

# Visualization of the Virtual Tour by Stitching 360 Panoramic Images

Prof. Priyanka B. Dongre<sup>1</sup>, Saurabh Agade<sup>2</sup>, Abhishree Gonnade<sup>3</sup>, Khushada Patil<sup>4</sup>, Shruti Selokar<sup>5</sup>

<sup>1</sup> Assistant professor, Department of Information Technology, Priyadarshini College of Engineering, Nagpur, Maharashtra, India

<sup>2-5</sup> Department of Information Technology, Priyadarshini College of Engineering, Nagpur, Maharashtra, India

## ABSTRACT

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During the COVID pandemic and the series of closures it has introduced, 360 Images virtual travel allows individuals to remotely experience cultural places and artifacts from the safety of their homes. A popular form of virtual tourism is 360-Images virtual tours: digital experiences that render a 360-Images visual representation of the real-world environment on the users' personal device. Despite the increasing popularity of 360 virtual tours, there is no common conceptual framework for creating them. In our work, we analyzed multiple existing virtual tours and constructed a 360 Images framework for virtual tour design. We give you a platform to attach your 360 Images in a Virtual tour manner and add detail about it by using our 360 images virtual tool, then you are ready to use a Virtual tour by adding links on social media or websites.

**Keywords :** Web, Compass, 360 Image virtual tool, Hotspot, 360 Images Virtual tour.

## I. INTRODUCTION

People often use virtual tours to explore spaces before they travel or buy because of the pandemic that has closed borders and kept people indoors. Virtual tours have shown to increase conversions by 16 to 67% for businesses using them. Each industry uses virtual tours for a different purpose and reaches out to different audiences, including hotels, educational institutions, and event spaces.

To create a great virtual tour for your brand, ask yourself first: what makes a good tour?

One of the most popular virtual tourism directions is 360-degree virtual tours – digital experiences that render a panoramic 360-degree audio-visual representation of real-world environments, such as museums, outdoor locations, or exhibitions, on users' personal digital devices.

In this paper, the proposed methodology of the project is to do the virtual tour where the user wants to visit, stay or buy property. The user gets the basic idea of the place by using the 360 virtual tours.

The dealer will create the virtual tour by using our virtual tool, after creating the tour it will generate the link. Dealers can use that link by adding the link to their website or on any social media platform. The user will go through that link and look at all the 360 images of the tour, the user clicks or tabs on that image to view what is inside the door and the balcony view properly and the user goes through that environment how it looks like, and gets all the information of room, furniture, bed and many more size or information provided by the dealer. If users visit all the places without visiting on a virtual tour it will waste too much time finding a better place. If the user goes through the virtual tour, then the user will easily decide whether to visit that place or not. He or she will save time by deciding earlier whether the place is proper or not.

## II. METHODS

### A. RELATED WORK

A virtual tour is a marketing tool that can help bring new customers and clients to your business. It's also a "virtual reality" view of your business relayed in visual images that allow the viewer to be "right there" at your location. It's the best way to accurately show what your location looks like. A tour is also a convenient sales tool that can be used to illustrate your business in a way still photography cannot.

360° Virtual Tours are being more widely used these days for several reasons.

Viewers are researching businesses or locations to make buying decisions. They are choosing to do, or not to do, a business based on what they see. A tour on your website can help bump that decision in your direction.

It's possible to collect data and information about locations from where the best table is in a restaurant or how comfy a hotel room is likely to be, to determine if your group can fit into that conference room comfortably, and even where all the outlets are.

A user can make a "buyers" connection to your business when viewing a tour.

Tours are being used to provide a "real view" format that allows viewers to move through any location as though they were right there and see what's in every nook and cranny.

Tours are also providing websites with a bump in their search engine rankings. The initial interest in seeing a location brings a visitor to your website and viewing the tour can keep them there for an extended time.

The user's experience is interactive and user-guided, not reactive as in sitting back and watching a video. The full control a user has allows them to stop and start wherever they want in the scene. They rotate left, right, up, or down looking around to see the spatial relationships between one object or another.

### B. METHOD OF CAPTURING 360 IMAGE

#### 1. Choose the Right Equipment & Software

One of the reasons many agents avoid virtual tours is that they imagine needing complicated, high-end photography gear. In reality, you need a panoramic or 360-degree camera, which is more affordable and user-friendly than ever. Agents should consider buying one to create virtual tours regularly. Choose a virtual tour software provider and check if they offer their cameras and lenses or discounts toward a camera purchase.

Look at in-depth reviews of the best 360-degree cameras on the market; compare prices, features, resolution depth (higher is better), stabilizer options to prevent blurry photos, battery life, and remote operation. Purchase or rent a camera that gives you the features you need for the type of virtual tour you want to create.

#### 2. Plan Your Shots

Make a list of every room in the house that you want to include in your virtual tour. Walkthrough each room, find the center, and make sure your camera

will be able to capture and highlight the features of each room from that vantage point. If the center doesn't work, find a place where your camera will pick up the most detail and mark the spot with a piece of tape.

### 3. Stage Each Room

Now that you know where you plan to set the camera, you need to make sure the room looks as perfect as possible. Remove anything that stands in the way of the lens, ensuring that the camera will have a clear view of the entire room. Take anything out of the room that might make it seem messy or distract buyers from high-value features. The clearer the view, the better the final result. Be sure the room has enough light so the features are easy to see.

### 4. Level the Tripod

Your tripod must be level to ensure images are uniform. This applies to any image, video, 360-degree, or panoramic photo you might take. Don't try to create panoramic or 360-degree images without a level place to put your camera—otherwise, the lines and angles in your shots won't be straight.

### 5. Take Test Shots First

You should test each of the shots on your image list to make sure that you are highlighting the features you want buyers to see. Take a test shot in the room and study it. If the room looks too dark, add more lighting or make adjustments to compensate.

### 6. Take All Photos on Your Image List

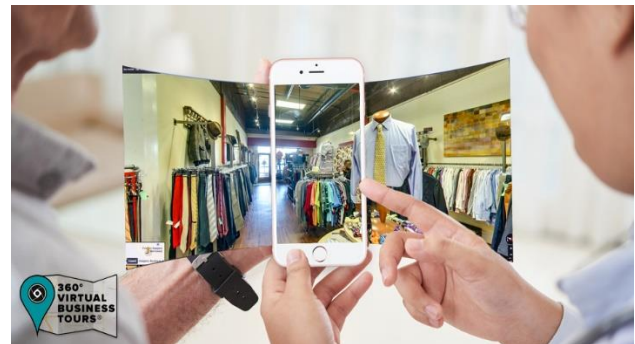
Once you determine the correct camera settings, you'll be ready to move through each room on your image list to take pictures. Find the spot you marked in each room, set up your tripod, and take pictures. Check each image on the camera screen before moving the tripod, retake shots as needed, and confirm you have all the images you need before moving on to the next room. It's better to have too many photos than too few.

### 7. Create Your Virtual Tour

Once you have all of your images, create your virtual tour by stitching images together using the tool you chose in the first step.

### 8. Upload Images to Software

Upload your images into your software program to create your virtual tour. When prompted, go through the steps of adding static or panoramic images. The software will stitch static images together for 360 virtual tours and assemble the panoramic photos for 360-degree tours.



### C. LANGUAGE AND SOFTWARE USED:

Language Used:

HTML

JAVASCRIPT

Technology used:

Angular JS

Library used:

Pannellum.org

For Styling we used:

CSS

BOOTSTRAP

### D. INTERFACE DESCRIPTION

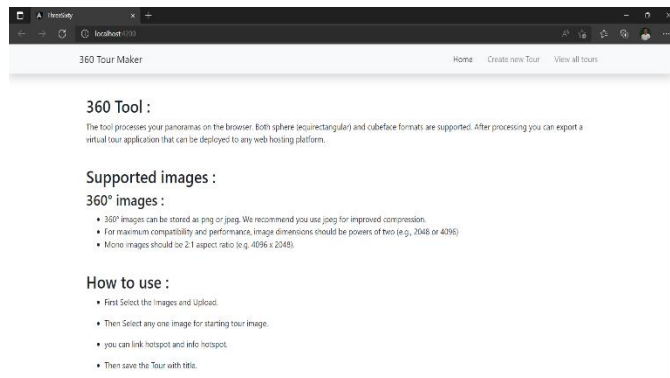
The basic interface of our 360-image virtual tour starts with the home page.

HOME PAGE:

On the home page, there are 3 function buttons named as

1. Home
2. create a new tour
3. view all tours.

Home page contains instructions about how to use the virtual tool and how to make 360 images.



**1. Home button:**

The home button is used to jump to the main home page.

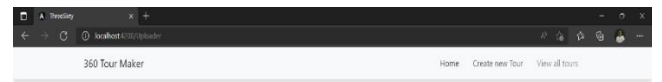
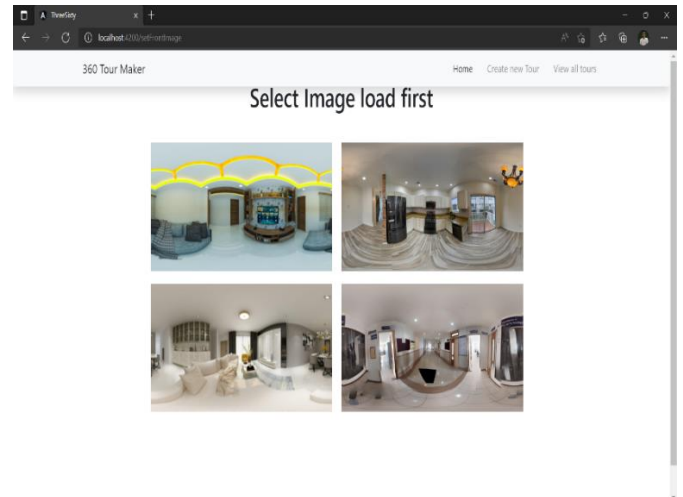
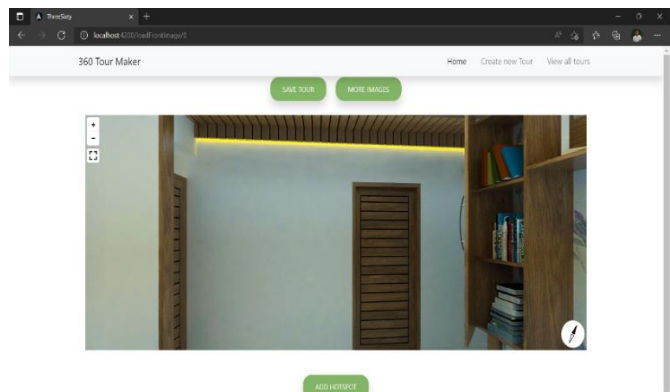
**2. Create a new tour:**

This button is used to allow the user to create a new tour by uploading their images.

Process of uploading an image:

Select the image to load first

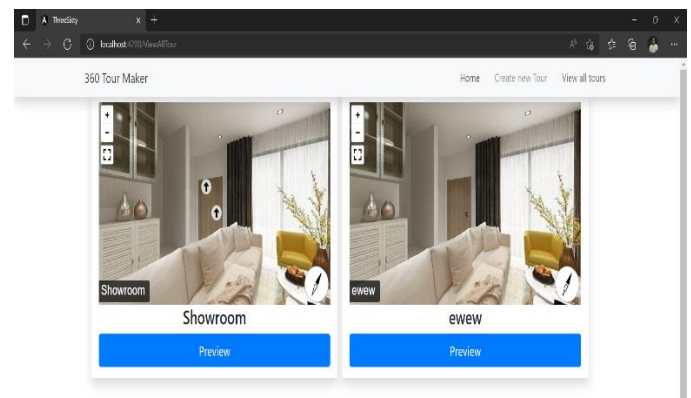
- save tour
- More images
- Add hotspot



**3. View all tours:**

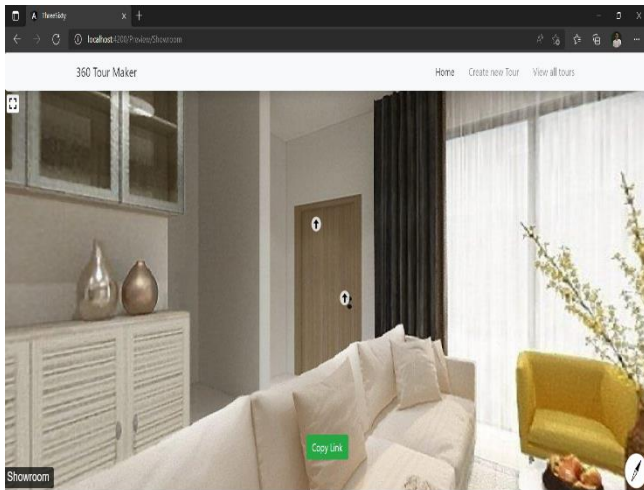
The view all tour button shows the list of all the saved tours.

In view tour, we can preview all the saved tours by clicking on a preview button.



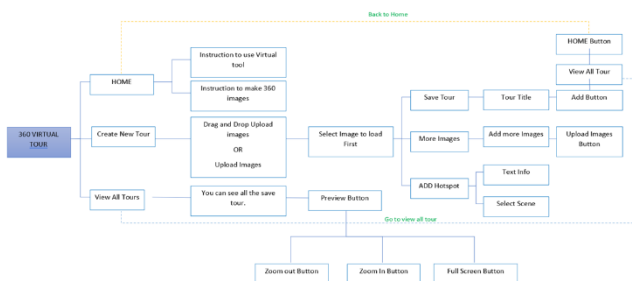
After previewing images there are 3 options:

- zoom out button
- Zoom in button
- Full-screen button



This Copy link button will generate the link for an individual tour.

### E. FLOW DIAGRAM



## III.RESULTS AND DISCUSSION

### A. RESULT

In this paper, the proposed methodology project is to do the virtual left-justified user wants to visit, stay or buy property. The user gets the basic idea of the place by using the 360 virtual tours. The dealer will create the virtual tour by using our virtual tool, after creating the tour it will generate the link. Dealers can use that link by adding the link to their website or on any social media platform. The user will go through that link and look the all the 360 images tour, the user clicks or tab on that image to view the what is inside the door and the balcony view properly and the user goes through the that Environment how it looks like, and get all the information of room, furniture, bed and many more size or information provided by the dealer. If the user goes through the virtual tour, then the user will easily decide whether to visit that place

or not. He or she will save time by deciding earlier whether the place is proper or not.

### B. DISCUSSION

The 360 virtual tour provides a 360-degree by 360-degree view of a physical property. End-users will feel as if they are physically on-site, even if they have never entered the establishment in person. They can see up above them, to the floor below them, to the left and right, and all around. You can zoom in and out, giving you a clearer view of your focal point as you focus on specific areas of interest.

Virtual tours are constructed by stitching together a number of photographs to create a distorted panoramic image. After the image has been coded into the software program, it is turned into a "wrapped" sphere that allows you to look around using your smartphone or mouse as if you were actually standing in that location.

## IV.CONCLUSION

A number of potential benefits and risks of VEs in tourism have been presented. They were viewed from different perspectives, namely sampling and showcasing virtual travel acceptance, and accessibility. Researchers in previous reports identified pros and cons within these categories.

Its goal was, among others, to identify the potential (theoretical) benefits and risks associated with VR application implementation in destination promotion. As a result, it can be concluded that destinations have numerous options for establishing themselves in the VR market, each of which offers a multitude of benefits and risks. Also, traditional methods of destination promotion were compared to the different benefits and risks. By presenting several other case studies in other tourism areas and by providing background information, the author hopes to give readers a holistic overview of VR in tourism. The



most important thing for tourism marketers is to evaluate all the options available and weigh the pros and cons of VR in their situation.

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