



Internet of Things and Modern Library

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Abstract:

Currently the Information and communication Technology (ICT) and related topics such as Internet of Things (IOT) have an essential influence on all elements of human life. As IOT progresses it has extended in size and dimension improving many contexts of the society such as the traditional library system. One of the most recent changes in technology was the shift from the “Internet of communication to the Internet of Things or ICT. The IOT enables connectively of a physical object (Such as a book or other text typologies) With the real time communication technology by using the RFID tags and thing sensors. The continuous monitoring of books in real time and the tracking of labeled objects geographically are some desirable characteristics that result from the use of the ICT tags. The characteristics of ICT allow implementing an online library supply chain integrating it with different type of technologies such as data base data gathering and cloud systems.

Keywords: *Internet of Things (IOT), Current trends in library and Information Service, Library Management, Internet of Things and Library*

Introduction:

Technology completely changed the life style of people in the world. Internet of Things (IOT) will be a new revolution in the field of library and Information Science and it will affect libraries and their services through building, collection management, instruction, data security and information literacy and so on. So librarians should be aware of the various applications of IOT in libraries and services. Internet of Things (IOT) is a new revolution of the internet that is rapidly gathering momentum driven by the advancement in sensor networks, mobile devices, wireless

communication, network and cloud technology (Bahga & Madiseti, 2014)

What is Internet of Things:

The term Internet of Things is a combination of two words Internet and Things. The world Internet and Things. The world Internet is also known as its nick name Net is a universe wide system of computer networks in which any user can access information on the other hand “Thing” are objects or physical devices of the real world. The term Internet of Things (IOT) was first used in 1999 by British pioneer Kevin Ashton. He defined IOT as “a System where the internet is connected

to the real world via ubiquitous sensors. Ashton used the term to elaborate the power of connecting Radio Frequency Identification (RFID) tags used in corporate supply chains to the internet in order to count and track items without the need of manpower. The definitions of IOT given by the various scholars (Ashton Kevin,2009).

Wikipedia gives its remarks on IOT in “The Internet of Things also called the Internet of objects refer to a wireless network between objects usually the network will be wireless and self-configuring such as house hold appliances (Wikipedia.org).

RFID:

RFID helps to identify and track the data of things, sensors collect and process data to detect the changes in the physical status of objects, energy harvesting technologies help in low energy consumption of associated technologies such as Bluetooth the collected data is stored on the cloud for further processing and wireless communication enable connection and interaction between objects to take further course of action. “Radio Frequency identification is a technology that uses radio waves to transfer data between a reader and an electronic tag which is attached to a particular object. Typical uses are for object identification and tracking”(Singh & Mahajan 2014).

Wireless Sensor Network (WSN):

Recent technological advances in low power integrated circuits and wireless communications have made available efficient, low cost, low power miniature devices for use in remote sensing applications. gas and smoke detection based fire detection systems are used. In this study, using wireless sensor networks, a library fire detection system has been designed and implemented on the TinyOS development platform (Arslan, 2017).

Magic Mirror:

Mirrors have more and more applications as technology advances. Magic mirror consisting of camera, sensor with WiFi enabled provides interaction between people and computers.

IOT Using In Library:

There are many potential areas identified by different. Library is a complex system consists of a number of components interacting with each other due to the globalization of information and World Wide Web numerous changes are reflected in libraries also. Physical spaces of the library become learning space and physical resources are replaced by digital resources. Circulation section of the library is replaced by smart access because of its complexity in nature and changing environment Internet of Things will play a huge role in library management. Technology connecting buildings, users, resources, services and so on. so on The internet has taken a leap forward a leap

forward from "internet of communication to internet of things" (De 2022).

Location based services:

IoT would help libraries in providing location based services. User walking in to the library with IOT enabled mobile device would be to get directions for stacks where favourites books have been shelved. It may also enable libraries to provide status of availability of reading rooms, discussion rooms, printers, scanners, computer etc user can check it using their mobile app.

Smart circulation control:

IOT can give alert to users about their current holdings and overdue dates and fine details. Patrons can pay fine by online. Designed on IOT system for library materials management using Android based UHF mobile reader. (Li et al, 2016). Self-help borrowing users are authenticated with an ID and password to log in to the system. It can be installed with library application software at the entrance of ICT system for efficiently managing library collections. The loss of data about the books Difficulty in tracking down the details of the library transactions due to a slow system Difficulty in updating the information on regular basis (pande et al, 2017).

Reservation of Books:

One of the important use of the IOT can be that the patron can search the desired book from the OPAC of the library available on internet through his smart

phone and reserve the book through smart phone

Personalized services:

With the help of IOT libraries can provide a number of personalized services. (Wojcik, 2016) explained that IOT can be used to deliver contextual hints and information about resources connected with current user interest IOT would be able to communicate to a user about the commencement of new additions in his area of interest as well as related works.

Online Fine Payment:

Patrons easily available information about how much overdue fine with the help of IOT. Librarian also suggest that there should be a provision of online payment of library deposit, ID Card, fine, Book lost fine etc. (Deshmukha, 2023).

Quick Book Search:

In an automated library catalogue search is done through OPAC terminal or web-OPAC or M-OPAC, RFID technology is accepted by libraries long back.

Library orientation and Information Literacy:

Library orientation programme ensures the familiarization of library resources, services and facilities to new members. IOT applications enhance the power of librarians in teaching users about library services using mobile applications, making virtual tours and exploring video contents. When user visit particular sections of library wireless devices recognize the users and play audio or

video guiding the users on the various services in the library.

Current Trends in library and information Services:

Internet of Things :

The best integrated library software and LMS software have started using internet of Things (IOT) to transfer data without human intervention. Libraries use IOT to control inventory prevent theft and identify users. It also helps in improving the quality and speed of circulation desk activities. Moreover IoT expedites reservation of books fire detection in the library and its prevention and streamlines eLibrary services.

Mobile Based Library services:

The three main objectives of a library are to promote literacy, disseminate useful daily information to the people and encourage lifelong learning through its reading materials and resources. Mobile libraries bring resources outside of the library's fixed location to users who otherwise might not get an opportunity to profit from them. With the help of mobile service like SMS and WhatsApp, libraries can produce new services and provide faster access to their collection. It also includes a learning management system (LMS) a software application that provides the framework that handles all aspects of the learning process and tracks your training content.

RFID Implementation:

Radio Frequency Identification (RFID) uses electromagnetic fields to select and track tags attached to library items automatically. The RFID based library management system is the newest technology used to track inventory and strengthen library theft detection systems. This technology used to track inventory and strengthen library theft detection systems. This technology enhances the security of libraries and increases their efficiency by streamlining the processes and reducing human dependence. For the users RFID accelerates the borrowing and return procedures, Hence RFID saves time and reduces library costs.

Cloud Computing:

Libraries across the world they are adopting cloud computing to make library services more streamlined and cost efficient. This library management system plays a significant role in building digital libraries or repositories. Cloud computing also ensures optimal use of library resources, infrastructure, human resources, etc. Moreover the technology is also used for library automation and quick data search. Additionally in a digital library cloud computing ensures that third party services can manage servers, carry out upgrades and create data backups.

Technology:

IoT users a set of technologies to connect to objects .First is identification. Owing to billions of devices that will be connecting to the Internet each one

requires a unique identification. Next device need to sense which is possible by putting sensor that measure various aspects of an object.

Conclusion:

IoT has great library capabilities. It is still in the developing stage and it makes sense for librarians to understand learning about this new one. This technology will be widely accepted adopted and available for librarians in future. The library professionals always at the forefront in adapting the new technologies. They always try to implement and get benefits of the new technology to serve their users.

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