Software Requirements Specifications

KLEMP Virtual Campus

Version 1.0

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KLEMP

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Introduction

Purpose

This document details the software requirements specification for the KLEMP Virtual Campus v1.0 open source project. It will later be used as a base for the extension of the existing software itself. This document follows the IEEE standard for software requirements specification documents.

Many Virtual Campuses on the Internet can be confusing and have too much information that is not useful to the user.

The purpose of this project is to provide an easy way to explore the academic buildings of Clarkson University and to get directions within it, using a simple graphical interface.

Document Conventions

KLEMP Virtual Campus was created prior to this document, so all requirements stated here are already satisfied. It is very important to update this document with every future requirement and clarify its priority for consistency purposes, so that this document can remain useful.

Intended Audience and Reading Suggestions

This Software Requirements Document is intended for:

- Developers who can review a project's capabilities and more easily understand where their efforts should be targeted to improve or add more features to it (design and code the site - it sets the guidelines for future development).
- Project Testers can use this document as a base for their testing strategy as some bugs are easier to find using a requirements document. This way, testing becomes more methodically organized.
- End users of this website who wish to read about what the project can do.

Project Scope

KLEMP Virtual Campus is a website that displays the entirety of Clarkson’s Academic Campus. It shows each floor of each academic building as well as directions from building to building, along with the capability to upload a schedule and shows where the classrooms are. In addition, there are 360 degree videos of commonly walked paths on campus. Each building has important information shown when hovering over it in the

main view of the campus, more information can be seen when clicked on, such as the services available in the building/floor/room.

References

Using Clarkson's online drive, we hosted the master folder holding all of our files in the project, including the HTML for the site, the report documents, and the 360 tour videos.

https://webspace.clarkson.edu/projects/KLEMP/public_html/Klemp_Website-main/homepage.html

Overall Description

Product Perspective

KLEMP Virtual Campus is an interactive map that is free and open source. The source code can be conveniently found on GitHub.

Product Features

The basic version provides:

- Viewing Clarkson University's Hill Campus along with building specific resources and information
- Searching for a room within a building
- Uploading semester schedule and viewing where classes are
- 360 degree videos of commonly walked paths and buildings on campus
- Building to building directions for academic buildings

Operating Environment

KLEMP Virtual Campus Operates on a web browser. It has been tested on multiple laptops and PCs. It can run on mobile, but is optimized for a computer.

Hardware requirements:

- Disk space needed 36.1 MB

Design and Implementation Constraints

When making the Virtual Campus, it was recommended that we use a database. Rather than that, we made everything hosted online locally. This made implementation much simpler and prevents any personal information such as a user's class schedule from being stored and possibly leaked.

User Documentation

Weekly reports were written during the development of KLEMP Virtual Campus which include what was worked on each week. These reports can be read on the KLEMP website under "Weekly Reports".

System Features

System Feature 1 - Main View

The Main View allows the user to see all the academic buildings of Clarkson University from an overhead view of the hill campus. It is a “home ”area that links all other features of the program. It has buttons to upload a user’s class schedule, a search bar feature for finding a building or room, and a link to the 360 tours. The Main View page also has a feature that shows information for each building when hovering over the desired building, even nonacademic.

System Feature 2 - Search

This feature allows the user to search for a room in any academic building, to which a point will be created, taking the user where the desired building and floor that the room is located. When searching, the user should only put the first two letters of the building in capital letters, with a room number.

Eg. SC160 for Science Center room 160, ST100 for Student Center room 100

System Feature 3 - 360 Campus Tours

This feature allows the user to view videos of the most commonly walked routes of the campus. Taken on a 360 degree camera, the user can look around campus as if they were walking it themselves, or pause it and admire the buildings, each video labeled accordingly.

System Feature 4 - Uploading Schedule

This feature allows the user to upload a class schedule from Clarkson. Once uploaded, the KLEMP Virtual Campus will add location points to each of the classes, showing the user where each class will take place. The KLEMP Virtual Campus does this by parsing the csv file and matching it with the locally stored locations of each room and building.

External Interface Requirements

User Interfaces - GUI

For our interface, we designed the Virtual Campus to be simple and effective. Using as few colors as possible, we created the main view to be the first thing visible to the user. From there, we have simple buttons to navigate buildings, floors along with a search feature that is easy to access.

Software Interfaces

KLEMP Virtual Campus is self-contained, using JavaScript to parse CSVs in a schedule and display the desired location through the coordinates of the floor plans. When reading a CSV file, they are locally stored into an array.

External library - `https://cdn.jsdelivr.net/npm/papaparse@5.3.0`

Communications Interfaces

Our Virtual Campus is hosted on the web, a database is unnecessary in getting the program to function. Because of this, KLEMP Virtual Campus is safer to use, as personal information will not be stored in a database.

Other Nonfunctional Requirements

Safety Requirements

No safety requirements are necessary, as the KLEMP Virtual Campus does not collect any personal information and is locally hosted.

Security Requirements

No safety requirements are necessary, as the KLEMP Virtual Campus does not collect any personal information and is locally hosted.

Software Quality Attributes

This application provides a pleasant and user-friendly interface with simple functions. Any user should be able to use KLEMP Virtual Campus without any specific knowledge or experience by reading the user manuals. Users only need to provide a course schedule or classroom name if they want to use the search and upload schedule feature.

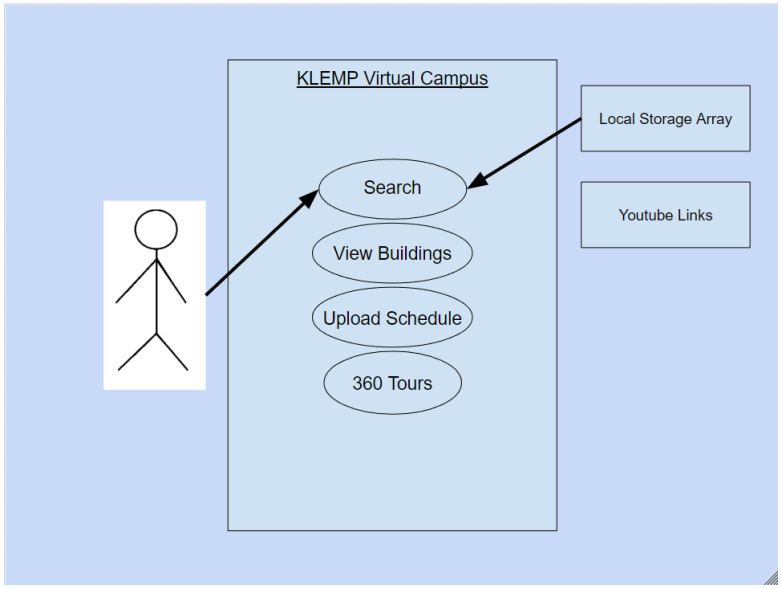
Other Requirements

In order for the KLEMP Virtual Campus to successfully run, the user must have a stable connection to the internet, since it is hosted entirely online.

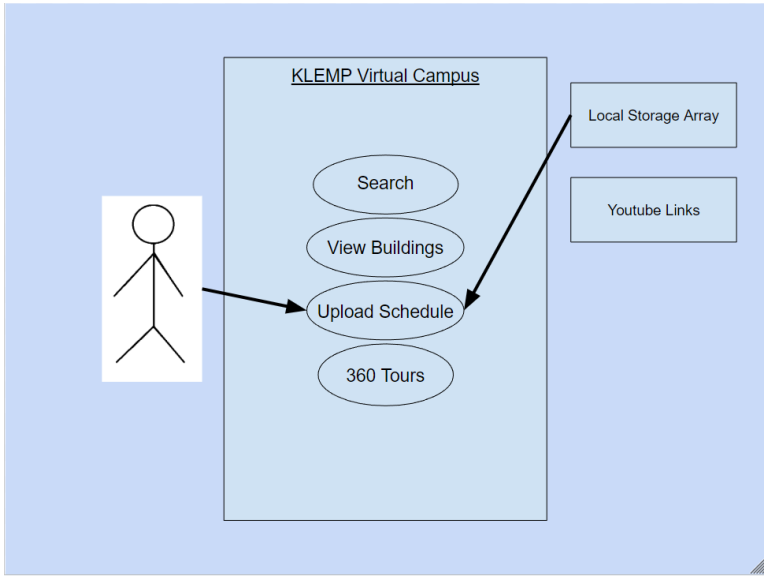
Appendix

Analyses Models - Use Case Diagrams

Use Case 1 - Searching For a Room



Use Case 2 - Uploading Schedule



Use Case 3 - 360 Tour