PHOTOGRAPHY AS IDENTITY OF THE FIRST FRUITS OF RIOBAMBA. DESIGN OF INTERACTIVE DIGITAL REPOSITORY

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ABSTRACT

The objective of this work is the conservation by modern digital means of the architectural firsts located in the city of Riobamba, an interactive photographic repository was designed in which 360° aerial shots were used. A mixed methodology was used, both qualitative and quantitative, employing methods such as documentary, descriptive, population and survey techniques, interview and observation sheets, investigating the first fruits for their historical relevance and social impact, subsequently, a buyer persona was developed to determine the user who occupied the repository, official data and information from government entities was sought with the use of the interview, The data obtained were analyzed in order to facilitate the photographic taking and move on to the creative phase, formulating guiding ideas that gave feasible solutions in the design of the proposal. With what was learned in the experimentation, the final design was started, the photographs went through a process of digital development, colorization and digital stitching; In addition, a third process of composition - punctual edition, all equirectangular shots were transferred to the panoraven platform, facilitating the creation of the repository with a contribution of interactivity, a hotspot tour and informative texts were used with the option of infospot, to reinforce the interactivity a map was added so that people know the location of the scoops and a gyroscope to create a better experience on the cell phone and adaptability on various platforms. These processes resulted in an interactive digital photographic repository of easy access, dissemination, functional and with the logo "Riobamba city of the first fruits" this identifying resource of the city was preserved, finally it can be concluded that the use of new technologies is essential to reach new generations, being essential that government entities invest in these cultural resources, which enhance tourism and consequently activate the economy of the city of Riobamba.

THEORETICAL FRAMEWORK

Documentary photography has been used since its invention as a method of documentation and registration, with the help of this technique it is possible to preserve different historical findings, fossil pieces, scientific facts, for innovation and studies in the field of medicine, in the area of terrestrial photogrammetry, being of great importance for the valuation, honoring cultures and traditions, based on the above we can say that documentary photography is the graphic testimony of the human being on earth.

Photography in conjunction with documentation and research techniques allow preserving historical and cultural moments, such is the case in the research of Jenny Arízaga with her topic "Photographic book. The ancestral wisdom of Andean women in Ecuador: the moon and its relationship with the menstrual cycle", in which she used photographic techniques of lighting based on shutter speed, whose research purpose is to analyze the changes of the full moon, its relationship with menstruation and how it was a guide to know when to sow, weed, harvest, wash clothes, rest, as well as honoring and respecting Andean women, valuing their femininity and blood.

Another case study is that of Lizeth Mediavilla with her research "Photographic book on the historical memory of the Andean ritual "Mushuk Nina" in the Cayambe canton", in this work photography is used as a technique of preservation and documentation of the ritual, This ritual symbolizes the flowering and beginning of the solstice and equinoxes, in which the farmer offers the earth the tender fruits of the harvest. The book was created in order to make known, achieve greater dissemination and preserve the customs of the indigenous people of Cayambe with respect to the new year.

Riobamba has a great historical value for Ecuador, all this heritage has to be taken care of for the enjoyment of new generations, from its architecture, festivals, crafts, music and many other things that this city has to offer. Riobamba, acquired a cultural richness in its traditions, music, dance and beliefs, which allowed it to promote tourism, generating economic and social growth for its citizens. It is a historically very important city in Ecuador and naturally very beautiful. Riobamba, known with many denominations, among the most important: "Muy Noble y muy Leal San Pedro de Riobamba", "Ciudad Bonita", "La Sultana de los Andes" and mainly as the "Ciudad de las Primicias", due to its cultural heritage, consolidating it as a pioneer of fundamental facts that contributed to the national growth.(Pila, 2018, p.2)

Photography

Photography helps to identify colors, shapes, volumes, at the beginning of its creation it was considered more than an invention, something magical, because of its innovative results, together with the development, a documentation is achieved, which nowadays is converted into digital development, portraying moments, lasting moments and eternalizing relevant historical events such as wars, unique species and above all preserving history over the years. Photography is writing with light, without it it could not exist. It arises in 1839 when the invention is presented as a scientific breakthrough and the French state buys the patent of the invention to later leave it open to everyone. (Mendez, 2017: p.3).

360° photography
The environment is visualized in an immersive way thanks to the high definition and quality of the images, this makes the potential and attractiveness grow. Platforms, applications and devices are accessible to almost everyone and allow taking this type of images. The use of appropriate tools and the knowledge of professionals make the difference in capturing the attention of the public and customers. (DIELMO, 2015, p.38; cited in Barba, 2019, p. 20).

Types of shots
Photographic planes give an adequate proportion to the objective or subject within the frame of the photographic image (TOO MANY FLASH, 2022). There are different shots that are used for the realization of photographs, each of these shots help to show what you want to convey, revealing images that show relevant information of the place:
- Detail shot
- Close-up
- Medium short shot
- Medium shot
- American shot or three-quarter shot
- General or whole shot

Angles in photography
In photography there are many ways to take a shot, which will give a different meaning depending on the angle we take it, giving prominence to the character or product or focusing on a specific detail, this is directly related to the objective of the photographic project, its intention and what it will convey:
- Normal
- Sharp
- Counterpoint
- Zenithal
- Nadir

Composition Techniques

The composition techniques are of great importance to obtain good results in the shots, to know how to transmit the message and above all to be able to make the best decisions at the moment of taking a photograph. It is important to know all these rules of composition, as well as to know how to discern in which moment and situation it is relevant to apply each of these techniques.

The guide lines

The line is a succession of points that guides the viewer's gaze to a specific point, in portrait photography it helps to guide the face, and therefore the eyes, which are the ones that transmit in portrait photography. In product photography it serves to compose, for example it is widely used in still lifes and in architectural photography it is applied in a very particular way, since it guides the view in a tour of the same architecture.

Symmetry

Reflective surfaces, whether artificial such as mirrors or natural such as wet pavement or a lake, allow the weight of the image to be balanced. A symmetrical photographic composition results in an orderly and visually harmonious photograph (TOO MANY FLASH, 2022).

Fill the frame

Filling the frame generates a clean image, in which all the elements that make a difference, such as color, shape, contrast, etc., will attract attention. This helps greatly in portrait photography and is widely used in product advertising photography.

Golden ratio

The need for aesthetic perfection dates back to time immemorial. Every visual artist has felt the need to give his creations harmony and balance. And the golden ratio is a tool that, when used well, helps to capture this in photography. To do so, he uses the Fibonacci spiral, a figure present in nature in countless living beings or inanimate objects, natural or created by the hand of man (TOO MANY FLASH, 2022).

Address

Direction and flow imply the movement that forces, elements, lines of an image have and that lead the person's gaze in one direction or another. The direction creates illusion of movement: it can be horizontal, vertical, diagonal, curved, it is the way in which the user goes through that image (Gelabert, 2018).

Repetition

Repetition is a very useful element of original photographic composition to make your images stand out. Through repetition, we can use colors in the composition, shapes, lines, textures, etc., creating an attractive visual flow for the viewer (Zafra, 2023).

S-curves

An S-curved line in photography is when it is attributed the function of representing concepts such as delicacy, ductility, intimacy, and softness. They are the ones that convey the greatest sensation of plasticity and elasticity. They sometimes tend to be sensual, suggestive, and elegant with a rhythmic flow (Leblanc, 2018).

Natural framing

Anything that can delimit the center of attention in a photographic composition is a frame. And when it refers to natural, it includes architectural frames, that is, those that are not placed in a forced way, but are given. Arches, doors, windows, tunnels, bridges, among others. All of them are valid to close the image to that which is the protagonist and reinforce the sense that is intended to be transmitted (TOO MANY FLASH, 2022).

The rule of thirds

According to the ancient Greeks, the perfect proportion is the golden section 3/5, the division into thirds instead of halves or quarters. From a graphic point of view, the point of interest does not have to occupy the center of the photograph, especially if we take into account that the geometric center is the weakest point of a rectangle. (Perez, 2013: p.225)

Lighting

Lighting is the factor in photographic technique that allows the creation of an ambience beyond the placement of objects in a scene and the point of view to be used in the photographic capture. (Calleja et al., 2015: pp.104)

Outdoor Lighting

Lighting is the fundamental essence for the development of the photographic technique, the light creates a unique look difficult to replicate with studio lighting, at the same time this is decompensated by the sudden changes and constant change that must be had in the parameters of the camera, outdoor lighting is used primarily in architectural photography and in the golden hour to get that unique light in the environment.

Photography as cultural preservation

 Photography is a technique that, although it can be interpreted as an artistic manifestation, its final product preserves memories and history since the beginning of mankind, providing a record that helps to remember historical facts for a better future. Likewise, in the area of culture, many companies, videographers and filmmakers currently use photography as a documentation tool, preserving and disseminating unique facts of a culture.

Digital Media

Digital media are those formats through which information can be created, observed, transformed and preserved on a wide variety of digital electronic devices. For example: digital images, digital videos; video games, web pages and websites. Social media, databases, digital audios and e-books are digital media (Acosta, 2018).

Digital repository

In recent years, the putting online of digital repositories has meant an extraordinary platform to place in open access a multiplicity of documentary funds and collections of a great typological variety, seeking, in this way, the collection, preservation and dissemination of academic production, as well as that of primary sources. (Lopez, 2013ª, p.3, cited in Di Salvo, 2016: p.2).

Layout / Composition

When we talk about diagramming we refer to the fact of organizing elements such as text and image within a support, considering compositional fundamentals of design with the objective of making an aesthetic design (Dabner, 2005 a, p.42, cited in Viscarra and Durán, 2019: p.25).

Typography

The typography, besides being the conductor of the content, is part of the visual information, so it must be in accordance with the theme and style of the publication. In order not to cause disorder and difficulty in reading, it is wise not to use several fonts. The most advisable is to work with one or two variants between body, color and inclination, always achieving the highest level of legibility (Cevallos and Orozco, 2015: p.46).

Color

To achieve a good chromatic contrast between typography and background, part of the one achieved by the white background on black and vice versa. This gives a higher level of readability to the text (Cevallos and Orozco, 2015: p.46).

Image

The image is another very important compositional element, whether it is a photograph or illustration the main objective is to attract the reader's attention and reinforce the message to be communicated with respect to the text (Dabner, 2005 a, p. 42, cited in Viscarra and Durán, 2019: p.26).

Photographs and illustrations

When a certain detail of aesthetics or creativity is sought, the use of illustrations is essential. These help to better attract the attention of readers, since they express originality and expressiveness (Cevallos and Orozco, 2015: p.47).

Layout

The freedom of placement of images and the relationship with the text within the composition differs and generates different points of attraction. How the designer arranges the use of images ranges from what meaning he wants to convey, to what position it should have to adapt to a certain graphic style (p.47).

Interactivity

Interactivity is the gradual and variable capacity of a communication medium to give users/readers greater power both in the selection of content (selective interactivity) and in the possibilities of expression and communication (communicative interactivity) (Rost, 2006, pg195).

METHODOLOGY.
Qualitative Approach

Using a qualitative research approach to determine all the existing first fruits in the province of Chimborazo, a focus group was surveyed to create a buyer persona to determine the type of user that uses the photographic repository, interviews were conducted with people who know about the first fruits generating a more technical criterion, obtaining from this group deep, detailed and quick information and finally, observation as a method of recording the current state of the first fruits.

Quantitative Approach

With the quantitative method, information is collected about the type of user, such as age, lifestyle and their reasons for using a digital photographic repository on the currently existing scoops, this allows us to help determine the interest in the development of this work, in addition to a review of quantitative-secondary data such as documents, texts, photography among others in this way the photographic process is approached with a better focus for each scoop.

Methods

Here we choose the methods that help us most in the development of the work, such as documentary, descriptive and population, which are important for the collection and analysis, being of great importance the development of the interview for the creation of the buyer persona, all these methods allow us to identify the information that facilitates the monitoring of the project.

Documentary

Grierson defines documentary as "all those cinematographic works that use material taken from reality and that have the capacity to interpret in social terms the lives of people as they exist in reality" (Barroso, 2009, p. 14). (Barroso, 2009, p. 14). Through the documentary method, information is gathered from books, web pages, research works, among others to have verified knowledge of the existing scoops and those that no longer exist today, generating the points of interest for the classification of the scoops of Chimborazo.

Descriptive

Using this method applied in the analysis of the interviews, in which closed questions are established and answered by the persons of interest in the city of Riobamba, in order to determine the sector's firsts that they know by heart, generating quantitative data that are subsequently evaluated.

Population

According to Levin & Rubin (1999: 135), a population "is the set of all the elements that are studied and about which we try to draw conclusions". Surveys are conducted to determine the profile of the buyer persona in which relevant data is generated such as age, reasons for visiting a scoop, the information that should be in the repository and whether they prefer to use digital or printed media at present.

Techniques

Surveys are used to determine the buyer persona, in order to know the type of people who are interested in learning about the first fruits, in addition to obtaining specific information about the type of profile. The interview focused on obtaining a more technical criterion about the first fruits of Riobamba, some of the questions are how many first fruits do you know, which is the most important first fruit, how do you see the state of the first fruits at the moment, among other questions that serve to contrast it with the information previously collected. The data sheets are elaborated to provide information about the first fruits, from their antiquity, historical importance for Riobamba, current use, state of its architecture, among other details that are considered for the realization of the work.

BRUCE ARCHER METHODOLOGY

Analytical Phase:

Using the techniques mentioned above, a data collection is developed with all the relevant information for optimal progress, collecting data from the cards already created. All this information is placed in an organized hierarchical level classifying systematically the information collected. With all the information collected, an evaluation process is carried out, where all the data is analyzed and evaluated, this allows to establish the direction to be followed, with the purpose of establishing the best parameters directed in the exceptional resolution of the project.

Creative Phase:

In this phase the scope, limitations or conditions that the project may have are established, in this way the guiding ideas and solutions are formulated, during this stage all ideas are accepted from the most complex to the simplest. Once all the possible proposals have been established, the starting point begins, selecting the solutions that are considered most appropriate to the main objective of the project. Once the idea that complies with this parameter is selected, it is formed and then moves on to the verification stage in which the results obtained are checked, determining

whether it complies with the purpose of the project and, if it does not, the appropriate changes are made.

Execution Phase:

We proceed to put the idea into practice by showing the initial sketch to a limited audience to find possible errors that this could present, given the case the idea should be adjusted by making changes or modifications that are relevant, you should always be clear about the operation and the public that is being handled to develop the respective changes.

Materialization is the process before the final, with the finished work we have to submit it to a more extensive verification process, in the case of developing more than one proposal will be shown all separately, the final proposal or proposals are evaluated obtaining different results that will be analyzed to determine whether it meets the purpose of the project and if not, make the respective changes, this last step of verification is performed whenever a change is executed in the final product for delivery.

RESULTS

The first fruits are cultural elements of great historical value for the place that possesses them, this generated the question of how to take advantage of the first fruits of the city of Riobamba today, Riobamba has been known by many names, but one of the most illustrious is: "The City of the First Fruits", having this important architectural resource the question arises: How are the first fruits of the city of Riobamba preserved? Being constructions of many years old, natural factors such as weather, climate, rain, among others can affect their structure deteriorating them, running the risk of their disappearance.

Knowing that the competent organisms have a bad management in the rescue or preservation of Riobamba as "The City of the First Fruits", there is no adequate information online in an easy way about the architectural first fruits for those people who are not from the city of Riobamba, several of the first fruits are deteriorated and there is no ongoing reforms to try to fix them, people currently do not feel great interest in these cultural elements in some of the cases because they do not know about the first fruits, Others do not know the location of some of these and those who know where some of the first fruits are are disappointed by the difficulty in observing them or the state they are in. This results in an important loss of a cultural resource for the city of Riobamba that, if used in a better way by the governmental identity, are very interesting touristic points to know when visiting Riobamba.

Thanks to the information obtained the justification for the implementation of the project, which is to solve the need for a modern resource that allows the preservation of the first fruits and in turn serve as a means of dissemination for them, being this resource an interactive digital photographic repository which allows through a technological hardware easily access to a group of high quality

images, using this resource we provide information on each of the selected first fruits and placing it on the network so that anyone can access this information without any cost and problem.

Analytical Phase

As previously established the cultural resource of the architectural firsts present in the city of Riobamba are not preserved and disseminated by the governmental identity, trying to know and propose a solution that will highlight useful, employed different techniques and methods that allow to collect important information about this topic.

In this phase, the development of the theoretical foundations of the project was determined, in addition to recognizing the different aspects of the project, such as the interest of citizens in the project, feasibility of the project, method of broad dissemination, level of project scope, status of the scoops at present, among other key aspects that were determined and that were shown in more detail. Among the data collected were surveys conducted for the development of the buyer persona of the citizens of Riobamba to know the level of interest that currently exists for the scoops, in addition to the type of user that would use this repository, observation sheets of the spaces in which the scoops are located and the state they are currently in, the opinions of professionals obtained through interviews that provided new points of view and gave answers to several questions generated through the development of the project.

Surveys

The first starting point is to generate a buyer persona to determine the type of user of the interactive repository and collect important data such as whether the people of Riobamba are interested in the first fruits of their city, this is because they are an important source of dissemination providing information to tourists and teaching new generations about the historical value of the same, the survey was developed digitally using the Google forms tool to have a large scope and to filter optimally the data of interest, the structure is presented below with the results obtained from 22 people.
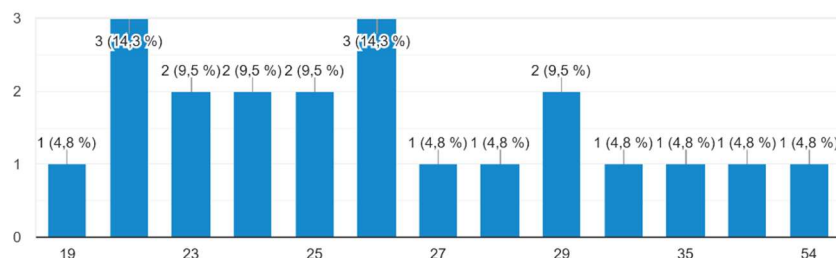
Age:

Illustration 1: Respondents' ages
Created by: the authors

Analysis of question 1: The people who participated in the surveys are within the age range of the target audience that was defined as the group of interest, and there is also participation of young people who are interested in the topic of scoops.
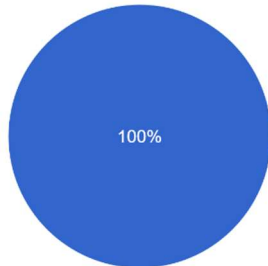
Are you currently working?

Illustration 2: Graph of the survey, citizens currently at work
Created by: the authors

Your city of residence is Riobamba?

Illustration 3: Percentage of Riobambeños surveyed who are currently working.
Created by: the authors

Analysis of questions 2 and 3: With the results of the two previous questions, it can be understood that 100% of the people surveyed are Riobambeñas/os and are currently working, so it can be concluded that they belong to the group of economically active adults in Riobamba.

Do you know what the first fruits of Riobamba are?
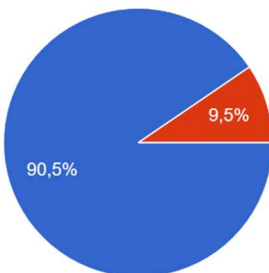
Illustration 4: Percentage of Riobambeños surveyed who know what first fruits are.
Created by: the authors

Analysis of question 4: Most of the participants know what a scoop is, therefore, they know the historical and cultural value it has in their city, which is why they are interested in generating new projects that focus on its preservation.
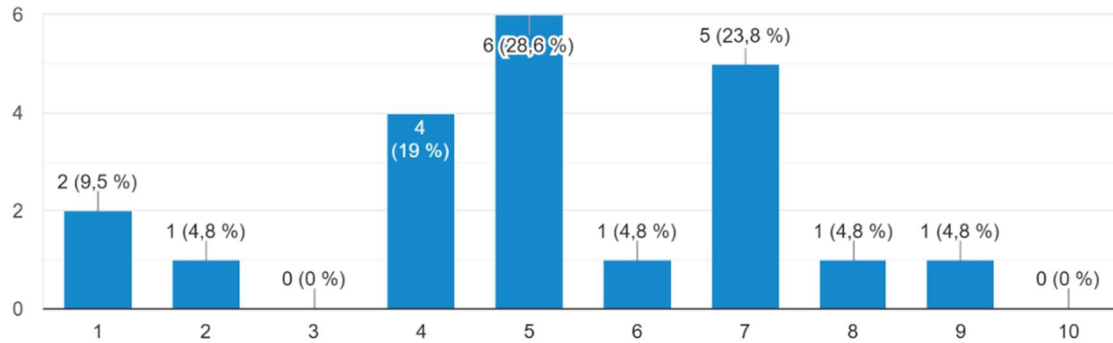
How many of Riobamba's first fruits do you know?

Illustration 5: Range of first fruits known to the surveyed riobambeños
Created by: the authors

Analysis of question 4: Of the citizens surveyed in Riobamba, it is understood that they know a maximum of 6 of the mentioned first fruits and some do not know any of them.

Do the Riobamba scoops generate interest for you?
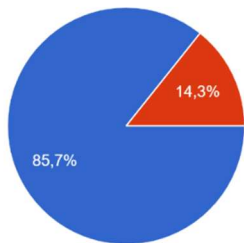
Figure 6: Percentage of Riobambeños surveyed who are working.
Created by: the authors

Analysis of question 6: 86% of respondents say that Riobamba's scoops generate interest, so it is understood that most of them are interested in learning more about the scoops.

Why would you visit the selected scoop?

Reason to visit the first fruits	Number of users	Comments
For its historical value	10	Because they seem to me to be very interesting places with a lot of history. They are part of history Because of their history with the city and its architecture To know its past To know the culture To learn more about them They are places of great interest Because they are historical places, this way I get closer to history. They have a lot of history, all of that attracts my attention. I find them interesting as a way of preserving our history.
For its infrastructure	3	For its architectural attractiveness For medical care. For its architecture
Other reasons	6	Taste To get to know To spend time I am flashy Novelty Because there is nothing else in Riobamba

Table 1: Tabulation of the reasons why users would visit the scoops

Created by: the authors

Analysis of question 7: The answers mentioned in this question give an idea of the interest that exists in the first fruits, it is valuable at the time of taking the photographic shot, special attention was paid to these details in order to capture and highlight them.

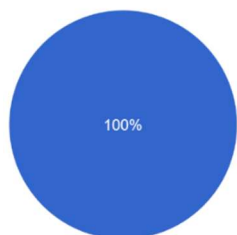**Would you recommend visiting any of the selected scoop(s)?**

Illustration 7: Percentage of people recommending a visit to the first fruits of the forest

Created by: the authors

Analysis of question 8: The public is interested in other people visiting this cultural section present in the city and having a repository of the scoops would greatly facilitate this, they could share the repository with those people so they can see how the scoop is and also so they can know the location of it.

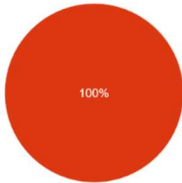**What means do you use when planning a trip?**

Illustration 8: Percentage of digital media used by people in their travels
Created by: the authors

Analysis of question 9: Citizens plan their trips with digital tourist guides, having a digital repository at their disposal is important because they can see the place they plan to go and have a better idea of what they will find, also this will be the turning point to visit or not that place, so the photographic repository has to convey all the essential aspects of the site generating an interest in the viewer.

Do you know what an interactive digital photographic repository is?
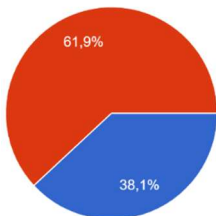

Illustration 9: Percentage of people who know what an interactive digital photographic repository is.
Created by: the authors

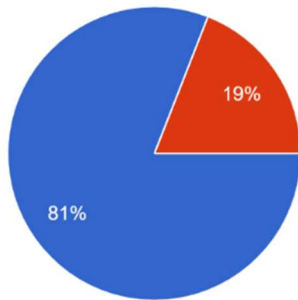**Would you use an interactive digital photo repository?**

Illustration 10: Percentage of people who would use an interactive digital photo repository
Created by: the authors

Analysis of questions 10 and 11: In response to these questions we can see that 61.9% do not know what an interactive digital photographic repository is, but even if they do not know it in question 12, 81% would use it, so it is understood that despite not knowing this technology because it has not been used before, people do want to use it, showing that there is interest in the realization of the project..

Do you consider it important to design an interactive digital repository to learn more about the first fruits of the city of Riobamba?
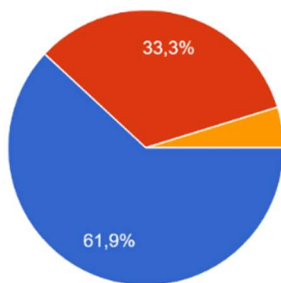

Illustration 11: Percentage of Riobambeños surveyed who are currently working.
Created by: the authors

Analysis of question 12: To conclude the survey, we understand that 61.9% of the respondents consider that it is extremely important to carry out the project, these being the majority, 33.3% consider it moderately important and only less than 5% consider it not very important.

Observation Cards
The places where they were built are relatively close since all the first fruits are located in the historic center of Riobamba. Only two of them are far from the historic center, the First Olympic Stadium and the First Citadel, making it much easier for the outside public who have never visited them to tour them and get to know them.
The tour detected the problems that people would face at the time of knowing these emblematic buildings, although they are quite close, the narrow streets, the excessive light cables combined

with the traffic of the city makes uncomfortable and problematic the appreciation of each of the first fruits, in addition to the state that are some, which need to be remodeled to preserve them, it was noted that one of the biggest problems in its infrastructure is moisture and deteriorating paint.. The first fruits that present more problems in damage to its infrastructure is the First Children's Hospital, has the biggest problems of moisture, wear in his painting and neglect in their reforms, followed is the first fruits that have the problem of wiring, the main one is the First Institute of religious "Santa Mariana de Jesus", The cables cover the representative mural in the front part of the infrastructure, another first that presents these problems is the first College of the Republic "San Felipe Neri", because the cables cover the sign of the institution and are really close to the citizens that pass by it, making their visit difficult and being a danger for the citizenship.

Interviews

First interview: The realization of this work is very successful, the interviewee mentions that although they have photographic material physically in the museum these are not usually very visited, besides they are flat 2D images that do not lend themselves to a great interaction and it is boring for a person that nowadays with the different technologies that exist a photograph is not attractive.

Second interview: Recognizing the cultural value of the first fruits is important but it seems that the competent authorities are not very interested in doing so, some first fruits have been lost by not implementing a plan for their preservation, also some first fruits are currently with deteriorated facades that if not corrected in time may be lost another first fruit, the interviewee also mentions that the development of these works help to generate a visual historical material that helps to preserve in the colloquial mind of the citizens of Riobamba and to disseminate the first fruits strengthening tourism.

Third interview: He emphasizes that developing strategies for the preservation and dissemination of the first fruits is important, this does not have to be the only vital point, but should be carried hand in hand with other strategies, at present not many people are interested in coming to Riobamba to know the first fruits, they are interested in other parts of the city, also mentions that the development of these works would facilitate the development of advertising using the resource developed for public agencies and private enterprise can use them in their campaigns thus attracting new audiences to show their interest in the first fruits.

Fourth interview: He emphasizes that the development of these projects is of great help, but that these projects should not remain only there, strategies should be generated so that the city itself can use this material and disseminate it freely, he also stresses that currently the necessary importance has not been given to the preservation of the first fruits and that evidently some of these can be lost.

Data Analysis

With the formulation of the buyer persona it was possible to determine the user who frequents the repository with more constancy, being this type of person the main focus for which the project will be developed, it could be analyzed in the results that the main interest to visit these scoops is its architecture and history, demonstrating that this buyer persona is interested in history but the right way to reach them is with new technologies, Thus, the interactive digital repository with 360° photography is convenient because it is not only an application that has not been made for the rescue of the firsts but it is also novel and attractive to attract attention, knowing that they are people who already have ease in handling them, we know that they will not have difficulty but it is still important to generate a simple and friendly interface with the rest of people.

With the observation it can be seen that not all the first fruits are or have undergone renovations, their structure is going through moisture problems or various damages, although there are also first fruits in excellent condition, these were considered as an initial starting point for the development of the project, knowing that there is interest in it and that the points to highlight should be its infrastructure and history can start with the design of the product.

Finally, according to the results of the interviews, there is no current project for the scoops that is digital, at the moment only printed media are being used, so the realization is essential for the dissemination of the scoops and would be highly appreciated and valued by government entities, In the four interviews we were told that they are interested in the realization of the project and in its future implementation, which would be important to be applied in the future, this emphasizes the interest not only of the buyer person, there is also an interest of government entities to preserve this resource with new technologies, but of course this would only be possible with proper management and resources from the competent authorities.

Creative phase

With the information analyzed it is time to find a modern means with which we can preserve and disseminate the first fruits of the city of Riobamba, we are looking for a method not commonly used, but that is easy to access and understand, considering that we are going to develop an interactive digital repository of the architectural first fruits of the city of Riobamba, this medium is not widely used for the dissemination of the first fruits, Apart from being attractive to the public, high quality photographs of each of the firsts will be shown, each of the photographs will have the particularity of being in 360 ° which is the interactivity factor, people can move within the photograph zoom in and out of this to appreciate details in the firsts, also there will be small notes at key points which will show interesting information of each of them. It is important to consider the most known scoops by the respondents, having as a starting point to show the less known scoops and thus preserve them digitally.

Formulation of guiding ideas

The following are the guiding ideas that were generated for the first steps and realization of the project:

GUIDING IDEAS	
1	Use of platforms that facilitate the layout process.
2	Generate an interactive tour among the first fruits, knowing that most of them are located in the historic center of Riobamba.
3	Create a startup animation for the repository.
4	Generate the photographs from aerial shots to avoid highlighting the wiring and to obtain a different perspective of the scoops.
5	Use 3D vista software for the creation and layout of the repository.
6	Consider as a starting point the best-known scoop as a result of the surveys.
7	Add music.
8	Use the panoraven platform for the layout of the project.
9	Use the Roundme platform.
10	Create interactive points on the photograph so that people can click and information about the history of each scoop is displayed.
11	Generate a Facebook repository.
12	Create an interactive map that allows people to know the location of the first fruits and to move between the first fruits.
13	Create on a web site for easy access to the repository.

Table 2: Presentation of guiding ideas

Created by: the authors

Selection of solutions

Selection of solutions	
As a main idea for taking photographs, the resolution is taken as follows:	• Generate the photographs from aerial shots to avoid highlighting the wiring and to obtain a different perspective of the scoops.
To solve the interactivity take the resolution of:	• Generate an interactive tour among the first fruits, knowing that most of them are located in the historic center of Riobamba.
	• Create an interactive map that allows people to know the location of the first fruits and to move between the first fruits.
	• Create interactive points on the photograph so that people can click and information about the history of each scoop is displayed.
For its layout we take the resolution of:	• Consider as a starting point the best-known scoop as a result of the surveys

	• Adding a transition to go from one photograph to another
	• Use the panoraven platform for the layout of the project

Table 3: Selection of solutions
Created by: the authors

It is important to mention that the Roundme platform was not considered, because it is currently unstable and it is not advisable to work on it despite having many more customization and layout options.

Production of the digital repository
- Taking of photographs
Once the first fruits were selected, we began to collect the different photographs of each of the first fruits, these photographs are of high quality to not lose information when working with them, the photographs were planned in the mornings until noon, considering the time of year, it is not very appropriate to take in the afternoon or wait for a sunset, because we are in winter and it is very unlikely to find that kind of sky. The photographs taken are aerial photographs, the technical element used is a drone, which allowed us to generate 35 photographs of each location to later generate a single Equirectangular photograph, the photographs were taken in Raw format to save the metadata and avoid overexposure or underexposure in them.

- Photographic Editing
We started with a first process of development in the lightroom software, in which a preset was generated and applied to all the photographs, with the help of the artificial intelligence of the same software in its version 2023 we could automatically select the sky for editing.

- Equirectangular
Already having the edited photographs, the software panoramaStudio 2 pro was used, which greatly facilitated the process of digital baking, since this specialized software allows to create an Equirectangular photograph with the 35 photos already taken, adjusting parameters such as focal length, very good results are generated.

- 360° composition and floating texts
At this stage, the recommendations of the first prototype were considered, since each Equirectangular photograph was subjected to a second editing process in Photoshop software, which allows us to eliminate elements, remove flaws in the infrastructure of the first images, and with it a general grid was created to have a better guide to locate the informative texts on the platform. These texts were written according to what was investigated in the second chapter and

the information gathered in the interviews, as well as the results of the surveys in order to have information of interest to the users.
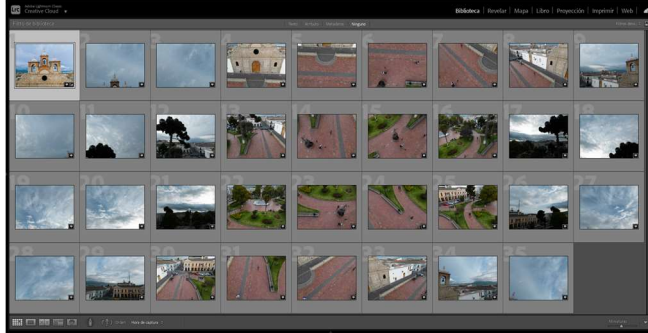
Taking photographs

Illustration 12: Taking photographs - The Cathedral
Created by: the authors

- Photo Editing

Illustration 13: Photo editing - The Cathedral
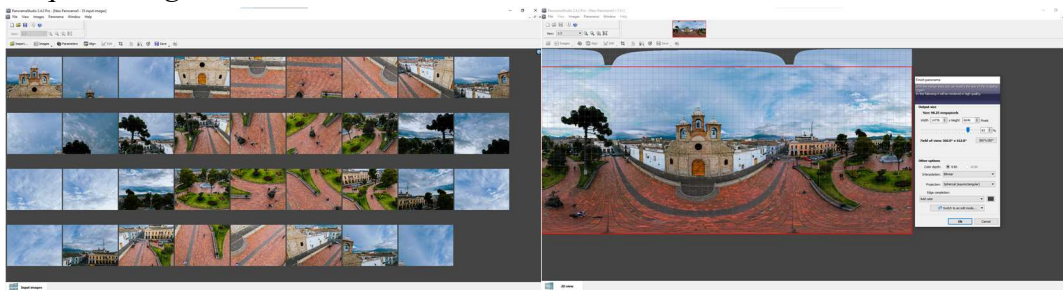Created by: the authors

- Equirectangular

Illustration 14: Layout of the photograph Equirectangular - The Cathedral
Created by: the authors

Ilustración 15: Fotografía equirectangular - La Catedral
Created by: the authors

- 360° composition and floating texts

Illustration 16: 360° Composition and floating texts - The Cathedral
Created by: the authors

Illustration 17: Final Equirectangular - The Cathedral

Created by: the authors

Layout of the digital repository
Once the photographs were uploaded, we proceeded to name them and arrange them according to the order of the firsts, considering the Cathedral as the central axis of the whole tour.
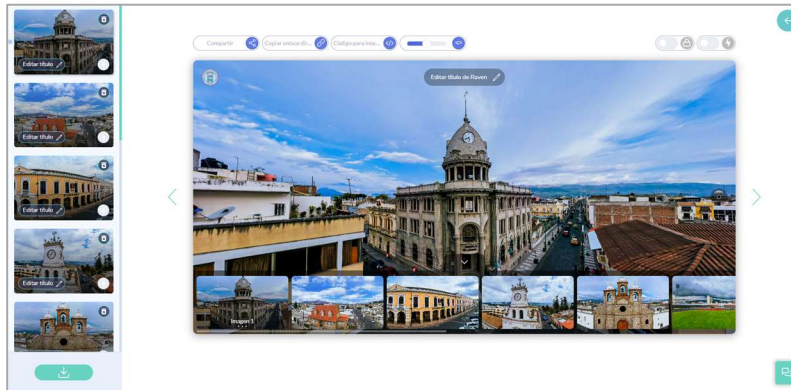
Illustration 18: Layout in the panoraven platform
Created by: the authors

In order for the photographs to load with all their quality and to be optimized, the super Raven option was activated, then the information collected in the different research processes was added with the "infospot" option, which generates a dynamic text box, and the boxes were assigned according to the grid previously created in Photoshop.

Illustration 19: Layout with infospot text boxes
Created by: the authors

Illustration 20: Layout with infospot text boxes

Created by: the authors

Hotspot Tour

To provide a better experience, people can move from one photograph to another, since hotspot were created, these interactive points allow moving between photographs with a transition called in photography as: zoom in, this provides an extra dynamism and a better experience for the user who uses the repository.
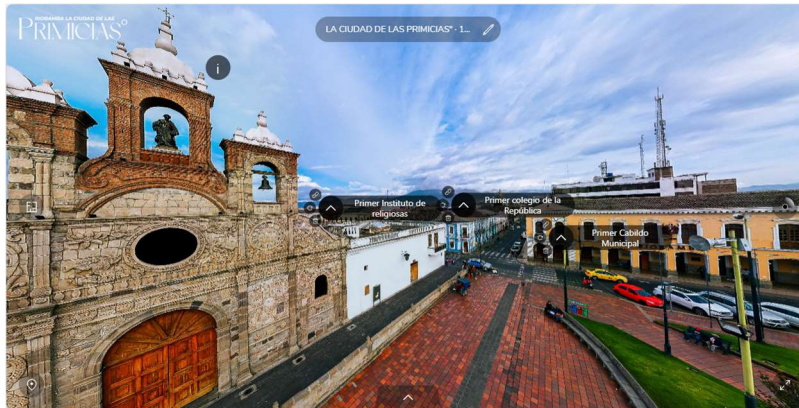

Illustration 21: Hotspot buttons applied to photography
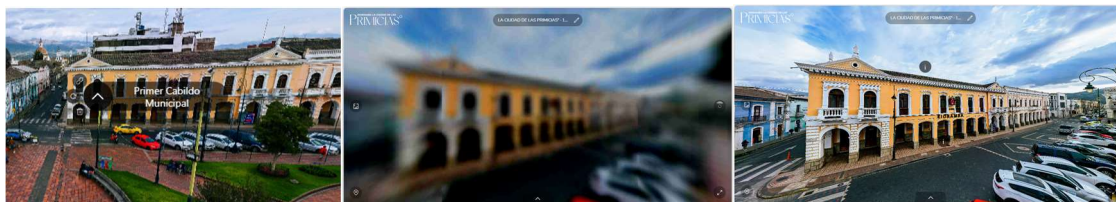
Created by: the authors

Illustration 22: Process of transition from one photograph to another by hotspot buttons

Created by: the authors

Execution phase:

It is determined that users had a good reception of the final product, this is how it can be evidenced that the quality of photography, information and interaction are optimal, earning a variable rating between 9 and 10, in fact, it can be seen that the repository caused interest in people since they suggest adding more information, and that the authorities consider it to be applied in the future.

Considering the results of the verification survey we proceeded to add informative texts for the digital repository, as an addition, the photographs were checked again so that there is no problem

or error in the edition, concluding with the objective of the project, which is the preservation of the scoops with the design of the interactive repository with 360° photography.

REPOSITORY URL: HTTPS://PANORAVEN.COM/EN/EMBED/AJBFPVFQJH

CONCLUSIONS

The present research allows the identification of the architectural firsts of the city of Riobamba, obtaining a list of the most relevant ones based on their history, architectural characteristics, need for preservation, allowing their registration and facilitating the realization of the project.

Analyzing the information gathered, the characteristic elements of 360° photography are identified, the same elements that facilitate the planning of the photographic shots of each scoop, which provide a new point of view for the viewer and are of great help for the development of this project.

It is clear that it is necessary to determine the technical and compositional aspects both in technical equipment, design software for taking photographs and subsequent layout in 360 °, as they help to develop the taking of photographs areas using drones, allowing to create a different perspective, for the efficient composition of equirectangular photographs.

Thanks to all of the above, the interactive photographic repository is designed to provide a digital record of the firsts that is preserved over time, reinforcing the designation of Riobamba as the city of the firsts, is freely accessible and easy to disseminate, being a resource that adapts to new technologies and potential tourists in the city.

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