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JUDUL : INFINEON DIGITAL LIBRARY – CIRCULATION MODULE

SESI PENGAJIAN : 2011 / 2012

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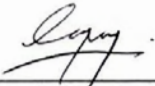
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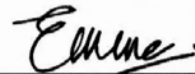
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INFINEON DIGITAL LIBRARY – CIRCULATION MODULE

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This report is submitted in partial fulfilment of the requirements for the  
Bachelor of Computer Science (Software Development)

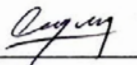
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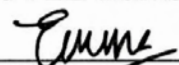
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## DECLARATION

I hereby declare that this project report entitled  
**INFINEON DIGITAL LIBRARY – CIRCULATION MODULE**  
**(IDLC)**

is written by me and is my own effort and that no part has been plagiarized  
without citations.

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## DEDICATION

This thesis is dedicated to my beloved parents. Without your patience, understanding and support, the completion of this thesis would not have been possible. To my supervisor, Puan Emaliana Kasmuri, your recommendations and comments has truly been my source of inspiration in completing this project. To all my friends who always give me support. Besides, a special thank should give to UTeM library and the related library officer or librarian that as a visitor guide and interview participants during the interview session at the library.

## **ACKNOWLEDGEMENTS**

First and foremost, I would like to give my special thank to my helpful supervisor, Pn. Emaliana Kasmuri for giving assistance to me in completing this project. The supervision and support that he gave me truly help the progression and smoothness of the project development.

Last but not least, I would like to thank to my beloved parents, family and friends for giving me support, motivation and confidence to complete this project.

## ABSTRACT

Infineon Digital Library – Circulation (*IDLC*) is a system that tailored to fit the requirements and specifications of the Infineon Library. Infineon Technologies is a semiconductor manufacturing factory that situated at Batu Berendam Melaka, Malaysia. Infineon wants to develop a digital library portals to provides the basic solutions for their daily operation in maintaining the operation of the library and is aim to replace the current system database that using Microsoft Excel. Although Infineon aim to develop a system digital library but still they want to maintain the conventional routine such as return of library materials need to be present in the library.

This report consists of several chapters by describing the project development processes. In chapter I, a brief introduce of background, objective and scope of this project. Chapter II will emphasis more on the facts of findings obtain from literature review or online researches, and discuss about the methodology applied in this project. As continuously, chapter III is about the requirement analysis of the project while chapter IV represent the design phase of the projects that consists of architectural design, database design, and user interfaces design. Chapter V describes the implementation phase such as software configuration management, version control procedure and implementation status. While in Chapter VI, the ways of conducting the testing is review. Lastly, Chapter VII will conclude the entire project development process and experiences.

## ABSTRAK

Infineon Digital Library – Circulation (*IDLC*) merupakan projek yang dibina mengikuti kehendak-kehendak khas daripada Infineon Technology. Infineon adalah satu korporasi yang berasaskan pengeluaran produk-produk semi konduktor di Batu Berendam Melaka, Malaysia. Infineon ingin untuk membangunkan satu portal perpustakaan digital supaya memberikan penyelesaian yang lebih menonjol dalam menyelesaikan masalah-masalah mereka dalam operasi perniagaan seharianya. Ini kerana sistem kini yang dipakai menggunakan Microsoft Excel untuk menyimpan rekodnya akan merumit dan menyusahkan proses-prosesnya. Walaupun Infineon berazam mengaplikasikan sistem perpustakaan digital, malah ia masih kekalkan fungsi-fungsi operasi perpustakaan tradisional.

Laporan ini terdapat beberapa bab yang akan menerangkan proses pembangunan projek. Dalam Bab I, penerangan ringkas akan dibuat tentang latar belakang, objektif dan skop projek. Bab II akan menekankan fakta-fakta yang perolehi daripada pencariannya. Seterusnya, bab III adalah tentang analisis terhadap kehendak dan syarat- syarat dalam pembangunan projek. Bab IV pula merupakan seni rekaan kepada reka-bentuk struktur, reka-bentuk pangkalan data, reka bentuk muka interaksi pengguna. Bab V menerangkan aplikasi tentang konfigurasi perisian, penjagaan versi-versi perisian dan pembals status pembangunan. Bab VI menerangkan cara-cara menjalani pengujian. Akhirnya, Bab VII akan menyimpulkan pembangunan keseluruhan projek serta pengalaman yang diperolehi daripadanya .

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# CHAPTER I

## INTRODUCTION

### 1.1 Project Background

*Library* – is a place of information access, containing tons of knowledge that will bring us benefits. There gather a lot of people's great works and experiences that was kept in a form of paper based materials. Even nowadays, our worlds are modernized towards digital liked, but paper-based information materials are still major at most libraries around the globe.

*Library*, as a host of these information materials required lots of supporting resources such as man power, cost and wide spaces to operate it. In contrast, the presence of **Digital Library (DL)** is claimed as a solution for this menace. **DL** exists as huge virtual spaces that kept all the information materials in a form of digital data in a digital database. **DL** provides an easy and convenient way in accessing information and yet reducing the expenditures in providing those supporting resources as mentioned earlier. Meanwhile, it also increases the efficiency and quality when accessing information in digital formed.

By having so much of advantages that brings from **DL**, hence, this drove the **Infineon Technologies** to own themselves a **DL** system for manage their mini libraries. But, besides of having a **DL** system, their still need a system to manage the circulate operation. This is to manage the normal operation in library, such as loan of book, return of book, new book request and etc. Therefore, the **Infineon Digital Library – Circulation (IDLIC)** is introduced as a solution for them.

## 1.2 PROBLEM STATEMENT

### 1. Not well managed in the process of loan or return the information materials.

The basic process of loan and return of information materials are recorded manually in paper-based. Hence, the record tend to be easily recorded wrongly or damaged, even worst is losing it. Therefore, there are frequent lost track of the information materials that as property of the *Infineon Technology*.

### 2. Inefficiency in manage the request of new information material.

There is no proper process for managing the new information material's requests. Hence, losing track of those request are frequently occurred. Besides, there are lacked of two ways communication for the responsible person to feedback those request from the staffs and leave those request remain un-process for a long period or even never get into the processing queue.

### 3. No access of back track information that which information materials been loaned previously by that particular staff.

After the staff had returned the loaned information materials, if they wish to re-loan the material, this is a hard process for them to remember all the materials that have been loaned before, unless they have strong memorize ability. Besides, it is also a difficult task for the librarian to compute the loaning statistic for within a period time as they need to go through the records manually.



### 1.3 OBJECTIVE

- 1. Develop a system with simple interface that help to manage and record the process of loan and return of information materials efficiently.**

Provide a simple interface in the system to handle the task of loaning and returning of the information materials, which must be ease of use and lessen the step of processes in order to complete the task.

Besides, it also provides an easy way for the librarian to keep track of the records and show the status of information materials.

(e.g: Book A is in the state of *Loaned/Returned*.)

- 2. Create a medium of interaction between librarian and staff that request for new information materials to discuss and keep track of the progress.**

Provide a medium where both librarian and staff who request for new information materials can place their comments and feedbacks, in order to have a clearly state of discussion.

Build an interface where person of request can track the progress and get notification while there are new updates.

- 3. Develop a system that able to trace the loaned history of that particular staff and provide useful data for the librarian as well.**

Develop a system that able to record all the previous access of information materials of that particular staff and show the history records to themselves and librarian as well.

Enable the librarian to make use of the history records for further computation and then produce a report.

## 1.4 Scope

### 1. User

Person that will interact with the *IDLC* includes:

a. **Staff**

Employees of Infineon Technology and have the rights to access *IDLC*.

b. **Librarian**

Employees of Infineon Technology who had assigned to manage and operate the library using *IDLC*.

c. **Administrator**

Employees of Infineon Technology who have authority to control the *IDLC's* users account.

### 2. Module / Function

Digital Library contains several modules below in order to operate:

a. Login

- Authenticate users with different authority against *IDLC*, such as Staff, Librarian and Administrator.

b. Record/Logging Library Material

- Manage the record of loan, return and reservation transaction of information materials and show status of information material's state.
- Loaner and material validity will be examined before loan to be performed.
- Overdue of material's loaning period will be check while loaner returning the materials.
- List of Loan Item and Reservation Item will be display in order for librarian to trace the status of library material.

- c. Send Email Notification
  - Sending messages to loaner as a reminder of Overdue and Reached Turn Reserved Item.
  - Sending messages of staff's password after they retrieved.
  - Notify staff about the updates in the request/acquire of new information material.
  
- d. Request/Acquire Library Material
  - Receiving request from staff of new kind of information materials that are still unavailable in the library.
  - Librarian can place feedbacks and staff who requesting can comments for more information.
  - Staff who requesting can track the progress of the requested information material.
  
- e. Library User Account
  - Manage all users within the *IDLC* by having the feature consists of *Search User, Viewing User, Update User, Remove User* and *Register User*.
  
- f. User Profile Record
  - Manage user personal details by able to view and edit. Besides, able to change password as well.
  - Keeping staff's favourite library material in a list and able to access it anytime.
  - Keeping staff's material request in list and able to post comments.
  - Record the reserved items of the staff.
  - Record the loaning history of the staff.
  - Storing history of staff access toward a typical information material and able to view the history records.

g. Content Organizer

- Manage all content of announcements which will show in the homepage.
- Able to create New Announcement, Edit Announcement and Remove Announcement.

## 1.5 Project Significance

*IDLC* is a solution system that aid to improve the efficiency and quality management in the library of *Infineon Technology*. Below listed few benefits from *IDLC*:

**I. Reduce workload and tendencies of mistakes of the librarian.**

By having *IDLC*, a lot of works are simplified and automated. Hence, workload of librarians is greatly reduced.

*Example I* – Only scanning the *RFID (Radio Frequency Identification)* on the information material to perform returning process while loaning process only need extra of *staff ID*.

*Example II* - Librarian only check for new request of information material when get notify by *IDLC*.

**II. Improve the quality of services and management of the library.**

With the existence of *IDLC*, lots of work been automated and greatly reduced the supportive resources, such as time, cost and man power. This brings improvement in servicing time and efficiency in managing the library.

**III. Have a clear view of library's properties state.**

There is a feature provided by *IDLC* that can trace the library information material's status whether it is in loaned or returned state. Hence, this simplified the search to identify the state of information material and show the overall picture.

#### **IV. Get to know user interest among various library information materials.**

*IDLC* have a feature that can generate reports by gather information that recorded from every staff, probably the history record of information material been access before. Hence, librarian can obtain useful data from the report and analyse the interest of staff toward which kind of information materials.

### **1.6 Conclusion**

In this chapter, the focus is given to project background, problems that faced by the *Infineon Technology's* library, the objectives, scopes and also the significance benefits of having *IDLC*.

As for the next chapter, the stress is given to literature review and also project methodology. Literature review will provides more details information to support the project background and show some differences after having *IDLC*. For project methodology, it will describe the method used while developing the *IDLC*. Besides, shows the requirements of software, hardware and network needed in development state. Furthermore, project schedule and milestone will be included.

## CHAPTER II

### LITERATURE REVIEW AND PROJECT METHODOLOGY

#### 2.1 Introduction

This chapter will discuss on literature review conducted and methodology used to develop the *IDLC*.

"A literature review uses as its database reports of primary or original scholarship, and does not report new primary scholarship itself. The primary reports used in the literature may be verbal, but in the vast majority of cases reports are written documents. The types of scholarship may be empirical, theoretical, critical/analytic, or methodological in nature. Second a literature review seeks to describe, summarize, evaluate, clarify and/or integrate the content of primary reports (Cooper, H. M, 1988)." Most often in science-oriented literature, such as a thesis, literature review precedes a research proposal, methodology and results section. The main purpose in writing the literature review is to convey the reader about the related field of knowledge and ideas that have been established on a topic, and stating their strength, weakness and gaps that exist. Besides, literature review also include with the contrasting view of particular authors, or raising questions about the related topic.

According to Fraenkel and Wallen (2009), “a literature review helps researchers learn what others have written about a topic. It also lets researchers see what have been the results of other related studies.” This chapter will discuss on the areas covered by IDLC which are online digital library that focus on the circulation of conventional library’s routine, such as the loan and return of library materials. It has described the domain that related to this project and some related field of studies found from some journals, websites or reference books. Thus, by gone through literature review, it has provides a better understanding as a guidance for success in IDLC.

A project methodology is a set of disciplines defined from the System Development Life Cycle (SDLC). SDLC is essential in the software project development period as guidance for better planning, organizing, managing, leading and controlling of resources to achieve targeted goals.

Project methodology is chosen to suite the project development. In software perspective, several methodologies were existed such as Object Oriented Analysis and Design (OOAD), and Structural System Analysis and Design Methodology (SSADM). Each of these impacts the project with different software development model deal with the system developments life cycle.

In this chapter, description will made on the methodology used in develop *IDLC*. With the aid of suitable methodology, the project development will be held in a systematic ways and ensures the success of *IDLC* development.

## 2.2 Facts and Finding

### 2.2.1 Domain

Malaysia first digital library the Siti Hasmah Digital Library was launched by the Multimedia University (MMU) Chancellor Datin Seri Dr Siti Hasmah Mohd on July 24, in year 2000. The digital library carries many significant advanced features, incorporating the latest computer and Information Technology (IT) applied to a library.

"In the age of computers and the Internet, a new concept has arrived in the form of the digital or virtual library causing the disappearance of physical books and journals," she said in her opening speech (BERNAMA, 2000).

The Harvard University has funded a 5-year project to build a first generation production infrastructure to support digital library collections. Key project activities include education and consulting on core digital library issues (metadata, technical formats, reformatting, legal issues, preservation, interfaces and access), defining an overall technical framework, and the development of a core set of systems to support digital collections (catalogs and access tools, repositories, user interfaces, access management, and naming). A significant portion of the funding has been allocated to grants to University units for contents projects, intended to inform and test the developing infrastructure (D-Lib Magazine, 2000).