**CHAPTER III**

**TECHNICAL BACKGROUND**

         This chapter discusses the Software and Hardware requirements this project has utilized for its development. The explanation for using each requirement is discussed in this chapter.

**System Requirements**

Certain hardware and software components are necessary for the system to function.

**Hardware Requirements**

**Table 1. Hardware Requirements**

|  |
| --- |
| **Particular Recommended Specification** |
| **Processor** GHz (2.0 GHz)  **Memory** 2**.**00 GB RAM or Higher  **Hard Disk** 500 GB to 1 TB  **Internet Connection** 10 mbps or higher  **Peripherals** Monitor, Mouse  Keyboard, AVR/UPS |

The above table reflects the list of hardware components that were considered for the development of the proposed system's user interface. The Processor, Memory, Hard Disk, Internet, and Peripherals were used for the process of developing the system itself. The computer utilized has a recommended processor of Intel Core i3 or higher for a smooth and efficient way of developing the system. The computer’s memory was 2.00 GB or higher because the system requires a lot of storage for the system. The hard disk served as a backup and storage for the software programs that were used. And the peripherals such as the keyboard and mouse were for easy navigation of the programs and for the process of coding them.

**Definition of Terms for Hardware Requirements**

**Processor.** A processor is an integrated electronic circuit that performs the calculations that run a computer. A processor performs arithmetical, logical, input/output (I/O), and other basic instructions that are passed from an operating system (OS). Most other processes are dependent on the operations of a processor. The Graphics Processing Unit (GPU) is another processor, and even some hard drives are technically capable of performing some processing [29].

**Memory**. A memory is just like a human brain. It is used to store data and instructions. Computer memory is the storage space in the computer, where data is to be processed and instructions required for processing are stored. The memory is divided into many small parts called cells. Each location or cell has a unique address, which varies from zero to memory size minus one [30].

**Hard Disk**. A hard disk drive (HDD) is a non-volatile computer storage device containing magnetic disks or platters rotating at high speeds. It is a secondary storage device used to store data permanently, random access memory (RAM) being the primary memory device. Non-volatile means data is retained when the computer is turned off [31].

**Internet Connection**. Internet access is the process of connecting to the internet using personal computers, laptops, or mobile devices by users or enterprises. Internet access is subject to data signaling rates and users could be connected at different internet speeds. Internet access enables individuals or organizations to avail of internet services/web-based services [32].

**Peripherals. Peripheral device,** also known as a **peripheral, computer peripheral, input-output device,** or**input/output device,** is any of various devices (including sensors) used to enter information and instructions into a [computer](https://www.britannica.com/technology/computer) for storage or processing and to deliver the processed data to a human operator or, in some cases, a [machine](https://www.britannica.com/technology/machine) controlled by the computer. Such devices make up the [peripheral](https://www.merriam-webster.com/dictionary/peripheral) equipment of modern [digital computer](https://www.britannica.com/technology/digital-computer) systems [33].

**Table 2. Software Requirements**

|  |
| --- |
| **Particular Recommended Specification** |
| **Operating System** Windows 10  **Browser** Microsoft Edge  **Front-end Tool** HTML, CSS, JS, Bootstrap  **Back-end Tool** PHP, MySQL  **Web-Hosting Tool** Git Hub  **Framework** Laravel  **Text Editor** Atom |

Table 2 shows the list of requirements of the software that the proponents used during the development of the project*–*the minimum and the recommended requirements to run the website. It also includes the software that was used to develop the website such as the front-end tool used to design the interface, the back-end tool that gave functionalities into the interface; the web host that helped to back up the system and for the system to be searchable on the web when it was deployed; the text editor that was used to code the whole website; and the framework that helped lessen the work of the developer.

**Definition of Terms for Software Requirements**

**Operating System**. An **Operating System (OS)**is software that acts as an interface between computer hardware components and the user. Every computer system must have at least one operating system to run other programs. Applications like Browsers, MS Office, Notepad Games, etc., need some environment to run and perform their tasks [34].

**Browser**. **Browser** is [software](https://www.britannica.com/technology/software) that allows a [computer](https://www.britannica.com/technology/computer) user to find and view information on the [Internet](https://www.britannica.com/technology/Internet). Web browsers interpret the [HTML](https://www.britannica.com/technology/HTML) tags in downloaded documents and format the displayed data according to a set of standard style rules [35].

**Front-end Tool**. Front-end developers are responsible for a website’s user-facing code and the architecture of its immersive [user experiences](https://www.udacity.com/course/ux-designer-nanodegree--nd578). To execute those objectives, front-end developers must be adept at three main languages: [HTML](https://www.udacity.com/course/intro-to-html-and-css--ud001), [CSS](https://www.udacity.com/course/intro-to-html-and-css--ud001), and JavaScript programming. In addition to fluency in these languages, front-end developers need to be familiar with frameworks like Bootstrap, Foundation, Backbone, AngularJS, [ReactJs](https://www.udacity.com/course/react-nanodegree--nd019), and EmberJS, which ensure great-looking content no matter the device, and libraries like jQuery and LESS, which package code into a more useful, time-saving form [36].

**Back-end Tool**. To make the server, application, and database communicate with each other, back-end developers use server-side languages like PHP, Ruby, [Python](https://www.udacity.com/course/intermediate-python-nanodegree--nd303), [Java](https://www.udacity.com/course/java-programming-nanodegree--nd079), and .Net to build an application, and tools like MySQL, Oracle, and SQL Server to find, save, or change data and serve it back to the user in front-end code [37].

**Web-Hosting Tool**. Web hosting is a service that allows organizations and individuals to post a website or web page onto the Internet. A web host, or web hosting service provider, is a business that provides the technologies and services needed for the website or webpage to be viewed on the Internet. Websites are hosted or stored, on special computers called servers. When Internet users want to view your website, all they need to do is type your website address or domain into their browser. Their computer will then connect to your server and your webpages will be delivered to them through the browser [38].

**Framework**. Web development or web application frameworks refer to a set of resources and tools available to software and web developers. These frameworks give web developers the ability to build and manage web applications, web services, and websites. t is a software framework that was developed to simplify the web development process and make it easier to build a [website](http://evolvedesign.ie/q-and-a/design-development/what-are-the-common-pitfalls-of-website-design-and-how-can-you-avoid-them/). It includes templating capabilities that allow you to present information within a browser, provides an environment for scripting how information flows, and also contains many application programming interfaces (APIs) for gaining access to underlying [data resources](http://evolvedesign.ie/q-and-a/business-strategy/what-is-the-advantage-of-big-data-analytics/) [39].

**Text Editor**. A text editor is any word processing program that you can use to type and edit text. Larger programs such as Microsoft Word and Word Perfect are also text editors, but they have many more features. You can write HTML code and create HTML pages with a simple text editor if you know the correct HTML syntax [40].