SYSTEM ANALYSIS AND DESIGN

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BSIT 3D – SADVENGERS

RESEARCH TITLE

Blockchain-Enabled Research Repository and Smart Asset Management System for the Research and Extension Department

CHAPTER 1: THE PROBLEM AND IT'S BACKGROUND

INTRODUCTION

The Blockchain-Enabled Research Repository and Smart Asset Management System seeks to modernize and strengthen the existing research archiving process at Pateros Technological College. By addressing long-standing issues of inefficiency, disorganization, and data vulnerability, the system will serve as a foundation for a secure, organized, and technology-driven academic environment. This project underscores the institution’s commitment to embracing innovative technologies that promote academic excellence, operational efficiency, and sustainability in the digital age.

BACKGROUND OF THE STUDY

PROBLEM

- The traditional method of managing the materials through printed copies poses several challenges such as disorganization, data loss, and limited accessibility.

SOLUTION

- Introduces a secure and decentralized digital platform for managing academic outputs at Pateros Technological College.
- Utilizing blockchain technology ensures data transparency, immutability, and protection against unauthorized modification.
- Quick access of panelists in the details such as the academic year, proponents, adviser, category, abstract, and softcopy of the research.

GENERAL OBJECTIVES

The general objective of this project is to develop a Blockchain-Enabled Research Repository and Smart Asset Management System for the Research and Extension Department. This system aims to provide a decentralized, secure, and accessible platform for storing, managing, and retrieving data related to capstone projects.

SPECIFIC OBJECTIVES

The specific objectives of the study are the following:

A. To design and develop a web-based information system that provides secure storage and easy retrieval of capstone project records.

B. To create a decentralized repository that allows administrators to upload and access students capstone projects conveniently.

C. To provide administrators with an organized system for uploading, monitoring, updating, deleting and archiving capstone projects.

SPECIFIC OBJECTIVES

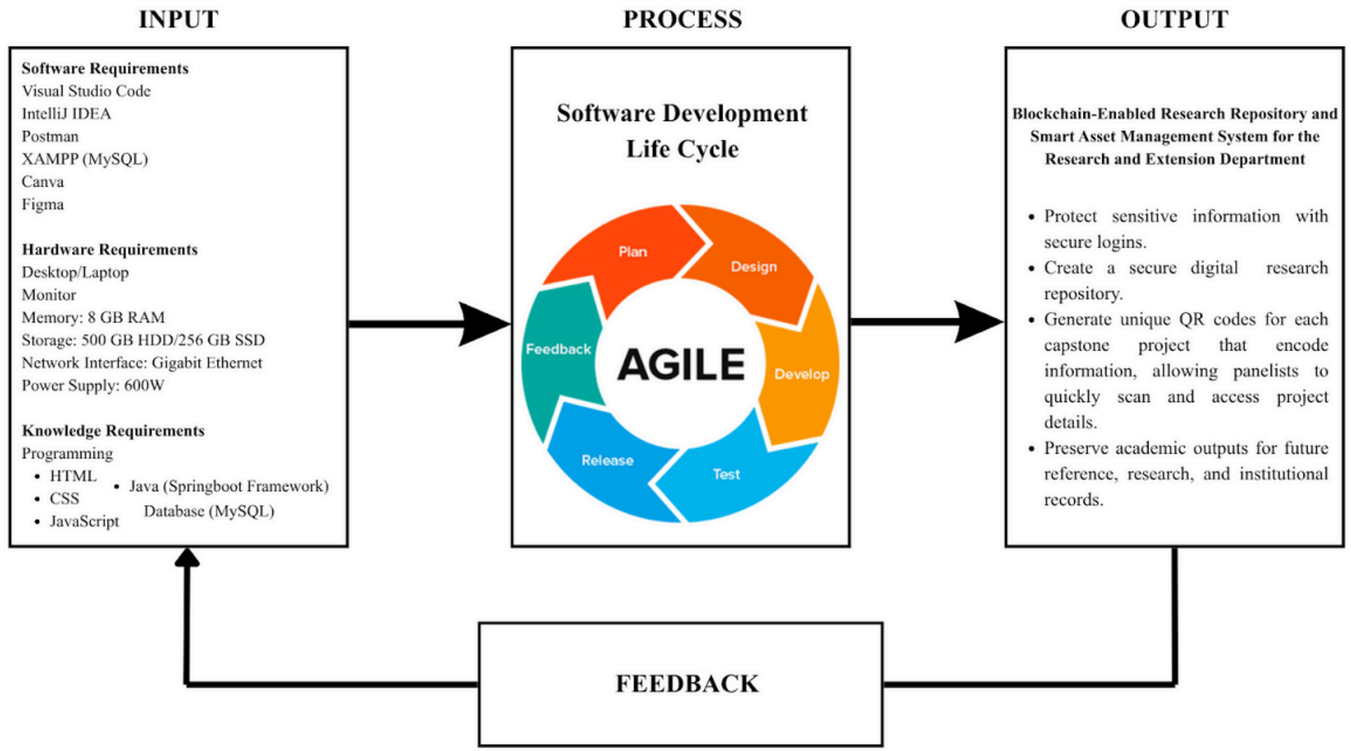
D. To design a search bar that enables quick and accurate access to specific capstone projects based on title, and category of capstone projects.

E. To integrate a QR code feature that allows panelists to easily access and reference specific capstone projects through scanned codes.

F. To ensure data accuracy and consistency by minimizing redundancy and errors in storing and managing capstone project information.

CONCEPTUAL FRAMEWORK

This study is guided by the Input–Process–Output (IPO) model, which illustrates how blockchain technology can enhance the management, security, and accessibility of research outputs within the Research and Extension Department.



SIGNIFICANCE OF THE STUDY

The study is essential for the following stakeholders:

- PTC Administrators
- PTC Students
- PTC Panelists
- Future Researchers

SCOPE OF THE STUDY

- Focuses on developing a web-based system for managing and storing capstone projects of the IICT Department.
- Integrates a QR Code feature for easy access to project details during defense.
- Includes admin functions to upload, edit, and delete project information.
- Ensures data security through role-based access control for admins and users.
- Provides account management with login credentials.
- Adds a “Forgot Password” feature for account recovery.

LIMITATION OF THE STUDY

- Limited to the IICT Department and capstone-related projects only.
- Only authorized panelists can view proposals; full control is given to administrators.
- Covers basic storage and management functions only.
- Testing is limited to Pateros Technological College.
- Requires internet connection; not accessible offline.

CHAPTER 2: REVIEW OF THE RELATED LITERATURE

INTRODUCTION

This chapter reviews local and foreign studies on the Blockchain-Enabled Research Repository and Smart Asset Management System, focusing on blockchain integration, data security, transparency, and decentralized storage to ensure efficient and secure management of research assets.

REVIEW OF RELATED LITERATURE AND STUDIES

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SYNTHESIS

The synthesis reveals that integrating blockchain with research repositories and asset management systems promotes secure, transparent, and efficient handling of institutional data. It addresses common issues such as data tampering, record loss, and inefficient tracking. The collective findings provide a strong foundation for the proposed Blockchain-Enabled Research Repository and Smart Asset Management System, which aims to ensure trustworthy data management, enhance operational transparency, and support long-term institutional sustainability.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

METHODOLOGY

This study utilized a qualitative research approach to examine the design and implementation of a Blockchain-Enabled Research Repository and Smart Asset Management System for the Research and Extension Department. The research analyzed current practices in research data management and asset tracking, identifying limitations in security, accessibility, and operational efficiency.

RESEARCH DESIGN

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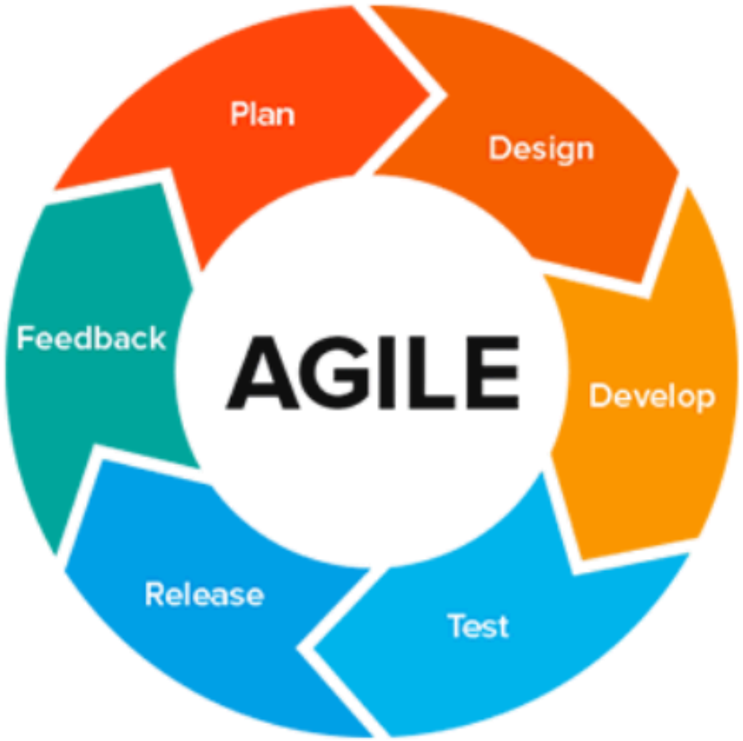
SOFTWARE PROCESS

Software Development Life Cycle



DOCUMENTATION

THANK YOU!