PROJECT SYNOPSIS

Project Title: Web-Based Resolution Optimization Tool for PC-Projector Display Systems

1. Introduction

Projection systems are widely used in classrooms, conferences, offices, and digital learning environments. However, many users experience blurred, stretched, or cropped projected images due to incorrect display resolution, DPI scaling, and aspect-ratio mismatches between PCs and projectors.

2. Problem Statement

Most users lack the technical skills to configure optimal display settings when projecting content from a PC to a projector. Issues include blur, cropping, and scaling errors.

3. Objectives of the Project

Main Objective:

To design and develop a web-based tool that detects display parameters and recommends optimal resolution and scaling settings for PC-projector systems.

Specific Objectives:

- Detect screen resolution and pixel density.

- Identify external displays.

- Generate calibration grids.

- Recommend optimal settings.

4. Scope of the Project

Focuses on PC-to-projector optimization including resolution detection, scaling analysis, and calibration. Excludes wireless casting and projector hardware repair.

5. Significance of the Project

Improves clarity, reduces setup time, and enhances user experience. Useful for universities, offices, and training centers.

6. Methodology

Uses Object-Oriented Methodology with UML diagrams. Technologies include HTML5, CSS3, JavaScript, Screen API, and Canvas API.

7. System Requirements

Software: Windows/Linux, VS Code, modern browser.

Hardware: PC/Laptop, projector, HDMI/VGA cable.

8. Literature Review

Research highlights the importance of automatic calibration to fix projection issues. Existing OS tools are limited.

9. Expected Output

A functional web application with detection, calibration grid generator, and recommendation engine.

10. Conclusion

The system will simplify projection setup, improve display quality, and reduce technical interruptions.