**3.0 System Planning – Feasibility Study**

**3.1 Tangible Costs**

**3.1.1 Hardware**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Category | Item | Price per unit (RM)(Est.) | Quantity | Value (RM) |
| Hardware | Windows Server 2019 | 25,889.80 | 3 | 77,669.40 |
|  | Canon imageClass MF269dw (Printer) | 1,903.50 | 10 | 19,035.00 |
|  | TP-LINK Archer VR400 AC1200 (Modem) | 250.40 | 5 | 1,252.00 |
|  | D-Link Dub H7 7-Port HUB (Hub) | 104.30 | 10 | 1,043.00 |
|  | Desktop Computer | 3,372.30 | 115 | 387,814.50 |
|  | Sunlux XL-3200 2D Barcode Scanner (Barcode Scanner) | 269.50 | 5 | 1,347.50 |
|  | Epson Perfection™ V39 Scanner (Scanner) | 1,749.00 | 5 | 8,745.00 |
|  | PANASONIC KX-TS880 (Telephone) | 229.50 | 15 | 3,442.50 |
| Total | | | | 500,348.90 |

Hardware Explanation

|  |  |  |
| --- | --- | --- |
| Item | Details | Price |
| Windows Server 2019 | Servers provide a secure method of storing data, manage multiple network services such as email, Internet connectivity, file sharing, printer sharing for the company. | RM25,889.80 |
| Canon imageClass MF269dw (Printer) | Printers helps employees to produce paper required items such as reports, financial statements, etc. | RM1,903.50 |
| TP-LINK Archer VR400 AC1200 (Modem) | A modem enables computers, to transfer data over the internet. | RM250.40 |
| D-Link Dub H7 7-Port HUB (Hub) | A hubs connect the local computers to each other and to a variety of peripheral devices such as printers so it is easier for users to access data in the area of library. | RM104.30 |
| Desktop Computer | Desktop computer allows library user to use the software of the computer and surf the internet to do their work. The price included peripheral of the computer. | RM3,372.30 |
| Sunlux XL-3200 2D Barcode Scanner (Barcode Scanner) | Barcode scanner allows librarian to scan the codes of the books to store data of the books such as books borrowed, books returned, books addition. | RM269.50 |
| Epson Perfection™ V39 Scanner (Scanner) | The scanner allows library user to scan the document or books into the computer and change it to digital form. | RM1,749.00 |
| PANASONIC KX-TS880 (Telephone) | Telephone allows librarian to communicate with each other, other departments, offices. | RM229.50 |

**3.1.2** **Software**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Category | Item | Price(RM)(Est.) | Quantity | Value(RM) |
| Software | Microsoft Windows 10 | 500.95 | 115 | 57,609.25 |
|  | Avast Antivirus | 221.45 | 115 | 25,466.75 per year |
|  | MS Office | 416.40 | 115 | 47,886.00 per year |
|  | Windows Server 2019 | 4,057.13 | 3 | 12,171.39 per year |
|  | Lend-Items (Lend Books Software) | 1,983.84 | 5 | 9,919.20 per year |
| Total |  |  |  | 153,052.59 |

Software Explanation

|  |  |  |
| --- | --- | --- |
| Item | Details | Price |
| Microsoft Windows 10 | Microsoft Windows 10 is a operating system that is required for desktop computers to run. It is a one-time fee, so it does not require to pay extra fees after that. | RM500.95 per software |
| Avast Antivirus | Avast antivirus is required for the desktop computers to protect against virus that will harm the computer. It required subscription fees every year. | RM221.45 per year |
| MS Office | Microsoft Office includes Microsoft Word, Microsoft PowerPoint, Microsoft Excel, etc. that help the user to do work or assignment. It required subscription fees every year. | RM416.40 per year |
| Windows Server | Windows server is a operating system that is required for servers to run. It required subscription fees every year. | RM4,057.13 per year |
| Lend-Items (Lend Books Software) | Lend-Books Software is a software that allows the library to create catalog and keep track of all the lendings and reservations of books. | RM1,983.84 per year |

**3.1.3 Installation cost**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Category | Item | Price(RM)(Est.) | Quantity | Value(RM) |
| Installation cost | Electrical wiring | 33,967.20 | 1 | 33,967.20 |
|  | Cabling | 32.50 | 50 | 1,625.00 |
|  | Software Installation wages | 7,526.00 | 1 | 7,526.00 |
|  | Hardware Installation wages | 7,644.20 | 1 | 7,644.20 |
| Total |  |  |  | 50,762.40 |

Installation cost Explanation

|  |  |  |
| --- | --- | --- |
| Item | Details | Price |
| Electrical wiring | Electrical wiring is required to install the new system to connect electricity. | RM33,967.20 total for wires |
| Cabling | Cabling is required to connect the internet around the library for the new system. | RM32.50 per ethernet cable |
| Software Installation wages | Wages for workers who installs all the software | RM7,526 total |
| Hardware Installation wages | Wages for workers who installs all the hardware | RM7,644.20 total |

**3.1.4 Operating cost**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Category | Item | Price per month(RM)(Est.) | Quantity | Price per year(RM) |
| Operating cost | Maintenance of system | 416.67 | 1 | 5,000.00 |
|  | Internet connectivity service | 600.00 | 1 | 3,600.00 |
|  | Telephone services | 310.00 | 1 | 3,720.00 |
| Total |  |  |  | 12,320.00 |

Operating cost Explanation

|  |  |  |
| --- | --- | --- |
| Item | Details | Price |
| Maintenance of system | The library needs to maintain and fix the system such as computers, printers, etc. | Average RM416.67 per month \* 12 = RM5,000 per year |
| Internet connectivity service | The library needs internet connectivity service which is TM Internet to allows the library’s devices and systems to connect to the internet. | RM600 per month \* 12 == RM3,600 per year |
| Telephone services | Telephone services which is Maxix phoneline is required for the telephone in the library to work | RM310 per month \* 12 == RM3,720 per year |

**3.1.5 Development cost**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Category | Item | Price(RM)(Est.) | Quantity | Value(RM) |
| Development cost | Fact-gathering | 1,560.00 | 1 | 1,560.00 |
|  | Software Development | 14,607.60 | 1 | 14,607.60 |
|  | Website Development | 9,000.00 | 1 | 9,000.00 |
| Total |  |  |  | 25,167.60 |

Development cost Explanation

|  |  |  |
| --- | --- | --- |
| Item | Details | Price |
| Fact-gathering | It is the process used to gather facts of the library to improve the library’s system overall quality. | 1,560.00 |
| Software Development | To research and develop the system of the library. | 14,607.60 |
| Website Development | To develop website that enables the user to use | 9,000.00 |

**3.1.6 Personnel cost**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Category | Item | Price per month(RM)(Est.) | Quantity | Price per year(RM) |
| Personnel cost | Staff Salaries | 3,500.00 | 50 | 2,100,000.00 |
|  | Staff Training | 19,200.00 | 30 | 576,000.00 |
|  | Overtime | 500.00 | 20 | 120,000.00 |
| Total |  |  |  | 2,796,000.00 |

Personnel Explanation

|  |  |  |
| --- | --- | --- |
| Item | Details | Price |
| Salaries of technicians | Salaries for technicians that install the new Library Management System. | Average RM1,500 per technician |
| Training of employees | Training of employees is necessary for employees to work efficiently as their position. The complete training provided by professional required fees which is around RM19,200 per employee. | Average RM19,200 per employee |

**Total**

|  |  |
| --- | --- |
| Category | Value (RM) |
| Hardware | 500,348.90 |
| Software | 153,052.59 |
| Installation cost | 50,762.40 |
| Operating cost | 12,320.00 |
| Development cost | 25,167.60 |
| Personnel cost | 2,796,000.00 |
| Total | 3,537,655.09 |

**3.2 Tangible Benefit Summary**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Benefits | Unit Cost (RM) | Units | Cost (RM) per Month | Cost (RM) per Year |
| Eliminate Overtime | 1,200.00 | 100 | 120,000.00 | 1,440,000.00 |
| Eliminate Additional Position | 4,000.00 | 60 | 240,000.00 | 2,880,000.00 |
| Eliminate Daily Error | - | - | 60,000 | 720,000.00 |
| Total |  |  |  | 5,040,000.00 |

|  |  |
| --- | --- |
| Tangible Benefit | Description |
| Eliminate Overtime | The use of new LMS (Library Management System) can do more so that the staff can finish their job in time and prevent overtime. |
| Eliminate Additional Position | Additional positions such as the counter staff, book recorder, statistician, and some other staff are no longer needed due to the automation of the system. |
| Eliminate Daily Error | Daily errors such as typing errors, miscalculation, book arranged wrongly, registration form validation may cause the library to have more loss. |

**3.3 Cost Benefit Summary**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | YEAR 0 (RM) | YEAR 1 (RM) | YEAR 2 (RM) | YEAR 3  (RM) | YEAR 4 (RM) |
| **Costs:** |  |  |  |  |  |
| Hardware | 500,348.90 | 0 | 0 | 0 | 0 |
| Software | 153,052.59 | 95,443.34 | 95,443.34 | 95,443.34 | 95,443.34 |
| Installation cost | 50,762.40 | 0 | 0 | 0 | 0 |
| Operating cost | 12,320.00 | 12,320.00 | 12,320.00 | 12,320.00 | 12,320.00 |
| Development cost | 25,167.60 | 0 | 0 | 0 | 0 |
| Personnel cost | 2,796,000.00 | 2,796,000.00 | 2,796,000.00 | 2,796,000.00 | 2,796,000.00 |
| Total Costs | 3,537,651.49 | 2,903,763.34 | 2,903,763.34 | 2,903,763.34 | 2,903,763.34 |
| **Benefits:** |  |  |  |  |  |
| Eliminate Overtime | 1,440,000.00 | 1,440,000.00 | 1,440,000.00 | 1,440,000.00 | 1,440,000.00 |
| Eliminate Additional Position | 2,880,000.00 | 2,880,000.00 | 2,880,000.00 | 2,880,000.00 | 2,880,000.00 |
| Eliminate Daily Error | 720,000.00 | 720,000.00 | 720,000.00 | 720,000.00 | 720,000.00 |
| Total Benefits | 5,040,000.00 | 5,040,000.00 | 5,040,000.00 | 5,040,000.00 | 5,040,000.00 |

**3.4 Intangible Benefits**

**Greater Reliability and Security**

-Barcode System use in Library Management System it can protect all the library’s assets. For example, some library member lost the library’s book they cannot shirk responsibility this is because librarian can check it, by scanning the barcode on their library card. Not only that, we barcode system also can avoid fraudulent library card. When scanning the barcode on library card we can know the user information like user photo, user name, borrow history and sold on.

**Improve Library Image**

-Barcode system will be faster than our old manual system (chop system), hence this will help us improve our library image as well as assuring the quality services provided to our readers and attract more readers come to our library.

**Improve Librarian Morale**

-When using barcode system, it can speed up the librarian to get the job done such as arrange the book in library and make the report or speed up the borrowing system it will not let the library administrator continue to face the same and repeated work and feel bored. It can improve the productivity of librarian indirect also allows librarians to feel their work efficiency and rise up the librarian morale.