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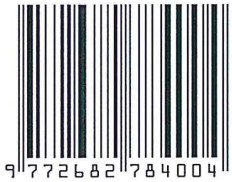

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TOUCH LIB©: HUMANISING A LIBRARY ATTENDANCE SYSTEM IN A POSTGRADUATE ACADEMIC INSTITUTION

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ABSTRACT

Touch Lib© is an innovative library attendance system, which is developed using a VB6 programming language and PHP to gather records and monitor library users at Advanced Medical and Dental Institute (AMDI), Universiti Sains Malaysia, Kepala Batas, Pulau Pinang. AMDI is an advanced academic institute recognised for postgraduate programmes, high impact research and tertiary healthcare services. We propose a unique in-house library attendance system which has been designed to fit AMDI's key functions. This system is advantageous due to its simplicity and cost-effectiveness. Data analysis from the system was transformed into useful knowledge that benefit the library management, delivery of services and future planning of library extension resources for enhanced services. Since its inception in May 2018, the system has empowered AMDI library to escalate its services in line with the vision and mission of the institute and the university. Touch Lib copyright registration number is LY201 8005 416.

1.0 INTRODUCTION

As one of the premium research-intensive universities in the country, Universiti Sains Malaysia (USM) has adopted many innovative approaches to higher education through digital systems. Advanced Medical and Dental Institute (AMDI) was established on 16th October 2002 at Bertam, Kepala Batas, under the governance of USM. AMDI is a postgraduate institute focusing on three key components which are specialised clinical services, transdisciplinary health, medical and dental research activities and unique academic programmes. This institution aims to produce competent, holistic and modern medical as well as dental specialists equipped with state-of-the-art practices, who are also capable to lead new discoveries in clinical and fundamental science for global benefits.

The role of the library has intensified over the years from being a centre for knowledge and information, to becoming the "heart" of an institution. AMDI Library was established to fortify and fulfil the mission and vision of the institute by supporting the students,

administrative staff, researchers and clinical specialists to assist their role and functions. In parallel to the institute's mission and vision, AMDI library is highly focused to become a one stop centre for the didactic, learning and training of the students and staff; either face-to-face or through online processes.

AMDI library attracts a considerable number of visitors daily or when organising training sessions or workshops. The attendance system reflects the activities that are supported by the library, which is an important way to monitor the institution resources and services.

Emerging technologies in attendance systems are a way forward replacing manual or paper-based attendance method. A number of attendance applications or software are available globally to benefit an academic institution. Table 1 presents a comparison of multiple techniques used in attendance management systems from literature search. Various communication methods are available with these approaches such as Bluetooth (Bhalla, Singla, Gahlot, & Gupta, 2013), SMS, email notification or reminders.

However, the most critical step in any automated attendance system is the data gathering process and data processing model to transform the data into meaningful information for the benefit of the organisation or institution. There is a critical need for adopting an advantageous attendance management system to measure the organisation's role and functions in terms of efficacy or productivity.

2.0 PROBLEM STATEMENT

All libraries maintain a record of their users' or visitors' attendance. Records of library attendance was manually documented by AMDI library previously. However, using hard copies has many disadvantages due to loss of data, damaged records, consuming storage areas and lacks rapid analytical tool. Whereas outsourcing a library system will incur a lot of costs (Haider, Samdani, Ali, & Kamran, 2016). Here we propose an in-house web-based attendance system Touch Lib©, which is user friendly because of its simplicity, cost effective, and demonstrate humanising elements that are conducive to our institute's ecosystem. This paper discusses the development and outcome of Touch lib© implementation that have empowered the library as a key support service in a research-intensive academic institute such as AMDI.

3.0 METHOD

3.1 Touch Lib© attendance monitoring system

The cost of developing this system is significantly reduced compared to the proprietary system (Table 2) and it has superior advantages to the conventional (manual) system. In brief, the process starts with a library user touching their identification card to the Library Automation System that is KOHA. It records the date and time that users are admitted in and out of the library. Here the system combines data from the university's human resource system for staff (HRMS) and the student's database (SMUPP) to record the attendance (Figure 1).

The system provides a convenient way to recognise registered users, including their photo and profiles from non-registered users as a requirement before using the library facilities and ser-

vices. The system is also able to record the loan service activity of any library materials as databased in KOHA (Figure 2). Touch Lib© uses an open source database known as "MySQL" which has unlimited record and data storage. The system has an automated link to a user's satisfaction feedback (Google form) sent to all tracked users upon checking out of the library.

3.2 Requirement specifications

Touch Lib© development is based on several requirements:

a) Hardware Requirements:

RAM: 2GB, Hard Disk: 250 GB, Processor: i3 Processor, card scanner, bar code reader, USB wireless (Figure 3).

b) Software Requirements:

Operating system: Windows 7 or Higher, Front Design: Photoshop @ any editor picture for interface, Microsoft Visual Basic 6, Front End- Language: Basic GUI, SQL and PHP for Web Reporting, Back End-Language: BASIC programming language , SQL.

c) Functional Requirements:

A tracking system that logs the number of admitted users in the Library by way of touching the users' ID to a card scanner.

d) Non-Functional Requirements:

i) Performance - The system easily tracks and updates the records.
ii) Availability - The software is available only to authorized users only.
iii) Maintainability - Backup for database are available.
iv) Security - The software is handled by authorised administrators who will assign permission to other users for selected functions e.g. creating new accounts and generating password.
v) Portability – This is a window-based application and built in using VB6 programming, dashboard and reporting uses browser platforms e.g. Chrome, Linux, Mac, etc.
vi) Constraints – The software needs internet connection and access to centralized database, hardware or software run at full function and the system administrator is well versed with the programming used to develop the application.

3.3 User Design Phase

User Design is a continuous interactive process that allows users to understand, modify, and eventually approve a working model of the system that meets their needs. AMDI Library and IT department developed models and prototypes that represent all system processes, inputs, and outputs into working models. Touch Lib's design covers the following aims:

- To analyse the manual operations with the new proposed system.
- To develop an automated system structure
- To develop proposed screen layouts for the most important automated functions
- To select the appropriate construction/functions approach for the system within a schedule by which these steps can be completed.

4.0 HUMANISED ELEMENTS IN THE IMPLEMENTATION OF TOUCH LIB© ATTENDANCE SYSTEM

The existing options in attendance systems using RFID and biometric tools are costly in the current economic situation, whereas Touch Lib© attendance monitoring system uses existing IT hardware and software. It capitalises on existing and available staff and students databases and requires no extra investment. In addition, it demonstrates humanisation of data that is valuable to an institution. Since the system's inception in May 2018, the system has empowered AMDI Library to escalate its services and assisted in extending our plans in library management, service delivery, facilities and equipment and information resources to meet the demands of our users.

4.1 Humanising Library Management

This system effectively provides technical solution in recording, monitoring, positioning of library books/materials, and records library users' attendance, compared to the manual system that impose duplicate of works, effort and time-consuming. The system automates the process of tracking outstanding loan and fines. These records are computed and generated for official documentation directly from Touch Lib© at a few clicks. An integration between Touch Lib© and KOHA library system validate and record a match found in the student (SMUPP) or staff (HRMS) databases which are equipped with a photo ID, which gives way to authenticate the identity of a user.

As an added value to the system, it facilitates library users to give their feedback by clicking the link to IPPT Library Users' Satisfaction Feedback form (Figure 4). An email notification will be sent out to verified users at the end of the process. The frequency of the feedback emails are customised according to a scheduled setting. The library may also use this tool to develop or conduct surveys on library services and activities; which are essential for continuous quality improvement, planning and allocation of resources.

4.2 Humanising Library Service Delivery

An automated system reduces the risk of errors that are common in a manual system and allows the workforce to be more productive and preventing from spending time and effort on tedious manual administrative tasks. Through this system, valuable information is obtained from several analytical options such as number of users by month and year, number of users by month, category and year and top visitor list by month, name and category.

Through this system, the statistic displays the frequency of library attendance or frequency of library visits is recorded and calculated accurately. This verified information is useful when the management is launching any activities for library users at the expense of proxy attendance. Since its inception, AMDI library has presented the "Active Visitor Award" monthly to encourage more users to the library, reviewing overdue library fines and outstanding loans for further actions e.g. penalty, and conducting research training and workshop according to the category of users. These are possible by using the information gathered from Touch Lib©.

4.3 Humanising Library Facilities, Equipment and Security

Touch Lib© is a cost effective in-house system, using existing facilities, web-based and automates many work processes. It is a one-off investment and easily maintained. With Touch Lib©, a librarian can remotely track student's time in the library and creates reliable lists of verified users' location at a time of emergency and able to enhance library security. Data from Touch Lib© assists in numerous ways to improve physical facilities like seating placements, photocopy/fax services, consultation, favourite book lists, etc. It is also a system that encourages staff's and students' routine of having ID cards with them.

5.0 FUTURE DIRECTIONS

Touch Lib© is a versatile system which can be upgraded or use in combination with other hardware such as QR codes scanned by smart phones implemented on mobile application as well as configuration of contactless terminals. With its networked databases, Touch Lib© can be utilised as the basis for mobile attendance management system for classes, meetings, conferences or other events organised by the university. This system is an attractive option for any scenario that could benefit from authentication of identity e.g. logging in to university computers, printing or photocopying services or cashless transactions. As an innovative development in keeping with the 4th industrial revolution (4IR), Touch Lib© is capable as a microcontroller open source electronics platform for implementing the internet of things (IoT).

6.0 CONCLUSION

A computer program that records library attendance was successfully developed and launched at AMDI, a postgraduate research institute at Universiti Sains Malaysia, Pulau Pinang. The system is acceptable based on the test and evaluation of students and staff on its implementation. The automated system has surpassed the conventional purpose and is highly potential to empower the institute by humanising a library system. Schools, colleges and universities which have a similar structure and operation like ours can benefit from this innovative technical solution.

7.0 REFERENCES

Almasalha, F., & Hirzallah, N. (2014). A Students Attendance System Using QR Code. International Journal of Advanced Computer Science and Applications, (5), 75-79.

Benyo, B., Sodor, B., Doktor, T., & Fordos, G. (2012). Student attendance monitoring at the university using NFC. IEEE Xplore, 1-5.

Bhalla, V., Singla, T., Gahlot, A., & Gupta, V. (2013). Bluetooth based attendance management system. International Journal of Innovations in Engineering and Technology (IJIET) Vol, 3(1), 227-233.

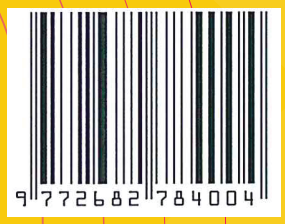
Haider, S. A., Samdani, G., Ali, M., & Kamran, M. (2016). A comparative analysis of in-house and outsourced development in software industry. International Journal of Computer Applications, 141(3), 18-22.

Hasanein, D. R., Nabeel Salih, A., Ali Al, F., Basheer, A.-S., & Haider, A. (2018). Attendance and Information System using RFID and Web-Based Application for Academic Sector. International Journal of Advanced Computer Science and Applications, 9(1).

Kadry, S., & Smaili, M. (2010). Wireless attendance management system based on iris recognition. 5, 1428-1435.

Siswanto, A. R. S., Nugroho, A. S., & Galinium, M. (2014). Implementation of face recognition algorithm for biometrics based time attendance system. 2014 International Conference on ICT For Smart Society (ICISS), 149-154.

Walia, H., & Jain, N. (2016). Fingerprint Based Attendance Systems-A Review. International Research Journal of Engineering and Technology (IRJET), 3(5).



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