

**CAPSTONE PROJECT REPORT**

**Report 1 – Project Introduction**

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# **I . Record of Changes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **\*A, M, D** | **In charge** | **Change Description** |
| 4/5/2024 | A | Duyencdhe161047 | Initial Project |
| 4/5/2024 | A | Duyencdhe161047 | Add information in Overview |
| 4/5/2024 | A | Dongdvhe141083 | Add information in Product Background |
| 4/5/2024 | A | Duyencdhe161047 | Add information in Existing systems |
| 4/5/2024 | A | Dongdvhe141083 | Add information in Business opportunity |
| 4/5/2024 | A | Dongdvhe141083 | Add information in Software product vision |
| 4/5/2024 | A | Duyencdhe161047 | Add information in Project scope |

\*A - Added M - Modified D - Deleted

# **II. Project Introduction**

## **1. Overview**

### **1.1 Project Information**

* Project name: Smart PC Builder Assistant
* Project code: SPCBA
* Group name: SWP490-G60
* Software type: .NET web application

### **1.2 Project Team**

|  |  |  |  |
| --- | --- | --- | --- |
| **Full Name** | **Role** | **Email** | **Mobile** |
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## 

## **2. Product Background**

In today's digital age, building a personal computer (PC) is not only a hobby for tech enthusiasts but also an essential need for many users who want to customize their systems to meet specific requirements. However, this process requires extensive knowledge of hardware and software, as well as the ability to evaluate and select compatible and efficient components.

The Smart PC Builder Assistant was created to address these challenges. This product is designed to support users throughout the entire PC building process, from selecting suitable components and checking compatibility to providing assembly and software installation guidance.

Key Benefits of the Smart PC Builder Assistant:

1. Time-Saving: Helps users quickly find the most suitable components for their needs and budget without spending a lot of time on research.
2. Ensures Compatibility: Provides detailed information on the compatibility of components, minimizing the risk of encountering unexpected issues after assembly.
3. Detailed Guidance: Offers step-by-step instructions for hardware assembly and software installation, making it easy for users, including beginners, to complete the PC building process.
4. Performance Optimization: Suggests the best components and configurations based on specific usage needs, such as gaming, graphics, or office work.

The Smart PC Builder Assistant is a powerful tool not only for beginners but also for experienced users who want to optimize their systems. With the support of this product, building the perfect PC has never been easier and more efficient.

## **3. Existing Systems**

The Smart PC Builder Assistant is designed to streamline the process of assembling custom personal computers (PCs) by providing users with intelligent guidance and support. This innovative system assists users in selecting compatible components, optimizing configurations, and providing step-by-step instructions for assembly and software setup. By leveraging advanced algorithms and extensive hardware knowledge, the Smart PC Builder Assistant ensures that users can build high-performance PCs tailored to their specific needs and preferences. Additionally, the system incorporates user-friendly interfaces and dynamic visualizations to facilitate easy navigation and understanding of complex technical information. With the Smart PC Builder Assistant, users can confidently create their ideal PC configurations with efficiency and precision.. Below is a list of some comparable products available on the market:

### 

## **3.1.** CyberPowerPC

**Page:**[CyberPowerPC](https://www.cyberpowerpc.com/)A computer monitor and monitor

Description automatically generated

***Figure 1:***CyberPowerPC

#### **3.1.1 : Description :**

CyberPowerPC is one of the best websites for custom PC builds. The website also offers financial options through Affirm.

#### **3.1.2 . Feature :**

- Custom PC Options: Allows users to customize components and configurations of computers according to their preferences.

- Pre-Built Configuration Options: Provides pre-built computers with popular or unique configurations.

- Payment Options: Includes various flexible payment methods.

- Quick Search Feature: Enables users to easily search for products based on specific criteria.

#### **3.1.3 . Pros**:

- Customization Options: Users can customize computer configurations according to their preferences, meeting individual needs.

- Diverse Configurations: Provides a variety of pre-built computer configurations with many diverse options.

- Warranty Policies: Provides detailed and transparent information about warranty and maintenance policies.

#### **3.1.4. Cons**:

- Lack of Interactivity: May lack interactivity or prompt responses from the provider when customer support is needed.

- Lack of Visual Information: Occasionally lacks detailed information or images about products on the website.

- Limited Customization: May be limited in customizing computer configurations compared to some competing websites.

### 

### **3.2. IbuyPower**

**Page** : [ibuypower](https://www.ibuypower.com/)

A group of computer cases with a red background

Description automatically generated

***Figure 2:*** *IbuyPower*

#### **3.2.1. Description :**

iBuyPower is one of the best custom PC building tools aimed at seasoned gamers. Established in 1999, the company offers a plethora of options for components, which may be overwhelming for newcomers to PC building. However, it can be a paradise for those who have researched or have experience in PC building.

#### **3.2.2. Feature :**

* Custom PC Options: Allows users to customize components and configurations of computers according to their preferences.
* Pre-Built Configuration Options: Provides pre-built computers with popular or unique configurations.
* Warranty Policies: Provides detailed information about warranty and maintenance policies for products.
* Product Information: Displays detailed information and images about each product for users to reference before making a purchase.

#### **3.2.4.Pros :**

- Warranty Policies: Offers transparent and detailed warranty policies, ensuring customer satisfaction and peace of mind

- Custom PC Options: Allows users to customize components and configurations of computers according to their preferences.

* Pre-Built Configuration Options: Provides pre-built computers with popular or unique configurations.
* Warranty Policies: Provides detailed information about warranty and maintenance policies for products.
* Product Information: Displays detailed information and images about each product for users to reference before making a purchase.

#### **3.2.4. Cons :**

- Complexity for Beginners: The wide range of customization options may be overwhelming for beginners or those with limited PC-building knowledge.

- Possibility of Higher Costs: Customization options may lead to higher costs compared to pre-built options.

- Customer Service Response Time: Some users may experience longer response times or delays in customer service support.

## **4. Business opportunity**

**Strength:** Our Smart PC Builder Assistant presents a unique opportunity in the market. Compared to similar products, our solution offers a lower cost while integrating advanced AI features. These features enable the handling of large volumes of data, providing unparalleled convenience and ease of use for users.

**Weakness**: Despite the innovative nature of our product, a solid advertising strategy is essential for its success. In a competitive market with varying demand, effectively promoting our solution will be crucial to gaining traction and market share.

**Market Insight**: The demand for custom-built PCs is steadily increasing, driven by factors such as the rise of gaming, remote work, and content creation. In Vietnam alone, there is a growing trend of individuals and businesses seeking tailored PC solutions. With the right marketing approach, our Smart PC Builder Assistant can tap into this market and establish itself as a leading solution provider.

In addition to catering to the custom PC market, there are opportunities to expand our offerings. This could include developing additional product packages or services to meet the diverse needs of customers. For example, we could offer consultancy services for event organizing, provide workshop management tools, or even explore partnerships with hardware manufacturers to offer exclusive deals and bundles. By diversifying our offerings, we can maximize our revenue streams and solidify our position in the market.

## **5. Software Product Vision**

Our vision for the Smart PC Builder Assistant is to revolutionize the process of building custom PCs by providing users with an intuitive, efficient, and personalized experience. Our goal is to empower both novice and experienced PC enthusiasts to create their dream machines effortlessly while ensuring optimal performance, reliability, and value for their investment.

Key Elements of Our Vision:

**Simplicity and Ease of Use**: We envision a user-friendly interface that guides users through the PC building process step-by-step, eliminating complexity and technical jargon. Our assistant will intelligently recommend compatible components based on user preferences and budget, streamlining the decision-making process.

**Comprehensive Compatibility and Optimization**: Our vision includes a robust backend system that continuously updates and maintains a comprehensive database of hardware components, ensuring compatibility and optimal performance. The assistant will analyze and optimize component selections to achieve the best balance of performance, reliability, and cost-effectiveness.

**Personalization and Customization**: We aim to offer a highly personalized experience, allowing users to tailor their PC configurations to their specific needs and preferences. From gaming rigs to workstation setups, our assistant will cater to a wide range of use cases, providing tailored recommendations and optimizations.

**Integration of Advanced Technologies**: Our vision includes the integration of advanced technologies such as artificial intelligence and machine learning to enhance the assistant's capabilities. By analyzing user behavior, feedback, and trends, we will continuously improve the assistant's recommendations and optimizations, ensuring relevance and effectiveness.

**Community and Collaboration**: We envision a vibrant community where users can share their builds, experiences, and insights. Our platform will facilitate collaboration and knowledge-sharing among enthusiasts, fostering a supportive and engaged community.

**Continuous Improvement and Innovation**: Our vision is to iterate and innovate continuously, staying at the forefront of PC building technology. We will listen to user feedback, monitor industry trends, and adapt our assistant to meet evolving needs and expectations.

Overall, our vision for the Smart PC Builder Assistant is to empower users to unleash their creativity, build their dream PCs with confidence, and join a thriving community of PC enthusiasts. We aspire to redefine the PC building experience, making it accessible, enjoyable, and rewarding for everyone.

## **Project Scope & Limitations**

### **Scope of Project :**

- **Hardware Availability**: The assistant's recommendations may be limited by the availability of certain hardware components in the market.

- **Third-Party Compatibility**: While efforts will be made to ensure compatibility with a wide range of components, the assistant may not be able to account for every third-party accessory or peripheral.

**Personalization**: The assistant will provide personalized recommendations based on user preferences, such as gaming, content creation, or professional use.

**Interactive Interface**: A user-friendly interface will guide users through the configuration process step-by-step, providing explanations and suggestions along the way.

**Integration of AI Technologies**: Advanced AI algorithms will be integrated to enhance the assistant's capabilities in component selection, optimization, and future-proofing.

### **Limitations of Project**

|  |  |
| --- | --- |
| **No** | **Description** |
| LI-01 | The assistant may not be able to account for every third-party accessory or peripheral. |
| LI-02 | Extremely complex PC configurations involving custom water-cooling loops, exotic cooling solutions, or niche components may fall outside the scope of the assistant's capabilities. |
| LI-03 | Prices of hardware components may fluctuate over time, impacting the accuracy of budget recommendations provided by the assistant. |
| LI-04 | Availability and pricing of hardware components may vary by region, potentially affecting the accuracy of recommendations for users in certain geographic locations. |
| LI-05 | While efforts will be made to update the assistant's database regularly, it may not always reflect the latest hardware releases or compatibility updates. |