Chapter 4 – Implementation

4.1 – Chapter Introduction

In comparison to the previously described analysis and design of the system, implementation was the phase in which U-Star Digital carried out developing and real-world testing of the Web-Based Computer Hardware Purchasing and Troubleshooting Assistant Management System. In order to maintain the system's quality and security, best practices were followed during implementation and development.

4.2 – Implementation Environment

There are two primary implementation environments for a system when it comes to implementation. There are two types of implementation environments: software and hardware. To keep implementation and maintenance costs low, it was mostly done with free and open source software and tools. The tools and procedures utilized in this phase are listed below.

4.2.1 – Software Environment

The work is done on a computer that runs the Microsoft Windows operating system. As a result, a software environment that is compatible with Windows was established. The XAMPP server was utilized because it comes with Apache, MySQL, and PHP on Windows. Visual Studio Code IDE has been used as the primary design tool for development. Visual Studio Code is an open-source integrated development environment (IDE) for programming languages such as Java, PHP, C++, and others. Bootstrap 5 is the most recent version of the most popular HTML, CSS, and JavaScript framework for creating responsive, mobile-first websites.

Although PHP is the primary development language, it is supported by several other languages.

- HTML – to create the web pages' content
- Javascript – for content validation and filtering
- CSS – to make the web pages styles

- JQuery – Code libraries that can be reused
- Ajax – to make changes to the content without having to reload the page
- diagrams.net – to sketch a design diagram
- GanttPRO – to create a project timeline
- Microsoft Word – to compose a documents

4.2.2 – Hardware Environment

This system was created using a computer with the features shown in Figure 4.1.

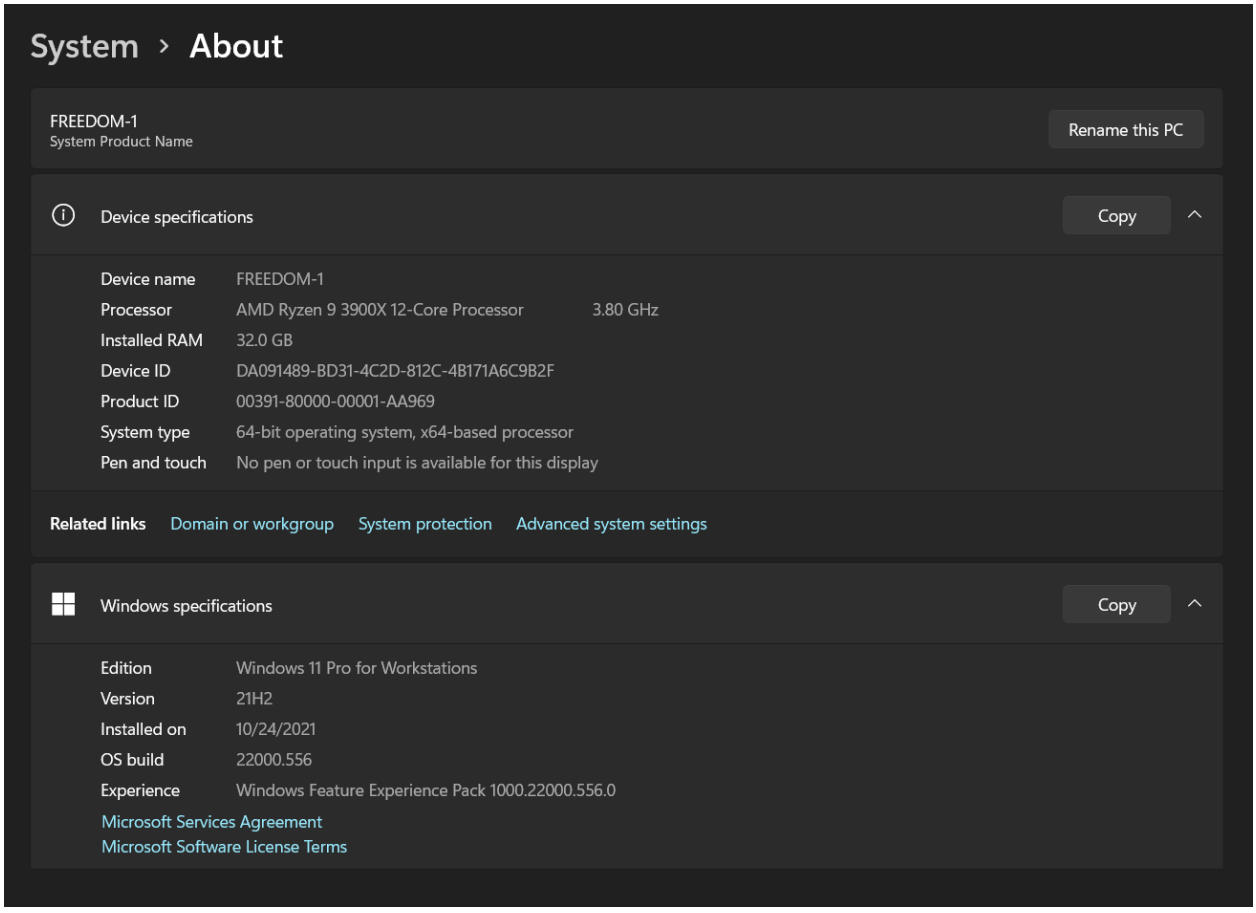

Figure 4. 1 - Hardware Environment

4.2.3 – Other Softwares and Development Tools

Was used authoring tools such as Adobe Photoshop CC for designing graphics and web browsers such as Firefox, Google Chrome, and Internet Explorer for testing the system, in addition to software development tools.

4.3 – Justification for the choice of the implementation platform

Web Server

The project's dedicated server, XAMPP Server, was utilized to manage the application using phpMyAdmin. The web server was handled by Apache, which is another part of its solution stack.

Database Server

The software's database server was MySQL, which is also part of the XAMPP solution stack. MySQL is a relational database management system that is free and open-source.

PHP

PHP, a server-side scripting language developed primarily for web development but also used as a general-purpose programming language, was used to construct the system.PHP is a popular, efficient, and free server programming language that may be used to create dynamic and interactive Web pages.

HTML

HTML, which is the standard markup language for building web pages and web applications, was utilized as the system's basic web language.

CSS

The system was styled with CSS. CSS is a language for describing how an HTML document should appear.

Bootstrap 5

Bootstrap is the most widely used HTML, CSS, and JS framework for creating responsive, mobile-first websites.

JavaScript

JavaScript is a high-level, interpreted programming language that is utilized in the construction of the system for code validation and filtering.

JQuery

When employing reusable components, jQuery is a quick, compact, and feature-rich JavaScript library that was used to construct the system.

Microsoft Word

Microsoft Word, a simple text editor produced by Microsoft, was utilized.

Adobe Photoshop CC

Adobe Photoshop CC is a significant update that includes a new Object Selection Tool, improved Warp Transformation, updated Preset Library, and a slew of new keyboard shortcuts and timesavers.

System File Structure

Figure 4.2 depicts the file structure of the produced system.

Add the image of system file system

4.4 – High Level Module Structure

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4.5 – Major Code Segments

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4.6 – Reused Existing Codes

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When implementing the system, several of the well-tested re-usable components were added in order to maximize efficiency and provide more interest to the system.