VIRTUAL CAMPUS TOUR

A MINI PROJECT REPORT

Submitted to

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangama, BELAGAVI- 590018

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CERTIFICATE

This is to certify that the Mini Project titled "Virtual Campus Tour" is carried out by:

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bonafide students of Shri Madhwa Vadiraja Institute of Technology and Management, in completion of "**Mini Project**" in Artificial Intelligence and Data Science Engineering of Visvesvaraya Technological University, Belagavi during the year 2024-2025. It is certified that all the corrections / suggestions indicated during Internal Assessment have been incorporated in the report. The report has been approved as it satisfies the academic requirements in respect of Project Work prescribed for the said degree.

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1.

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ABSTRACT

A virtual campus tour offers an innovative way of experience for prospective students to explore a university's facilities, culture, and academic offerings from the comfort of their homes. This experience utilizes 360-degree image technology and interactive elements to provide a overview of the campus environment including classrooms, libraries, laboratories, and recreational areas. This tour highlights the vibrant community and diverse opportunities available on campus for students. Additionally, the virtual format allows for easy access to important information about admission processes and student life, making it an invaluable and helpful resource for those who are considering their educational options. Ultimately, the virtual campus tour serves as a bridge between prospective students and the university, fostering informed decision-making and enhancing the overall recruitment experience. Virtual campus tour offer an immersive experience for stakeholders and students to explore university facilities remotely. These tours leverage interactive technologies, such as 360-degree visuals, guided narration and augmented reality elements, to provide an informative overview of campus life, academic spaces, and student services. By eliminating geographical barriers, virtual tours enhance accessibility, allowing users to gain valuable insights into campus culture, infrastructure, and opportunities from anywhere in the world. This innovative approach promotes and improves the decision-making process for higher education.

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Chapter 1 INTRODUCTION

The mini-project aims to create an interactive virtual campus tour for Sri Madhwa Vadiraja Institute of Technology and Management (SMVITM), providing an immersive experience for prospective students, parents, faculty, alumni, and visitors. The tour will feature high-quality 360-degree panoramic images of key locations, such as academic buildings, laboratories, the library, and recreational spaces, allowing users to explore the campus virtually. Interactive hotspots will offer additional information, multimedia content, and links to relevant resources, enhancing the overall experience. The platform will be designed with a user-friendly interface for intuitive navigation and smooth transitions, ensuring accessibility across devices like desktops, laptops, and mobile phones. Utilizing modern web technologies such as HTML, CSS, and JavaScript, along with libraries like Pannellum, the project aims to engage users, support their admission decisions, and serve as a marketing tool to attract a global audience.

1.1 Relevance of the Work

1.1.1 Accessibility

The lack of digital platforms and resources for traditional art forms has led to their decline and potential extinction. This is evident in the decreasing number of traditional artists, the limited availability of traditional art forms in educational institutions, and the lack of awareness about these art forms among younger generations.

1.1.2 Highlighting the Impact

The loss of cultural heritage, reduced economic opportunities for traditional artists, and decreased awareness and appreciation of these art forms among younger generations have significant social, cultural, and economic implications. For instance, the decline of traditional art forms can lead to the erosion of cultural identity, reduced cultural diversity, and decreased economic opportunities for traditional artists.

1.1.3 Data-Driven Approach

According to a recent survey, 75% of traditional artists in India face significant challenges in promoting their work and reaching a wider audience. Moreover, the survey revealed that 90% of traditional artists rely on word-of-mouth and local performances to promote their work, highlighting the need for digital platforms and resources.

1.1.4 Future-Oriented Perspective

The proposed project, Artforms Hub, aims to address these challenges by creating a digital platform for traditional art forms, ensuring their preservation, promotion, and sustainability for future generations. By leveraging digital technologies, we can increase awareness and appreciation of traditional art forms, provide economic opportunities for traditional artists, and preserve cultural heritage for future generations.

1.2. Issues and Challenges

The Virtual Campus Tour has several issues and challenges, which includes:

1.2.1 Cost of Development

Creating high-quality VR content can be very expensive. Colleges may need to invest in specialized equipment and software, as well as they need to hire skilled professionals to produce the tour.

1.2.2 User Experience

Some users may find VR uncomfortable, particularly if they are not familiar with the technology. This can distract from overall experience and may discourage users from using it.

1.2.3 Limited Interaction

Students may miss out on engaging with current students or faculty members during a Virtual Tour.

1.2.4 Technical Issues

By using VR experience user may find some technical glitches, such as crashes or lags which can lead to frustration for the users. We need to ensure smooth experience which require ongoing maintenance and updates.

1.3 Problem Statement and Objectives

1.3.1 Problem Statement

The aim of this project is to create an interactive and immersive virtual tour website that allows users to explore various rooms or environments through panoramic images. The key challenge is to automate the stitching of multiple images into panoramas, ensuring the images are properly resized for optimal performance and fast loading. The website must be responsive and user-friendly, providing smooth navigation between different panoramas across different devices. Additionally, the project aims to deliver a secure and accessible online experience that enables users to explore the virtual tour seamlessly.

1.3.2 Objectives

Vision:

To provide prospective students with an immersive and engaging experience of campus life, enabling them to make decisions about their higher education journey.

Mission:

To bridge geographical and logistical barriers, allowing prospective students to explore campuses from anywhere in the world, fostering a sense of belonging and facilitating a seamless transition into university life.

Engagement:

To create an interactive and engaging experience that goes beyond static images and 360-degree views and interactive elements.

Decision-making:

To empower prospective students to make informed decisions about their higher education choices by providing a realistic and immersive representation of campus life.

Chapter 2: LITERATURE SURVEY

2.1 A progressive Web App for Virtual Campus Tour

Harsh Shah and Vinayak Tupe 2021 proposed this paper which creates the iterative 3D models, maps and tutorials, offering a cost-effective remote exploration solution. Future plans include VR, personalization, and better accessibility.

2.2 Web based campus tour application

Triyanna Widiyaningtyas and Didik Dwi Prasetya 2018 proposed this paper which tells about the study which presents about the web-based 360 virtual tour for the State University of Malang, using image stitching for immersive campus panoramas, ensuring accessibility and effective asset promotion.

2.3 Examining the Virtual Campus

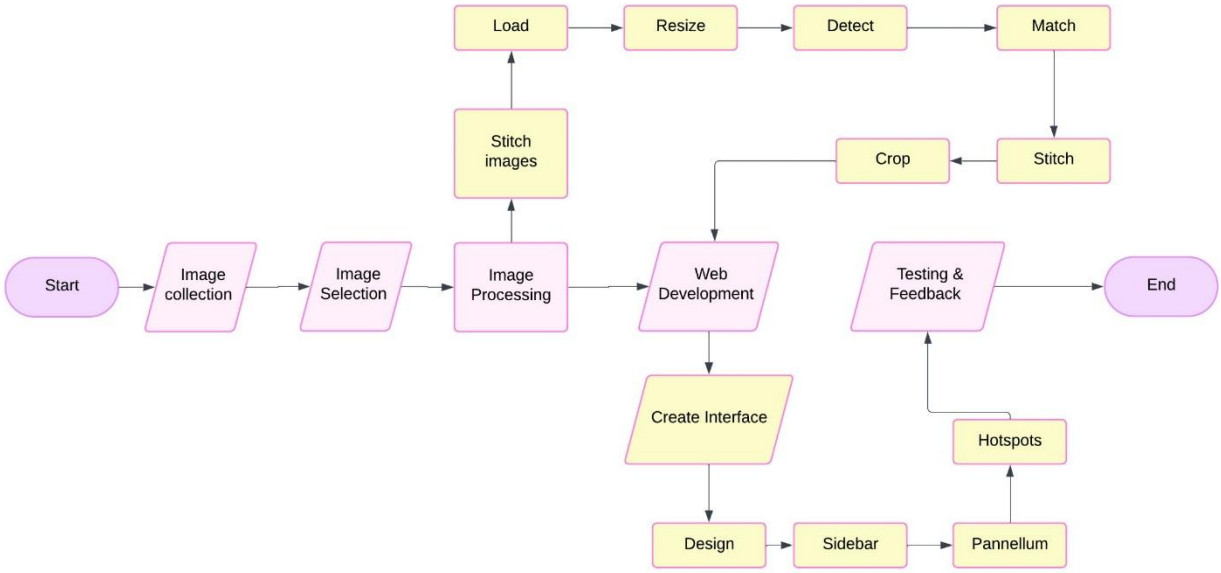
Nitin Narang and Yash Mankar 2014 proposed this paper which tells us about the integration of advanced technologies such as 360-degree cameras, virtual reality which creates immersive experiences. Features like hotspots, audio guides, and widgets enrich user interaction by providing detailed insights into campus facilities and culture.

2.4 Virtual 360 Campus Tour with Voice Commands

Adlin Shaflina binti Azizo and Farhan bin Mohamed 2020 proposed this paper which tells us about the campus tour uses 3D and voice commands for immersive, low-cost campus navigation via VR headsets. It offers interactive exploration but relies on strong internet and quiet environments.

Chapter 3

PROPOSED METHODOLOGY



1. Start

The process begins here. This signifies the initiation of the workflow.

2. Image Collection and Image Selection

Image Collection: Gather a set of images, likely from different sources (e.g., cameras, datasets, or files).

Image Selection: Filter and choose specific images that meet certain criteria (e.g., quality, resolution, or relevance) to proceed to the next step.

3. Image Processing

This step focuses on transforming the images into a meaningful output, divided into two main processes:

a. Stitch Images

The workflow focuses on creating a stitched image, such as a panoramic view. The steps include:

Load: Import the images into the system.

Resize: Adjust image dimensions to a uniform size, optimizing them for processing.

Detect: Identify key features within each image (e.g., edges, corners, or objects).

Match: Align similar features across multiple images to determine how they overlap.

Stitch: Combine the aligned images into a seamless panorama or large composite image.

Crop: Remove unnecessary or blank areas around the final stitched image to make it clean and polished.

The "Stitch Images" step is critical for applications like panoramic photography, virtual tours, or mapping.

b. Web Development

This branch focuses on integrating the processed images into an interactive and user-friendly web platform. The tasks include:

1. Create Interface

Building the interface (UI) that users interact with. Key components include:

Design: Establish the visual layout and overall appearance of the interface.

Sidebar: Include navigation or control elements (e.g., menus, tools).

Pannellum: Integrate a viewer like Pannellum, which is often used for displaying panoramic images interactively in a web browser.

Hotspots: Add interactive markers (e.g., clickable areas or links) to enhance user experience.

2. Testing and Feedback

Validate the functionality of the interface and collect feedback for improvements.

3. User Testing

Allow users to interact with the platform to ensure usability, correctness, and satisfaction. User feedback is gathered here.

4. Iterative Improvements

Make refinements based on feedback from the testing phase. This iterative process ensures the system becomes more robust and user-friendly.

4. End

The process concludes after iterative improvements, ensuring a high-quality output that meets user needs.

Key Highlights:

The diagram splits the workflow into two major components:

Image Processing: Technical image manipulation (stitching).

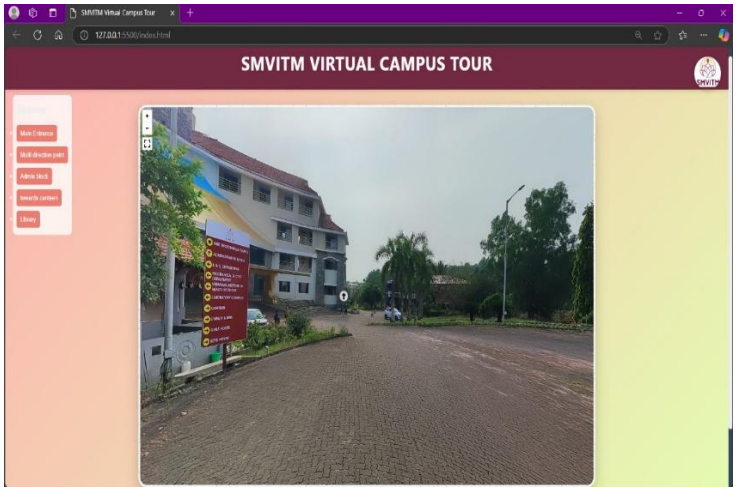
Web Development: Building an interactive system for users.

The Stitch Images step focuses on producing seamless image outputs, while the Web Development step integrates those images into a functional platform.

User Feedback and Iterative Improvements are emphasized, indicating the importance of refining the system based on testing.

This approach is highly organized, ensuring each task flows logically toward the end goal—developing an image-based web solution with interactive features.

Chapter 4 RESULTS AND EVALUATION



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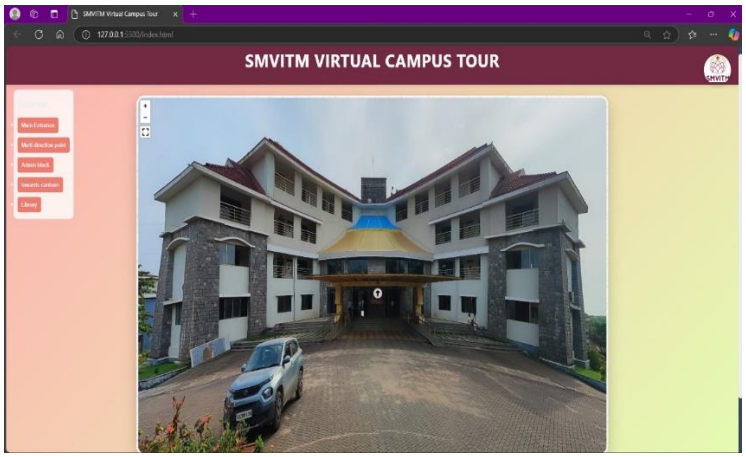

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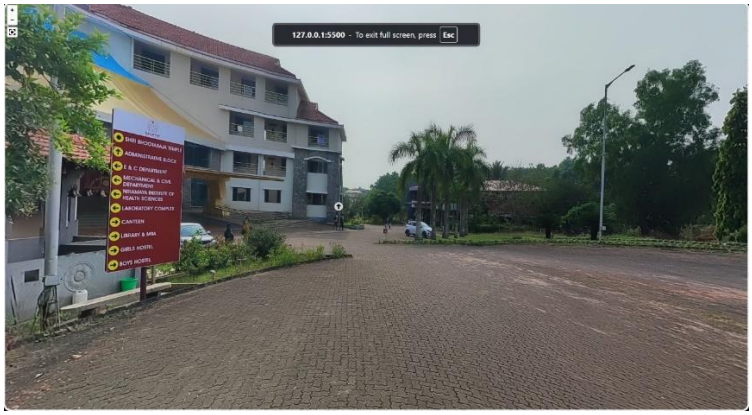

Fig:

CONCLUSION AND FUTURE WORK

REFERENCE