

STEP INSIDE OUR KRCT BY CAMPUS 360°



A DESIGN PROJECT REPORT

submitted by

DANUPRIYA S

ELAKKIYA A

INDHUMATHI S

in partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

in

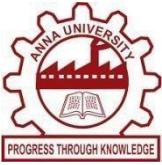
COMPUTER SCIENCE AND ENGINEERING

K RAMAKRISHNAN COLLEGE OF TECHNOLOGY

(An Autonomous Institution, affiliated to Anna University Chennai, Approved by AICTE, New Delhi)

Samayapuram – 621 112

NOVEMBER, 2024



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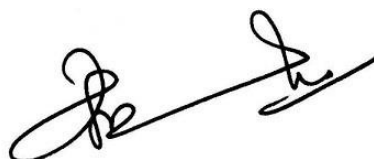
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BONAFIDE CERTIFICATE

Certified that this project report titled “**STEP INSIDE OUR KRCT BY CAMPUS 360°**” is bonafide work of **DANUPRIYA S (811722104025), ELAKKIYA A (811722104037), INDHUMATHI S (811722104056)** who carried out the project under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.



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Submitted for the viva-voice examination held on

INTERNAL EXAMINER

EXTERNAL EXAMINER

DECLARATION

We jointly declare that the project report on “**STEP INSIDE OUR KRCT BY CAMPUS 360°**” is the result of original work done by us and best of our knowledge, similar work has not been submitted to “**ANNA UNIVERSITY CHENNAI**” for the requirement of Degree of **BACHELOR OF ENGINEERING**. This project report is submitted on the partial fulfilment of the requirement of the award of Degree of **BACHELOR OF ENGINEERING**.

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ABSTRACT

A Virtual Campus Tour provides an immersive and interactive way for prospective students, parents, and other stakeholders to explore the campus of K.Ramakrishnan college of technology from anywhere in the world. Designed to bridge the gap for those unable to visit in person, this virtual tour offers a comprehensive overview of the college's facilities, campus life, and academic environment. The virtual tour is a multimedia-rich experience, featuring 360-degree views of key locations such as lecture halls, libraries, laboratories, sports complexes, and student accommodations. Interactive hotspots provide detailed information about each area, including student testimonials, academic programs, and available resources. This digital tour is designed to be accessible on multiple devices, including desktop computers, tablets, and smartphones, ensuring a smooth experience for users with varying technological preferences. It also incorporates accessibility features such as text descriptions, closed captions for videos, and screen reader compatibility to ensure that all prospective students, regardless of physical ability, can engage with the content. The Virtual Campus Tour is not only a powerful recruitment tool but also a way to introduce future students to the vibrant, dynamic, and diverse community at K.Ramakrishnan college of technology. Whether considering applying, seeking information, or simply exploring, this tour offers an accessible, informative, and convenient way to experience the college virtually, making it easier for individuals to make informed decisions about their academic future.

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LIST OF ABBREVIATIONS

ABBREVIATION	FULL FORM
VR	Virtual Reality
AR	Augmented Reality
UX	User Experience
IDE	Integrated Development Environment
HTML	Hyper Text Markup Language
CSS	Cascading Style Sheet
KPI	Key Performance Indicators
SDK	Software Development Kit

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

A virtual tour is a digital representation of a physical space, created using a series of panoramic images or 360-degree videos that allow users to navigate and interact with the environment remotely. It simulates the experience of walking through a location, providing an immersive way to explore a place from the comfort of one's home or office. Users can look around in all directions—up, down, and all around—just as they would in the real world, making the experience highly engaging and interactive.

Virtual tours are particularly useful in various industries. For example, in real estate, they allow potential buyers or renters to explore properties without needing to visit in person, saving time and expanding reach. In tourism, virtual tours give travelers a taste of destinations or landmarks before booking a trip. Museums and educational institutions use virtual tours to offer remote access to exhibits and campus tours, making education more accessible. Furthermore, businesses use virtual tours for marketing purposes, offering customers a deeper understanding of their offerings, whether it's a restaurant, hotel, or retail store. Overall, virtual tours bridge the gap between physical and digital experiences, making them a powerful tool for engagement, accessibility, and decision-making.

360 degree Photo	Preprocessing photo	Merging with web development code	Adding extra features	Execution
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Fig 1.1: Flow of process

1.2 OVERVIEW

The concept of a virtual tour extends far beyond just providing a digital representation of a physical space; it is about creating an immersive, interactive experience that simulates the feeling of being physically present in that environment. A virtual tour captures the essence of a location using 360-degree images or videos , allowing users to navigate through the space as though they were walking through it themselves. This immersive experience is achieved through advanced technology that stitches together panoramic visuals to create a seamless, spherical view, offering users full control over their exploration. By interacting with the environment, users can look around in any direction—up, down, and across—and can often move from one area to another through clickable navigation buttons or arrows.

Beyond basic navigation, virtual tours often incorporate multimedia elements to enhance the experience. These may include audio narrations, which provide context or storytelling as users move through the tour, text overlays offering additional details, and clickable hotspots that lead to more in-depth content, such as images, videos, or even external links. These features allow virtual tours to be highly informative, engaging, and adaptable to a wide range of audiences and purposes. The depth of the concept also lies in its accessibility—virtual tours allow people to experience places they may not physically be able to visit, whether due to geographical limitations, physical disabilities, or other constraints. This makes virtual tours a powerful tool for our college campus as they enable users to engage with locations remotely while gaining a deeper understanding of their layout, design, and features. By blending technology with storytelling, virtual tours provide a dynamic, immersive way to connect with spaces and stories in a manner that traditional media simply cannot match.

1.3 PROBLEM STATEMENT

Many prospective students face challenges in visiting college campuses due to geographical distance, financial constraints, or health concerns. Traditional marketing tools like brochures and static videos fail to provide an engaging, interactive experience that truly captures the essence of campus life. Colleges need a 360-degree virtual tour solution that offers an immersive, realistic, and easily accessible way for students to explore key campus areas, such as classrooms, dorms, dining halls, and outdoor spaces. This virtual tour should be interactive, mobile-friendly, and include multimedia elements like hotspots, student testimonials, and departmental overviews. Additionally, it must be accessible to all users, including those with disabilities, while providing analytics to track user engagement and preferences. The goal is to create an engaging, informative virtual campus experience that helps students make informed decisions, regardless of their ability to visit in person.

1.4 OBJECTIVE

The primary goal of a 360-degree virtual campus tour is to allow prospective students to explore a college campus remotely, providing a clear understanding of its layout, facilities, and environment. By offering an interactive experience, users can navigate through key areas such as academic buildings, dormitories, dining halls, and recreational spaces, giving them a realistic sense of the campus.

The goal is to help students make more informed decisions about their college choice by providing a detailed, easy-to-navigate virtual experience of the campus, while also giving the institution insights into which areas generate the most interest.

1.5 IMPLICATION

A virtual college campus tour offers significant advantages, especially in broadening accessibility and enhancing recruitment efforts. It allows prospective students to explore a campus from anywhere, breaking down geographical and financial barriers. The ability to view campus facilities, residence halls, classrooms, and student life areas through interactive 360-degree visuals or video walkthroughs helps create an engaging and informative experience.

Additionally, virtual tours can be tailored to highlight specific academic programs or campus features, making them a personalized tool for prospective students. This digital accessibility supports institutions in reaching a global audience and can be a cost-effective, efficient way to showcase campus life and facilities, complementing traditional in-person visits.

virtual campus tours have transformed the way prospective students and their families explore educational institutions. These tours offer enhanced accessibility, allowing individuals from across the globe to experience campuses without the need for physical travel. This approach is particularly beneficial for students with disabilities or those facing financial or logistical barriers. By utilizing immersive technologies like 360-degree videos or virtual reality, institutions can create engaging and interactive experiences, showcasing facilities, infrastructure, and campus life effectively. Moreover, virtual tours are cost-efficient, reducing expenses for both the institution and visitors. They also serve as a powerful marketing tool, enhancing the institution's appeal and reach. However, challenges such as technology access and connectivity issues may limit participation for some students. Despite these hurdles, virtual campus tours have emerged as a vital tool in making higher education more inclusive and accessible.

CHAPTER 2

LITERATURE SURVEY

TITLE : Virtual reality and augmented reality in campus tours

AUTHORS : David W.Parker, Emily L.James

YEAR 2024

This recent study explores the emerging use of virtual reality (VR) and augmented reality (AR) technologies in enhancing the virtual campus tour experience. The authors discuss how VR can provide an immersive, lifelike experience where prospective students can explore campus buildings and environments in 3D, while AR can overlay additional information about the campus or academic programs onto the real-world view of the campus. The study predicts that VR and AR will play a significant role in the future of higher education marketing and recruitment, offering students a more dynamic and interactive way to explore campuses remotely.

TITLE :Enhancing User Experience in Virtual Campus Tours

AUTHORS : Jessica M. Lee, Daniel S. Thomas

YEAR 2023

This paper delves into the importance of user experience (UX) in the design and execution of virtual campus tours. Lee and Thomas identify key features that contribute to an effective virtual tour, such as intuitive navigation, high-quality visuals, and interactive elements like clickable campus maps and embedded videos. The authors stress that virtual tours should not just be informational but also engaging, providing a sense of immersion that mimics an in-person visit. The paper further discusses the importance of accessibility features such as screen reader compatibility and alternative text descriptions for visually impaired users. The authors stress that virtual tours should not just be informational but also engaging, providing a sense of immersion that mimics an in-person visit.

TITLE : The Impact of Virtual Campus Tours on College Enrollment Decisions

AUTHOR : Sarah M. Robinson, Elizabeth S. Kelly

YEAR 2018

This study investigates how virtual campus tours influence prospective students' college choices. It analyzes the factors that make virtual tours appealing and how they impact the decision-making process. The study found that students who engaged with virtual tours had a greater sense of familiarity and comfort with the campus environment, leading to a higher likelihood of applying. Virtual tours allowed students to "visit" campuses they may not have been able to access due to geographical constraints or financial limitations. Moreover, the study also noted that virtual tours are particularly effective in attracting students from international and underrepresented communities.

TITLE : Virtual Campus Tours as a New Trend

AUTHOR : Olivia D. Martinez

YEAR 2019

Martinez explores how colleges and universities have embraced technology to enhance campus marketing efforts, particularly through virtual tours. The study reviews several institutions that have successfully integrated virtual tours into their recruitment campaigns and discusses the evolution of virtual tours from basic slideshows to fully interactive 360-degree experiences. The paper further examines the role of virtual campus tours in reaching prospective students who may not have the time or resources to visit campuses physically. Additionally, it emphasizes how these digital tours are increasingly important in today's competitive higher education landscape, where prospective students seek detailed and engaging information online. The study reviews several institutions that have successfully integrated virtual tours into their recruitment campaigns and discusses the evolution of virtual tours.

TITLE : The Role of Virtual Tours in Enhancing Campus Recruitment

AUTHOR : John A. Smith, Rachel J. Walker

YEAR 2020

This article focuses on how virtual campus tours play a key role in college recruitment and branding. It emphasizes that virtual tours serve as both marketing tools and recruitment instruments, enabling institutions to showcase their campuses to a global audience. The paper highlights the growing importance of user engagement through interactive elements like 360-degree panoramic views, embedded videos, and live chat features with current students or admissions officers. These elements can give prospective students an immersive and realistic view of the campus environment, which can significantly influence their decision to apply. It emphasizes that virtual tours serve as both marketing tools and recruitment instruments, enabling institutions to showcase their campuses to a global audience.

TITLE : Virtual Campus Tours and Their Influence

AUTHOR : Fiona Zhang, Abdul Qadir

YEAR 2018

This article focuses on the effectiveness of virtual campus tours in attracting international students, who often face challenges related to visa issues, financial constraints, and long-distance travel. The authors highlight case studies from universities in the United States and Europe that have successfully used virtual tours to boost international applications. The study emphasizes that virtual tours provide prospective international students with a realistic and engaging introduction to the campus, academic programs, and student life, thus overcoming the physical barriers of distance. It also discusses how virtual tours can be tailored with multilingual options to cater to diverse global audiences. The paper further examines the role of virtual campus tours in reaching prospective students who may not have the time.

CHAPTER 3

SYSTEM ANALYSIS

3.1 EXISTING SYSTEM

The existing system for creating and hosting a 360-degree virtual campus tour refers to the methods or platforms colleges currently use to showcase their campuses virtually. Below is an overview of the typical components of an existing system in this context

Static Online Presence:

Colleges often rely on static images or pre-recorded videos on their websites. These visuals are complemented by text descriptions of campus facilities. The user experience is non-interactive and linear.

Basic Virtual Tour Platforms:

Use of basic 360-degree tour tools that offer:
Limited navigation.
Pre-set paths without user-controlled exploration.
Older tools like Flash-based systems may still be in use, though outdated.

Website or App-Based Campus Maps:

Interactive campus maps are used, which may include markers for key locations.
Users click to see static images or text descriptions.

3.2 PROPOSED SYSTEM

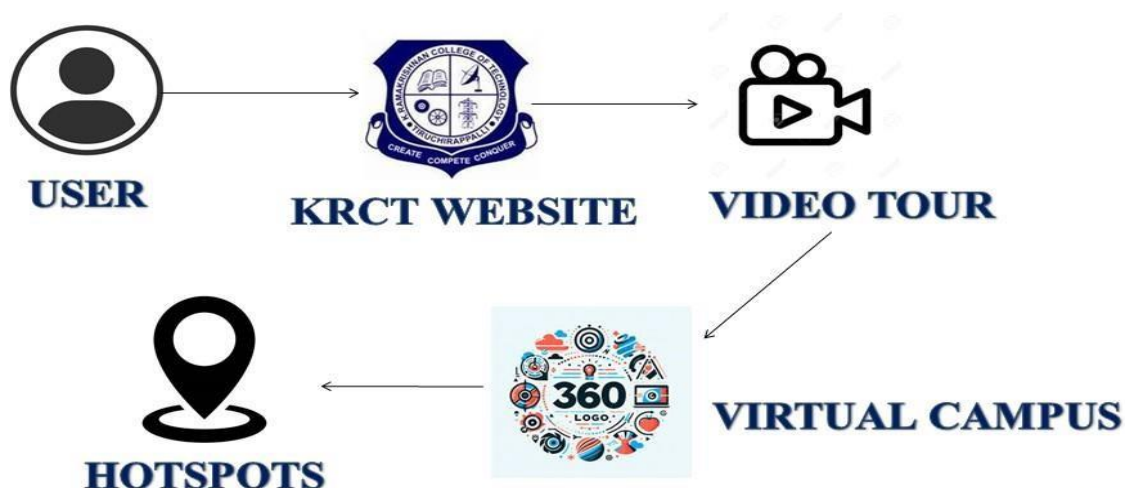
The proposed system for a 360-degree virtual campus tour aims to provide an interactive, immersive, and user-friendly experience, addressing the limitations of the existing system.

It will include high-quality 360-degree panoramic visuals of key campus locations, such as academic buildings, dormitories, recreational areas, and green spaces, captured using advanced cameras and drones.

The system will feature interactive hotspots, allowing users to access detailed information, multimedia content, and navigation options. Enhanced accessibility will be ensured through mobile responsiveness, VR compatibility, multilingual support, and features for users with disabilities.

The tour will be hosted on the college's website and third-party platforms for wide accessibility and promoted through social media and admission campaigns. This system will revolutionize how prospective students, parents, and other stakeholders explore the campus remotely, offering a modern and comprehensive solution.

3.3 BLOCK DIAGRAM OF PROPOSED SYSTEM



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Fig 3.1 Usecase Diagram

3.4 FLOWCHART

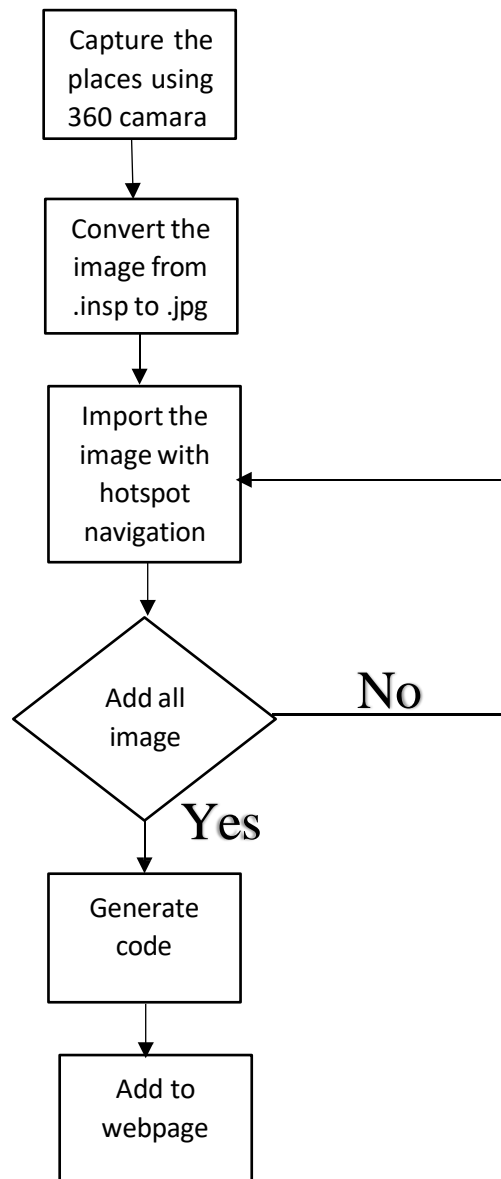


Fig 3.2 Flow of Control

3.5 PROCESS CYCLE

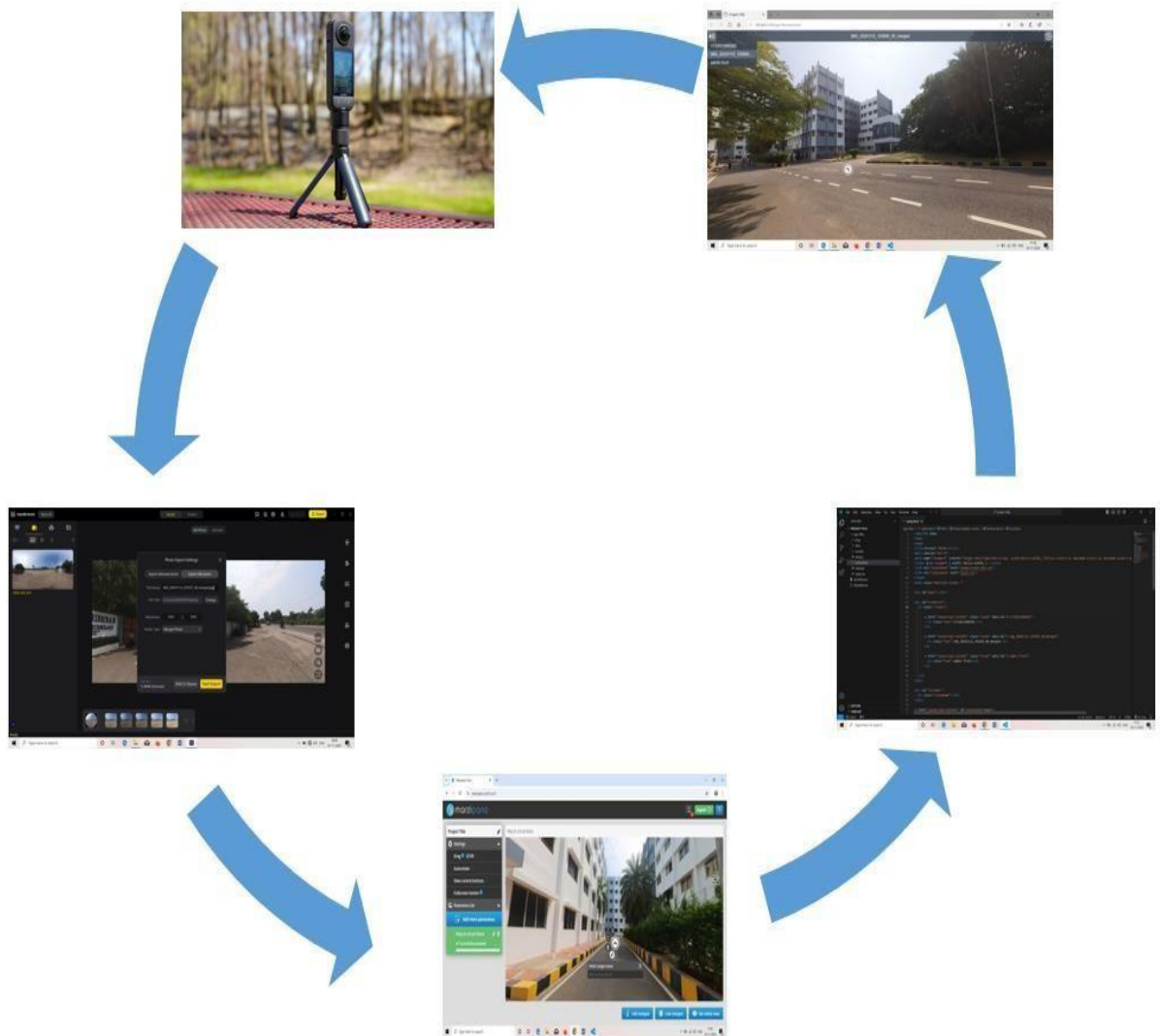


Fig 3.3 Life Cycle of the Process

3.6 ACTIVITY DIAGRAM

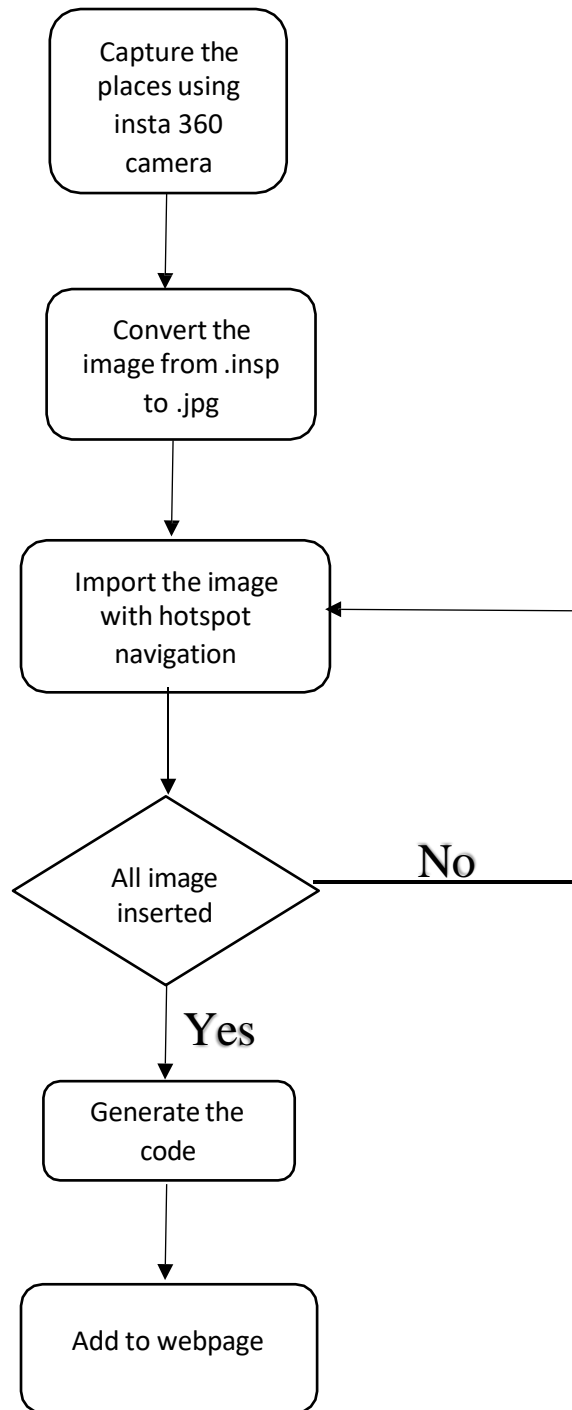


Fig 3.5 Action Sequence Structure

CHAPTER 4

MODULES

4.1 MODULE DESCRIPTION

- Image Capture And Upload Module
- 360 Degree View Rendering Module
- Interactive Hotspots And Navigation Module
- Content Management And Tour Creation Module
- Analytics And Reporting Module

4.2 IMAGE CAPTURE AND UPLOAD MODULE

The Image Capture and Upload Module is a crucial component in applications requiring user-generated content. It begins with the user launching the module, where they can capture an image directly using their device's camera or select an existing image from their gallery. Once an image is captured or selected, the system temporarily stores it and provides a preview for the user to review. During the preview stage, the user can make optional edits such as cropping, rotating, resizing, or applying filters to enhance the image. These editing features ensure that the uploaded content meets the desired quality or format standards.

After making the necessary adjustments, the user confirms the image for upload. At this stage, the system processes the image, including steps like compression to reduce file size, resizing to meet platform specifications, and validating parameters like file type, size, and resolution. Once validated, the image is uploaded to the server or cloud storage. During the upload process, the system monitors for any issues, such as network interruptions or invalid file formats.

Upon successful completion, the system notifies the user with a success message, confirming that the image is securely uploaded. If the upload fails due to reasons like network errors or file validation failures, the system provides an error message with troubleshooting suggestions, allowing the user to retry. This module is designed to handle multiple uploads seamlessly, providing a smooth and intuitive user experience. It concludes when the user either exits the module or completes another image capture and upload cycle. This module is integral in applications like social media platforms, e-commerce sites, educational portals, and any system requiring user-uploaded content.

4.3 . 360 DEGREE VIEW RENDERING MODULE

The 360-Degree View Rendering Module is a sophisticated feature that enables users to explore environments or objects interactively from all angles. It is widely used in applications such as virtual campus tours, real estate platforms, e-commerce websites, automotive showcases, and gaming environments. This module provides an immersive and realistic experience by allowing users to navigate and view scenes in a fully spherical or panoramic format.

The module starts by loading high-resolution 360-degree images or videos that are pre-captured or dynamically generated using specialized cameras or rendering software. These visuals are processed and rendered using efficient algorithms to ensure smooth performance across devices, including desktops, mobile phones, and VR headsets. The system provides intuitive navigation controls, such as dragging with a mouse, swiping on touch screens, or using gyroscopic sensors in mobile devices to move through the scene seamlessly.

Advanced features include interactive hotspots, which enable users to click on specific points in the view to access additional content, such as detailed descriptions, embedded videos, or navigational links to other scenes. Real-time rendering capabilities allow for dynamic adjustments to lighting, textures, and objects within the

scene, enhancing realism. For instance, a virtual campus tour might include hotspots that display information about buildings or guide users to different campus areas interactively.

The module integrates optimization techniques, such as progressive loading and adaptive resolution, to ensure minimal loading times and compatibility with varying network speeds and device capabilities. Security measures like watermarking and restricted access ensure that proprietary content is protected against unauthorized use.

In applications like education and tourism, the module offers guided tours with voiceovers, annotations, and interactive quizzes. For e-commerce, it enhances product visualization by allowing customers to inspect items from all angles, improving purchase confidence. Future developments include leveraging AI for automatic scene tagging, real-time personalization based on user behavior, and AR/VR integration to elevate immersion further.

In summary, the 360-Degree View Rendering Module is a transformative tool that brings interactivity and realism to digital experiences. By enabling users to engage with content dynamically and intuitively, it significantly enhances user engagement, decision-making, and satisfaction across various industries.

4.4 INTERACTIVE HOTSPOTS AND NAVIGATION MODULE

The Interactive Hotspots and Navigation Module is a critical component of modern interactive systems, enhancing user engagement by adding clickable elements and seamless navigation to digital environments. This module allows users to explore virtual spaces, 360-degree views, or multimedia content by interacting with strategically placed hotspots. Hotspots are visual markers that, when clicked or hovered over, reveal additional information such as text, images, videos, or external

links. For example, in virtual tours, a hotspot on a classroom may display details about its facilities or play a guided video tour.

Navigation features within this module enable smooth movement across virtual spaces. Users can interactively navigate by clicking on hotspots leading to other areas or using controls such as arrows, maps, or menus. Features like zooming, panning, and rotation provide a more immersive experience, allowing users to view details from different perspectives. The module ensures that transitions between views or scenes are fluid and visually appealing, often incorporating animations or fade effects for a polished look.

Advanced functionalities include customizable hotspot designs, allowing developers to align their appearance with the branding or theme of the platform. Dynamic hotspots that change based on user preferences or real-time data further enhance interactivity. Integration with tools like AR (Augmented Reality) or VR (Virtual Reality) allows users to interact with hotspots in immersive 3D environments, making the experience even more engaging.

The module also supports responsive design, ensuring compatibility across devices such as desktops, tablets, and mobile phones. Security features like restricted access to sensitive hotspots and encrypted data protect user interactions and content. Widely used in fields such as real estate, education, tourism, and e-commerce, this module transforms static visuals into interactive, user-driven experiences, creating new possibilities for exploring digital spaces.

4.5 CONTENT MANAGEMENT AND TOUR CREATION MODULE

The Content Management and Tour Creation Module is the backbone of platforms offering virtual tours, enabling administrators to design, manage, and customize immersive experiences effectively. This module provides tools to upload,

organize, and edit multimedia content, such as 360-degree images, videos, and interactive elements, to create engaging virtual tours. Administrators can arrange content into logical sequences, ensuring users can navigate through a structured and seamless experience.

The module includes features for creating hotspots, adding annotations, embedding multimedia, and linking scenes for a continuous flow. Administrators can also define tour themes, layouts, and navigation styles to align with branding or user requirements. For instance, in a virtual campus tour, this module allows creators to highlight specific areas like libraries or labs by adding detailed descriptions, videos, or links within the tour.

Advanced functionalities include drag-and-drop interfaces for easy content arrangement and integration with external databases for bulk uploads or automated updates. Real-time previews allow creators to test the tour's functionality and make adjustments instantly. Additionally, tools for metadata management, such as tagging scenes or images with keywords, improve content organization and searchability.

For scalability, the module supports multi-user collaboration, enabling teams to work simultaneously on tour creation. It also provides analytics tools to track user interactions, such as hotspot clicks and navigation paths, helping optimize the tour based on user behavior. Integration with cloud services ensures that content is stored securely and accessible across devices.

This module finds applications in diverse industries, from real estate and education to tourism and retail, empowering organizations to deliver customized, interactive experiences. By simplifying tour creation and content management, it ensures that even users with minimal technical expertise can design professional-grade virtual tours efficiently.

4.6 ANALYTICS AND REPORTING MODULE

The Analytics and Reporting Module is a crucial component for tracking, analyzing, and reporting on user interactions and system performance within a digital platform, particularly for virtual tours, content-heavy applications, and interactive environments. This module collects and processes data on user behaviors, providing valuable insights into how users engage with content, navigate through tours, and interact with various features such as hotspots, navigation buttons, and multimedia elements.

The module typically tracks metrics such as user engagement (e.g., time spent on each scene or area), click-through rates for interactive hotspots, completion rates of tours, and user demographics. These metrics help administrators understand which areas of the tour or content are most popular, which hotspots attract the most attention, and where users might be facing difficulties, such as areas with high exit rates or where interactions drop off.

For example, administrators can filter analytics to see how mobile users interact with the tour compared to desktop users or analyze how users from different geographic regions engage with specific content. Customizable dashboards and real-time analytics provide administrators with up-to-date information, enabling them to make data-driven decisions and optimize the user experience.

Reporting capabilities are an essential part of the module, offering options to generate custom reports on key performance indicators (KPIs). Reports can be exported in various formats (e.g., PDF, CSV) for further analysis or sharing with stakeholders. These reports can detail user behavior trends, engagement analytics, content popularity, and even feedback collected during the tour, offering a comprehensive overview of platform perform.

CHAPTER 5

SYSTEM SPECIFICATION

5.1 SOFTWARE REQUIREMENTS

- Visual studio
- Insta 360 for windows application
- Marzipano

5.2 HARDWARE REQUIREMENTS

- Workstation (PC)
- 360 degree camera

5.1.1 VISUAL STUDIO

Creating a 360-degree virtual campus tour using Visual Studio involves leveraging various tools and technologies to build an immersive and interactive experience. Visual Studio serves as the primary integrated development environment (IDE) where developers can create, test, and deploy the virtual tour application. The development process typically involves multiple steps, from designing the user interface to implementing the interactive features that allow users to navigate through the campus in a 360-degree view.

First, developers can use web technologies such as HTML5, CSS3, and JavaScript to create the core structure and layout of the virtual tour. In Visual Studio, developers can integrate WebGL or three.js libraries to render 360-degree images or interactive 3D models of the campus, allowing users to explore different areas of the campus by rotating the view or clicking on interactive hotspots.

The 360-degree images or videos are usually captured using specialized cameras or 3D modeling software, which are then uploaded and embedded into the application. In Visual Studio, developers can also implement mobile-friendly designs using responsive web development practices, ensuring the tour works seamlessly across desktop, tablet, and mobile devices.

5.1.2 INSTA 360 FOR WINDOWS APPLICATION

Creating a 360-degree virtual campus tour using Insta360 for Windows involves integrating the powerful features of the Insta360 software with a custom-built application for a fully immersive and interactive campus experience. Insta360 provides high-quality 360-degree cameras and software that capture panoramic images and videos, which are key to delivering a detailed virtual tour. By utilizing the Insta360 Studio and its associated SDK, developers can create a seamless and engaging campus tour experience for Windows users.

First, the 360-degree images and videos of your campus are captured using Insta360 cameras. These images are then processed through Insta360's software to optimize them for use in a virtual tour, ensuring that the image stitching is flawless and the video quality is pristine. With Insta360 Studio, developers can edit and enhance the footage, adding key highlights or annotations to specific areas of the campus.

For creating the virtual tour application itself on Windows, developers can use Visual Studio to build a robust interface. The application can feature interactive 360-degree viewing of various campus locations, such as lecture halls, libraries, sports facilities, and student lounges. The application can allow users to navigate through these areas by dragging or clicking on hotspots that move them from one location to the next within the virtual environment.

The interactive features of the tour can be enhanced by integrating features such as hotspots that display additional information when clicked, such as photos, videos, or text about the campus buildings or amenities. These hotspots can be configured to trigger media files or links to external resources, creating a rich, engaging experience.

5.1.3 MARZIPANO

Creating a 360-degree virtual campus tour using Marzipano involves leveraging its powerful open-source web viewer to deliver an immersive, interactive experience directly on your website. Marzipano is known for its ability to display high-quality 360-degree images and videos in a lightweight and efficient manner, making it a perfect tool for building an engaging virtual campus tour.

The first step in the process is capturing 360-degree imagery or video of the campus using high-quality cameras, such as Insta360 or Ricoh Theta. Once the images are captured, they are processed and optimized for web display. Marzipano allows you to upload these images and use its panoramic viewer to render them into interactive, navigable 360-degree scenes. This setup can be easily embedded into your website, providing users with a seamless, browser-based experience.

In the Marzipano viewer, users can interact with the 360-degree images by dragging the mouse or using touch gestures to explore different areas of the campus. Hotspots can be added to specific locations within the virtual tour, such as dormitories, lecture halls, cafeterias, or sports facilities. When users click on these hotspots, they can access additional information, videos, or images about the particular location, offering them a deeper understanding of what the campus has to offer. For developers, Marzipano provides a flexible and easy-to-use API, allowing for customization of the viewer's appearance and behavior to match the website's branding and functionality.

CHAPTER 6

SYSTEM TESTING

6.1. FUNCTIONAL TESTING

Objective: Ensure the core features of the virtual campus tour work as intended.

6.1.1 TOUR NAVIGATION

Test Case 6.1.1.1: Verify if the system provides an option to start the campus tour from the homepage.

Test Case 6.1.1.2: Check if users can navigate through different campus locations (buildings, library, sports facilities, etc.) seamlessly.

Test Case 6.1.1.3: Test if users can return to the previous location or skip sections.

Test Case 6.1.1.4: Validate that each section of the tour loads properly and within an acceptable time frame.

6.1.2 INTERACTIVE ELEMENTS

Test Case 6.1.2.1: Verify interactive hotspots (e.g., information pop-ups on buildings or landmarks) work when clicked.

Test Case 1.2.2: Check if the audio/video (if included) plays correctly for each location.

Test Case 1.2.3: Test interactive elements like maps or 360-degree views of buildings.

6.2 USER INTERFACE TESTING

Test Case 6.1.3.1: Verify the visual design of the tour is consistent and intuitive (alignment, color scheme, font readability).

Test Case 6.1.3.2: Ensure that the layout adjusts appropriately for different devices (desktop, mobile, tablet).

Test Case 6.1.3.3: Test the navigation buttons (Next, Previous, Home) for clarity and functionality.

6.2.1 USER AUTHENTICATION

Test Case 6.1.4.1: Verify that users can log in using their student/faculty credentials.

Test Case 6.1.4.2: Check for error handling if invalid credentials are entered.

Test Case 6.1.4.3: Test if users can access additional features after logging in (e.g., booking a physical tour, registration).

6.3 PERFORMANCE TESTING

Objective: Ensure that the system performs well under varying levels of load.

6.3.1 PAGE LOAD TIME

Test Case 6.2.1.1: Test the load time of the tour for users with different internet speeds (e.g., 3G, 4G, Wi-Fi).

Test Case 6.2.1.2: Verify the system handles the loading time for images, 360-degree views, and videos within 3-5 seconds.

6.3.2 SIMULTANEOUS USERS

Test Case 6.2.2.1: Simulate multiple users accessing the virtual tour simultaneously to check if the system slows down or crashes.

Test Case 6.2.2.2: Verify if the server handles heavy traffic efficiently during peak registration times (e.g., open days, exam periods).

6.4 USABILITY TESTING

Objective: Evaluate how user-friendly and accessible the virtual campus tour is.

6.4.1 EASE OF NAVIGATION

Test Case 6.3.1.1: Verify if first-time users can easily figure out how to start and navigate the tour without prior instructions.

Test Case 6.3.1.2: Test whether the system provides clear instructions (tooltips, start guide) for navigation.

6.4.2 ACCESSIBILITY

Test Case 6.3.2.1: Test if the virtual tour is accessible for users with disabilities (screen reader compatibility, closed captioning for videos).

Test Case 6.3.2.2: Ensure that the system complies with WCAG (Web Content Accessibility Guidelines).

6.4.3 HELP/SUPPORT

Test Case 6.3.3.1: Verify if there is an easily accessible FAQ or support link for troubleshooting issues during the tour.

CHAPTER 7

CONCLUSION AND FUTURE ENHANCEMENT

7.1 CONCLUSION

In conclusion, creating a 360-degree virtual campus tour is an invaluable tool that can significantly enhance your college's online presence, offering an interactive and immersive way for prospective students, alumni, faculty, and visitors to experience the campus from anywhere in the world. This tour provides an innovative solution to the limitations of traditional campus visits, especially in the digital age, where geographical constraints or time limitations may prevent individuals from physically visiting the campus.

The structured methodology behind the development of the virtual tour ensures that every aspect of the campus is represented with clarity and accuracy. From the careful planning of key locations to the meticulous capture of high-resolution 360-degree images and videos, each step plays a crucial role in creating an authentic and engaging virtual experience. The integration of interactive hotspots allows users to gain deeper insights into specific areas of interest, enhancing their understanding of the college's offerings, such as academic departments, recreational facilities, and student services.

Moreover, the use of platforms like Marzipano, Insta360, or other virtual tour software ensures that the final product is not only visually appealing but also highly functional. The inclusion of responsive design, mobile compatibility, and easy navigation ensures that users can access the virtual tour seamlessly, whether they are on a desktop, tablet, or smartphone. This flexibility makes the virtual tour an essential tool for colleges aiming to broaden their reach and provide an inclusive experience to potential students who may not have the opportunity for an in-person visit.

From a marketing perspective, the virtual tour is a powerful asset. It allows your college to stand out in a competitive educational landscape, offering prospective students a way to connect with the campus in a unique and engaging way. Additionally, the ability to track user interactions through analytics provides valuable insights into which areas of the campus are most appealing or interesting to visitors, allowing for data-driven improvements in the user experience.

Overall, the 360-degree virtual campus tour not only enhances the visibility of your institution but also helps build a lasting impression, offering an engaging, informative, and immersive experience that promotes interaction, exploration, and connection.

7.2 FUTURE ENHANCEMENT

The future of the 360-degree virtual campus tour holds immense potential for further enhancement through the integration of advanced technologies and features that create a more immersive and personalized experience for users. One of the most exciting developments is the incorporation of Virtual Reality (VR), which would allow users to explore the campus using VR headsets, providing a highly realistic and interactive experience. Alongside VR, Augmented Reality (AR) can add an extra layer of engagement, allowing users to view additional content or interact with campus landmarks through their smartphones or AR-enabled devices.

The use of AI-driven chatbots within the tour can provide real-time assistance, answering questions and offering personalized guidance based on users' interests. Moreover, the inclusion of live-streaming capabilities for campus events, such as student orientations or faculty lectures, could allow prospective students to experience the campus in real-time, enhancing the connection with the institution. Other future enhancements may include the introduction of gamification elements, which could make the tour more fun and interactive through challenges and quizzes. Furthermore,

the integration of 3D models and interactive maps will allow users to explore the campus in greater detail, from specific buildings to floor plans.

The addition of multi-language support and accessibility features will ensure that the tour is inclusive and accessible to a global audience. Additionally, features that allow users to share their experience on social media will help increase engagement and visibility. Finally, data analytics will enable colleges to personalize the tour based on user behavior, tailoring the experience to individual interests and needs. As these technologies evolve, the 360-degree virtual campus tour will continue to enhance the college experience for prospective students, helping them connect with their future campus in ways that are innovative, engaging, and informative.

APPENDIX A

SOURCE CODE

```
<!DOCTYPE html>

<html>

<head>

<title>Project Title</title>

<meta charset="utf-8">

<meta name="viewport" content="target-densitydpi=device-dpi, width=device-width,
initial-scale=1.0, maximum-scale=1.0, minimum-scale=1.0, user-scalable=no,
minimal-ui" />

<style> @-ms-viewport { width: device-width; } </style>

<link rel="stylesheet" href="vendor/reset.min.css">

<link rel="stylesheet" href="style.css">

</head>

<body class="multiple-scenes ">
<div id="pano"></div>
<div id="sceneList">

<ul class="scenes">
  <a href="javascript:void(0)" class="scene" data-id="0-entrance-">
    <li class="text">Entrance </li>
  </a>
  <a href="javascript:void(0)" class="scene" data-id="1-ct-canteen">
    <li class="text">CT Canteen</li>
  </a>
  <a href="javascript:void(0)" class="scene" data-id="2-admin-block">
    <li class="text">Admin Block</li>
```

```
</a>
<a href="javascript:void(0)" class="scene" data-id="3-way-to-circuit-block">

<li class="text">Way to circuit block</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="4-circuit-block">

<li class="text">Circuit Block</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="5-cb-ground-floor">

<li class="text">CB Ground Floor</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="6-cb-first-floor">

<li class="text">CB First Floor</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="7-cb-ai-department-
corridor">

<li class="text">CB AI Department Corridor</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="8-department-of-artificial-
intelligence">

<li class="text">Department of Artificial Intelligence</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="9-cb-second-floor">

<li class="text">CB Second Floor</li>

</a>
```



```
<a href="javascript:void(0)" class="scene" data-id="10-ai-lab">
<li class="text">AI Lab</li>
</a>
<a href="javascript:void(0)" class="scene" data-id="11-cb--eee-department-
corridor">
<li class="text">CB EEE Department Corridor</li>
</a>
<a href="javascript:void(0)" class="scene" data-id="12-department-of-eee">
<li class="text">Department of EEE</li>
</a>
<a href="javascript:void(0)" class="scene" data-id="13-cb-third-floor">
<li class="text">CB Third Floor</li>
</a>
<a href="javascript:void(0)" class="scene" data-id="14-cb-cse-department-
corridor">
<li class="text">CB CSE Department Corridor</li>
</a>
<a href="javascript:void(0)" class="scene" data-id="15-department-of-cse-1">
<li class="text">Department of CSE 1</li>
</a>
<a href="javascript:void(0)" class="scene" data-id="16-cb-cse-labs-corridor">
<li class="text">CB CSE Labs Corridor</li>
</a>
```

```

<a href="javascript:void(0)" class="scene" data-id="17-cb-cse-lab">
<li class="text">CB CSE Lab</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="18-cb-fourth-floor">
<li class="text">CB Fourth Floor</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="19-cb-ece-department-
corridor">
<li class="text">CB ECE Department Corridor</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="20-department-of-ece-">
<li class="text">Department of ECE </li>

</a>
<a href="javascript:void(0)" class="scene" data-id="21-cb-ece-lab">
<li class="text">CB ECE lab</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="22-cb-eee-lab">
<li class="text">CB EEE lab</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="23-cb-placement-and-
training-department-corridor">
<li class="text">CB Placement and Training Department Corridor</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="24-department-of-training-and-
placement1">

```

```

<li class="text">Department of training and placement1</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="25-cb-badminton-court">

<li class="text">CB Badminton court</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="26-cb-cse-department-
corridor">

<li class="text">CB CSE Department Corridor</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="27-department-of-cse-2">

<li class="text">Department of CSE 2</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="28-way-to-admin-block">

<li class="text">Way to Admin Block</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="29-ab-ground-floor">

<li class="text">AB Ground Floor</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="30-mechanical-lab">

<li class="text">Mechanical Lab</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="31-ab-first-floor">

```

```

<li class="text">AB First Floor </li>

</a>
<a href="javascript:void(0)" class="scene" data-id="32-office">
<li class="text">Office</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="33-library">
<li class="text">Library</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="34-library-1">
<li class="text">Library 1</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="35-ab-second-floor">
<li class="text">AB Second Floor</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="36-ab-mechanical-
department-corridor">
<li class="text">AB Mechanical Department Corridor</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="37-department-of-
mechanical">
<li class="text">Department of Mechanical</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="38-ab-third-floor">
<li class="text">AB Third floor</li>

```


<li class="text">AB Civil Department Corridor

<li class="text">Department of Civil

<li class="text">Way Physics and Chemistry Labs

<li class="text">AB Fourth Floor

<li class="text">AB Fourth Floor Corridor

<li class="text">Department of Mathematics

<li class="text">Department of Science and Humanities

<li class="text">Department of Science and Humanities 1

<li class="text">AB Second Floor Corridor

<li class="text">Pathway Circuit Block

<li class="text">Pathway of CT

<li class="text">Pathway of CE,CT1

<li class="text">Girls Hostel

<li class="text">Girls Hostel Entrance

```

</a>
<a href="javascript:void(0)" class="scene" data-id="53-canteen">

<li class="text">Canteen</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="54--canteen-entrance">

<li class="text"> Canteen Entrance</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="55-veg-canteen">

<li class="text">Veg Canteen</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="56-non-veg-canteen-entrance">

<li class="text">Non-veg Canteen Entrance</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="57-corridor-of-non-veg-canteen">

<li class="text">Corridor of Non-veg Canteen</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="58-non-veg-canteen">

<li class="text">Non-Veg Canteen</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="59-non-veg-canteen-">

<li class="text">Non veg Canteen </li>

</a>

```


<li class="text">Xerox, Stationary and Ice Cream Parlour

<li class="text">Ice Cream Parlour

<li class="text">CE Entrance

<li class="text">CE Entrance Pathway

<li class="text">CE Block

<li class="text">Pathway

<li class="text">Pathway


```

<li class="text">Pathway</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="68-volley-ball-court">
<li class="text">Volley Ball court</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="69-basket-ball-court">
<li class="text">Basket Ball court</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="70-ground">
<li class="text">Ground</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="71-pathways-of-hostels">
<li class="text">Pathways of Hostels</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="72-way-to-boys-hostel">
<li class="text">Way to Boys hostel</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="73-way-to-boys-hostel">
<li class="text">Way to Boys Hostel</li>

</a>
<a href="javascript:void(0)" class="scene" data-id="74-boys-hostel">
<li class="text">Boys Hostel</li>

</a>

```

```

<a href="javascript:void(0)" class="scene" data-id="75-blocks-of-boys-hostel">

<li class="text">Blocks of Boy's Hostel</li>

</a>

</ul>

</div>

<div id="titleBar">

<h1 class="sceneName"></h1>

</div>

<a href="javascript:void(0)" id="autorotateToggle">





</a>

<a href="javascript:void(0)" id="fullscreenToggle">





</a>

<a href="javascript:void(0)" id="sceneListToggle">





</a>

<a href="javascript:void(0)" id="viewUp" class="viewControlButton
viewControlButton-1">



</a>

```

```
<a href="javascript:void(0)" id="viewDown" class="viewControlButton
viewControlButton-2">


</a>

<a href="javascript:void(0)" id="viewLeft" class="viewControlButton
viewControlButton-3">


</a>

<a href="javascript:void(0)" id="viewRight" class="viewControlButton
viewControlButton-4">


</a>

<a href="javascript:void(0)" id="viewIn" class="viewControlButton
viewControlButton-5">


</a>

<a href="javascript:void(0)" id="viewOut" class="viewControlButton
viewControlButton-6">


</a>

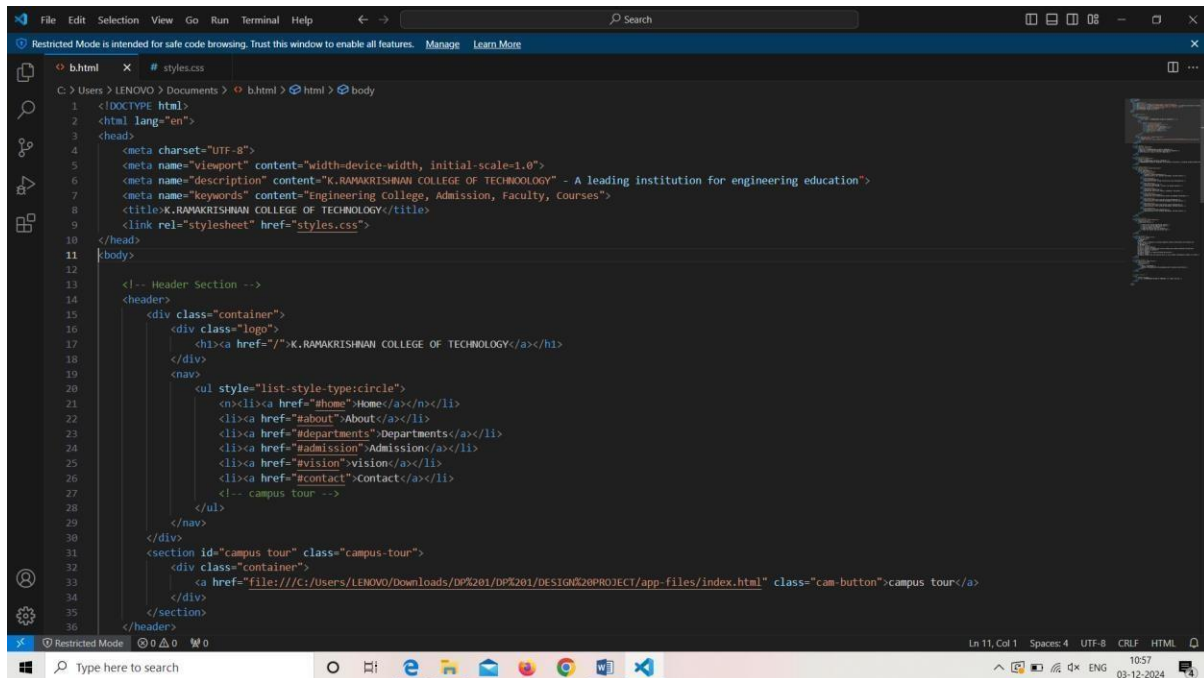
<script src="vendor/screenfull.min.js" ></script>

<script src="vendor/bowser.min.js" ></script>

<script src="vendor/marzipano.js" ></script>
<script src="data.js"></script>
<script src="index.js"></script>
</body>

</html>
```

WEBSITE CODE:



```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8">
5   <meta name="viewport" content="width=device-width, initial-scale=1.0">
6   <meta name="description" content="K.RAMAKRISHNAN COLLEGE OF TECHNOLOGY" - A leading institution for engineering education">
7   <meta name="keywords" content="Engineering College, Admission, Faculty, Courses">
8   <title>K.RAMAKRISHNAN COLLEGE OF TECHNOLOGY</title>
9   <link rel="stylesheet" href="styles.css">
10 </head>
11 <body>
12
13 <!-- Header Section -->
14 <header>
15   <div class="container">
16     <div class="logo">
17       <h1><a href="/">K.RAMAKRISHNAN COLLEGE OF TECHNOLOGY</a></h1>
18     </div>
19     <nav>
20       <ul style="list-style-type: circle">
21         <li><a href="#home">Home</a></li>
22         <li><a href="#about">About</a></li>
23         <li><a href="#departments">Departments</a></li>
24         <li><a href="#admission">Admission</a></li>
25         <li><a href="#vision">vision</a></li>
26         <li><a href="#contact">Contact</a></li>
27       </ul>
28     </nav>
29   </div>
30   <section id="campus tour" class="campus-tour">
31     <div class="container">
32       <a href="file:///C:/Users/LENOVO/Downloads/DP%201/DESIGN%20PROJECT/app-files/index.html" class="cam-button">campus tour</a>
33     </div>
34   </section>
35 </header>
36
```

Fig A.1 Execution of code

APPENDIX B

SCREENSHOTS

Sample Output

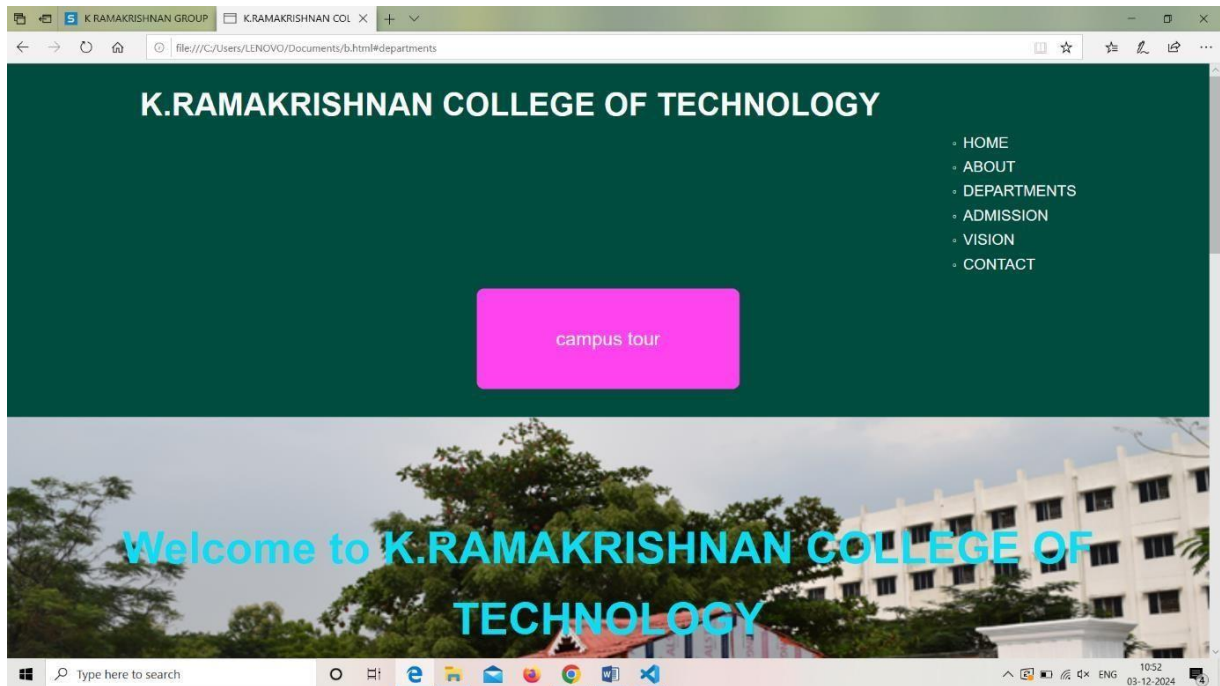


Fig B.1 Execution of code

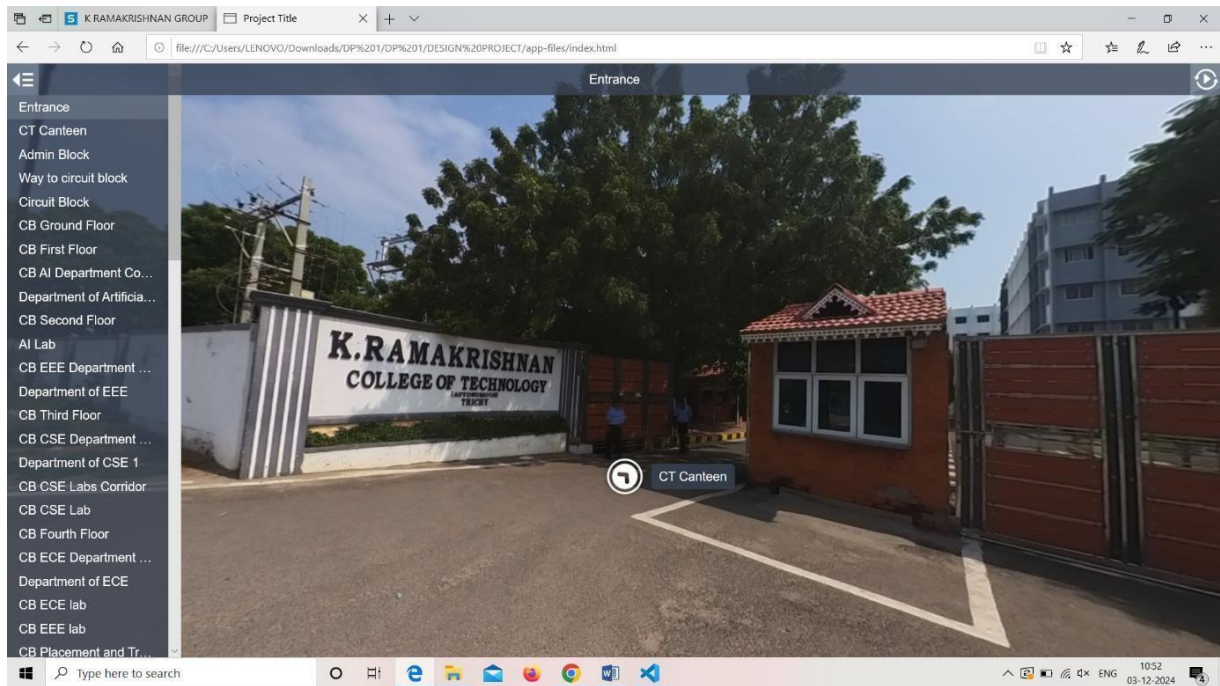


Fig B.2 Virtual tour

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