, invoke actions and provide amazing services. This paper addresses the existing development trends, the generic architecture of IoT, its distinguishing features and possible future applications. The IoT is getting increasing popularity for academia, industry as well as government that has the potential to bring significant personal, professional and economic benefits.

Alessio Botta et al [9] in their paper IoT is generally characterized by real world small things, widely distributed, with limited storage and processing capacity, which involve concerns regarding reliability, performance, security, and privacy. The key feature in IoT is, without doubt, its impact on everyday life of potential users [5]. IoT has remarkable effects both in work and home scenarios, where it can play a leading role in the next future

III. MEASURES OF INNOVATIVE BUSINESS

Security is also important for businesses and financial markets. If machines were collecting information and this data is manipulated or falls into the wrong hands, then it could influence business decisions and undermine the stability of markets. Identifying pro-active policy and regulatory measures in addition to co-regulatory and self-regulatory solutions and initiatives geared towards educating and empowering consumers is essential to protect the rights of all users in an open, transparent and inclusive digital world. The IoT will place different demands on communication infrastructures and services. Underlying these developments will be policies that promote the availability, quality and use of such infrastructures and services. In this regard, international governance and norms may need to be reviewed to ensure the performance and security of communication networks and services and thus contribute to building trust in the IoT. Replication Attacks, Connectivity issues and non updated systems are the major challenges in the IoT Business environment. More security can be provided for securing consumer data by providing necessary Secured boot and access, Data encryption, Password authentication and Fighting cyber attacks. Consumer's data are highly protected to avoid theft and malicious attackers to steal the information. The authenticated password must highly protect the consumer's data. Only the authenticated user can have access about the business information. The innovation business deals with various devices security feature. Secured device must handle all the original data of the consumers. As a third party authentication, the devices are to be secured with highly protected passwords. The encryption techniques are to be strictly followed and must secure with Message Authentication Code for all the user data.

IV. PROPOSED METHODOLOGY

The Proposed method for the work of consumer data protection can be carried over with higher security features. The authentication of data plays a vital role in security measures. The enhanced feature of third party authentication can be done for accessing and storing each and every data of the consumer in the information storage area. In order to protect consumer data while transformation of data using e-payment gateway, data authenticity policy to be maintained. Nowadays, as an innovative business transaction mode, IoT devices are managed with available security features. The storage of information can be connected via mobile device for the transaction of business. Information and Communication Technology provides more knowledge about stored information to the consumer. The consumer can protect the data via encrypted method.

Consumer Data	IoT
Access Secured Data Provide Security policy	Retrieve the data securely Check for authenticity and Access through IoT Device

Fig.1 Consumer Authentication

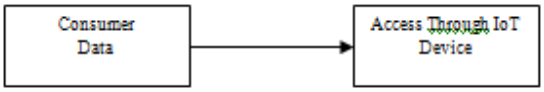
A.Security Policies

To provide security for the consumer data, certain policies are to be carried out in order to protect the information. Third Party authentication must be provided as a security feature. Every consumer must get register with the individual username and password from the authenticated server to access their data. The consumer data must be highly protected with public key cryptographic algorithm. For each secured data hash code can be generated. In addition with the original information the generated hash code must be sent with encrypted format. The data can be stored in the server with unscrambled text. Trust of service is activated for better securing of data. In the modern world, the transaction of innovative business can be carried through e-payment gateway. The gateway must also be protected from unauthorized accessing. The authorized user of the machine can only access the relevant information.

Fig 2 Consumer Data Storage

B.Accessing Consumer Data Through IoT Devices

IoT Device like Mobile can be used for accessing the stored information. The secret information can be accessed through the registered devices. A chip like small devices can also be embedded as a IoT devices. The functionality of the device can be identified using the registered information. The performance and reliability feature for providing security using IoT devices plays a vital role in the digitized world. Through the sensors and actuators the relevant information of the consumer can be retrieved. The consumer must able to gather their stored information by providing necessary username and password. The authenticity for accessing the stored data can be checked for each and every time with the available server. All the authenticated username and password



V. WORK ANALYSIS OF PROTECTING AND SECURING CONSUMER DATA

The work flow analysis includes performance of the IoT devices for accessing the secured and protected consumer data. The data analysis fetches the information of the highly protected data. The trusted user will get registered with IoT, the device connected to the server will respond to the authenticated user only. The unauthorized party wants to access the device, it will get locked. The speed rate of accessing with trustness to be included in the performance criteria. The difference in the speed up ratio of time rate leads to delayed accessing time for consumer data. The trust as a service phenomenon has to be enhanced in order to promote the speed up time.

$$s=dc/dt$$

The flow of speed up time must be compared with accessed data. The highly protected consumer data must be extracted with the knowledge of the end user. The end user should know about the services provided by the server for accessing their data.

VI. CONCLUSION

The protection and security of consumer data in the modern digitized world plays a vital role. Many users are not aware of the storage of their data. The security has been given to their data are also not known to their knowledge. As a wholesome, the trusted party is the only authorized party. The registered IoT device will work according to their fetching of information. The device grants permission for the trusted user only. IoT services are typically provided as isolated vertical solutions, in which all system components are tightly coupled to the specific application context. IoT involves by definition a large amount of information sources, which produce a huge amount of nonstructured or semi-structured data, which also have the three characteristics typical of Big Data volume , variety and velocity of consumer data. IoT device performance needs more speed up ratio for accessing consumer data. This condition has to be taken as a future challenge. The security gateway of storing large volume of user data must be protected with secured user name and password. Thus Consumer data are given more protection and highly secured performance feature with the public key cryptographic algorithm.

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