EFFORTLESS SHARING OF BOOKS ON E-LIBRARY THROUGH BLUE TOOTH

Nilima Bargal¹, Pratima Bhalerao²

¹,²ECE Department, Dr. BAM University, Aurangabad, Maharashtra, India.

ABSTRACT

In fast growing e-book market, people are choosing to read books on their computers, e-readers, smart phones and tablets. Libraries have always been about equity of access to information and stories, whatever the format – print, audio, digital. It is essential that libraries establish their role and position in this new digital environment, so that library users can continue to enjoy access to a wide range of content. The term "library" can be thought of in different formats like - a dim and dusty place filled with out-of-date texts of limited historical interest or a rich collection of archival quality information.

In this paper we propose a digital library hardware which will be used to share the e-book format of the books in library for students of an Engineering College. Due to large numbers of students the physical stock of library books cannot serve the entire student. So a solution is proposed to make the e-books available to students without any time binding. The e-books will be received by students on their respective smart devices or mobile devices. The medium of sharing for the content is through Bluetooth so that sharing of the book anytime and anywhere will be possible.

Students will benefit from this e-library by issuing the book anytime in the college premises. The college will benefit from this as lot of space and man power will be saved which was required for storage and maintenance books. The cost for buying multiple numbers of copies of those books will also be saved.

Keywords: Digital Library, E-Library, Bluetooth, E-book.

I. INTRODUCTION

To survive in this competitive world one has to update one continuously. It is not feasible for everyone to go and learn at different places. For this reason e-learning is a new emerging methodology introduced in to make the learning process smoother and simpler. Now a day’s lots of study material from reputed institutes and universities are available in e-learning course environment which are well managed, interactive and made interesting using learning management system. To get
worthy return of these efforts taken by experts, the course should be available to authenticated person who has paid for it, and hence so we need to secure it from piracy.

One has to consider many factors while providing learning content through handheld device. The integrity and confidentiality of learning content is the major concern that comes first. Security of content, avoid its piracy, authentication and authorization are some of the key security parameters of e-learning. Synchronous learning needs continuous internet connection for playing course content on device. Now a day’s smart devices are becoming very popular among youth. The reason behind this is its portability, compactness and cheaper rates. The same device can be connected to internet to achieve online connectivity. Using battery connectivity such device can be used for continuous learning in remote places. So the option for asynchronous e-learning having portable smart devices (smart phones and handheld devices) in affordable price takes over. Earlier research in the e-learning domain has mainly focused on providing and delivering content and infrastructure.

Library is one such treasure house of knowledge. A well-organized library is an asset to the school, college, university or the neighbourhood. A library is concerned with books, references, members, and many other issues. Thus the process of handling a library manually is very troublesome and clumsy. Concerning at this point of view, the computerized system for handling the activities of library management provides a comprehensive way to lessen physical labour, to reduce complexity of the term "library" conjures a variety of different images. For some, a library is a dim and dusty place filled with out-of-date texts of limited historical interest. For others, it is a rich collection of archival quality information which may include video and audio tapes, disks, printed books, magazines, periodicals, reports and newspapers. A library is intended to be an extension of this latter concept to include material of current and possibly only transient interest. Seen from this new perspective, the digital library is a seamless blend of the conventional archive of current or historically important information and knowledge, along with ephemeral material such as drafts, notes, memoranda and files of on-going activity. Each user in the DLS manages his information with a Personal Library System (PLS) uniquely tailored to his needs. A PLS has the ability to act as a stand-alone system for its user, but under normal conditions it will be connected into a rich network of public, personal, commercial, organizational, specialized and national digital libraries. Digital libraries extend and integrate approaches adopted in traditional libraries, as well as in distributed information systems, to yield high-end information systems, services and institutions.

The reading experience offers another angle on the debate. For those who like to review different parts of a book—to go back and forth in search of a missed clue, or connect references—paper has an advantage. Some of us have tired eyes and like to read larger fonts, which favours electronic devices (also easier for some arthritic hands to operate). Academics like to mark up margins with comments to engage with texts as they read—e-books can do this, but it’s not as easy or intuitive as with paper. All told, paper books have a slight advantage. In India only about 20% waste paper is being currently recovered annually. Low recovery is on account of alternate use of paper in wrapping, packing, etc. lack of source segregation results in waste paper getting contaminated and becoming unusable. In comparison in developed countries the percentage of recovery of waste paper is very high. For instance in Germany it is 73%, Sweden 69%, Japan 60%, Western Europe 56%, USA 49% and Italy 45 %. 50% of industry’s requirement of waste paper is met through import which is on increase. India lacks collection, sorting and grading system of waste paper for proper utilization. Govt. intervention is necessary to encourage segregation at source and increase recycling to minimise landfill and attendant environmental hazards.

II. NEED OF E-LIBRARY

Improved customer service through greater access to accurate information. Increased productivity and job satisfaction among staff members as it eliminates duplication of effort. More
Economical and safer means of storing and keeping track of information. Easier access to information like management reports and stock etc., as well as more accurate and faster results from statistical analyses. Reduces errors and eliminating the ennui of long and repetitive manual processing. Greater accountability and transparency in operations. Improved efficiency and effectiveness in administration and management as it has unprecedented access to real-time information. Accurate and faster results from statistical analyses. Reduces errors and eliminating the ennui of long and repetitive manual processing. Greater accountability and transparency in operations. Improved efficiency and effectiveness in administration and management as it has unprecedented access to real-time information. More reliable security for sensitive and confidential information. Appropriate knowledge-based action and intervention can now take place in a timelier manner.

III. LITERATURE SURVEY

Since the dawn of civilization, men are trying to use the best output from the technology. “Library Management” with computer is relatively recent addition to the libraries which has turned it easier and comfortable. “Library Management System (LMS)” is a web based solution which is developed on latest technology focused towards automating the vital activities of the Library. “The Library management system” Solution can be integrated with Barcode for easy access and retrieval of any item from the Library. An online public access catalogue facility can be provided for speedy retrieval of any kind of document. This solution can be linked with self-service for quick search and online requisition. Different libraries of organization or institution use the software that is designed according to their demand. We have designed a simple and effective hardware which may manage a library works so far.

Library is regarded as the brain of any institute; many institutes understand the importance of the library to the growth of the institute and their esteem users (students). Library Management System (LMS) supports the general requirement of the library like acquisition, cataloguing, circulation. A LMS usually comprises a relational database, software to interact with that database, and two graphical user interfaces (one for patrons, one for staff). Most LMSs' separate software functions into discrete programs called modules, each of them integrated with a unified interface. Prior to computerization, library tasks were performed manually and independently from one another. Selectors ordered materials with ordering slips, cataloguers manually catalogued items and indexed them with the card catalogue system (in which all bibliographic data was kept on a single index card), and users signed books out manually, indicating their name on cue cards which were then kept at the circulation desk. Early mechanization came in 1936, when the University of Texas began using a punch card system to manage library circulation. While the punch card system allowed for more efficient tracking of loans, library services were far from being integrated, and no other library task was affected by this change.

By the mid to late 2000s, LMS vendors had increased not only the number of services offered but also their prices, leading to some dissatisfaction among many smaller libraries. At the same time, open source ILS was in its early stages of testing. Some libraries began turning to such open source ILSs as Koha and Evergreen.

Gorman’s eight principles of librarianship set out in his 2000 publication. Our enduring values: librarianship in the 21st Century, provide the context for our approach to e-books and lending.

1. Stewardship – playing a role in the preservation of the human record for future generations.
2. Service – the duty to serve the needs of individuals, communities and societies.
3. Intellectual freedom – to protect and uphold the free expression of thought.
4. Privacy – the freedom to access whatever materials an individual wishes without the knowledge or interference of others.
5. Rationalism – an underpinning of the enlightenment tradition of rational thought.
6. Commitment to literacy and learning – both in the support of reading as an essential skill for lifelong learning, and in support of the expanded understanding that accompanies true literacy.
7. Equity of access – bridging the digital divide and providing equity of access to compensate for societal inequality.
8. Democracy – ensuring a well-informed electorate is essential to promoting education and maintaining an effective democracy.

The digital library project is a broadly based effort to achieve coherent development of our national information resources. The existence of an open architecture for Digital Library Systems will provide the necessary structure for developing rapid access to existing information resources and for creating new information resources; some will be public, some commercial, some organizational and some personal.

Enhancing Industry’s competitiveness to face global competition:

- Economies of scale
- De-fragmentation of industry
- Modernization of mills
- Building new capacities
- Meeting incremental demand of paper
- Productivity/quality improvement
- Creation of robust raw material base
- Environmental upgradation and green technologies

IV. TECHNICAL DETAILS

In this project we are using basically a controller along with peripherals and an Android smart phone. The media for communicating between both the devices is via Bluetooth. This makes the device very cheap. We propose this device for the library providers so that the users will come to the device spot and get the books downloaded on their smart devices. This will save the space for storing books and save the number of copies that are preserved by the college. Consequently this will help in reducing the amount of paper, resulting in conservation of wood.

V. SYSTEM MODELLING

The heart of the system that is the microcontroller is used. Here we are using 8-bit AVR microcontroller interfaced with Bluetooth module, SD card module and a LCD display. In the software part we are using Embedded C for programming the controller and Blue term software for viewing the transferred contents.

The AVR is a modified Harvard architecture machine where program and data are stored in separate physical memory systems that appear in different address spaces, but having the ability to read data items from program memory using special instructions. Program instructions are stored in non-volatile flash memory. Although the MCUs are 8-bit, each instruction takes one or two 16-bit words. The size of the program memory is usually indicated in the naming of the device itself.
Each I/O port consists of three registers: DDRx, PORTx and PINx.

- DDRx: Data direction register.
- PORTx: Output port register. Used only for output.
- PINx: Input register. Used only for input.

Pin toggling with PINx: "writing a logic one to PINx n bit toggles the value of PORTx n bit, independent on the value of DDRx n". This may not be true for all AVR devices, check the datasheet of the device.

The transceiver module is easy to use and completely encapsulated. It allows your target device to both send and receive the TTL data via Bluetooth technology without connecting a serial cable to your computer. The wireless Bluetooth RS232TIL transceiver module is suitable for mouse, keyboard, joystick; computers and peripherals; GPS receiver; instrument and industrial control. The diagram below explains the working of Bluetooth module.

![FIGURE. 1: Working of Bluetooth Module](image)

This module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connections. All AVR ports have true read-modify-write functionality when used as general digital I/O ports. The microcontroller runs on 5V power supply with a built in crystal frequency of 8 MHz. A 2GB SDSC card from Transcend is used in this particular project. The SD card is formatted with FAT32. The ultimate aim of this project is to read a file from the FAT32 file system of the SD card. The SD card has been formatted as FAT32 before interfacing. The generalized code for the FAT32 is written to interface the SD card.

VI. ADVANTAGES

Information in the electronic age can appear in all types including three dimensional, graphic, moving simulations, or animations which the traditional printed copy cannot do. Electronic publishing feeds the electronic library with information. It is cheaper than print and it is fast and has wider distribution. It is envisaged that it may even become cheaper and more accessible as its technology gets better and computer networks grow.
VII. CONCLUSION

The electronic library is seriously elbowing out the traditional library. There is a drift towards electronic information as against the printed copy [1]. Both modes have their positives and negatives. There is the need to have a good balance in the acquisition of print and electronic information. Print information is still needed since there are some types of information that can be better understood in print form. Since it is still needed it should not be slaughtered on the altar of electronic information but its needs should be addressed.

The device will prove helpful for the different institutes who have much reader following their library. In future this project can be realised on large scale by using technologies like Wi-Fi, Ethernet, Cloud Technology, etc.

REFERENCES