

Discover Certosa

Design Brief

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INTRODUCTION

Discover Certosa is an interactive mobile application designed to introduce and engage students, particularly those from out of town, to the historical and cultural heritage of the Certosa of Bologna. Despite its rich history and significance, our research has shown that very few students are aware of Certosa, and even fewer have visited it. This app aims to change that by providing an interactive experience. Users can explore the Certosa through thematic tours, guided by an interactive map and supplemented with audio guides or textual descriptions. The app also encourages active observation, participation and interaction by inviting users to participate in a photo challenge, where they can capture and share unique details they discover along the way. Completing the challenge rewards users with a small gadget, enhancing their overall experience and connection to the site.

1. THE CONTEXT

1.1 The Certosa Monumental Cemetery of Bologna

The Certosa Monumental Cemetery of Bologna was instituted in 1801, thus being one of the first monumental cemeteries in Italy, and included among UNESCO World Heritage Sites in 2021 as part of the project “Portici di Bologna”. Though mostly known as the main city cemetery, the museal nature of the Certosa was manifest since the birth of the institution. The history of the area the cemetery was erected upon is extraordinarily rich and ancient, going back to VI century BC, when the very same space hosted an Etruscan necropolis, fortuitously brought back to light during the expansions works that took place in 1869. The present-day cemetery could be ideally divided into two main areas, the eastern one, spreading around the first nucleus, consisting of the former Carthusian monastery, and the western one, developed starting from the end of XIX century.

The current configuration of the site is the result of an historical and cultural layering which has its core in the XIV century, when the Carthusian monastery, which was the very first unit of the cemetery at its foundation, was built. After the dismission of the church by will of Napoleon in 1797, the former monastery's structures were reconverted to fit the needs of the newly approved city cemetery, but the artistic value and overall appearance of the previous spaces, like the Church of Saint Jerome, has remained almost unchanged to this

day. During the years, the Monumental Cemetery was affected by several expansions around this main core, which started from the very beginning of its history and went on to recent years, with additions and restoration campaigns. In the XVIII century, the changes that affected the Certosa were both related to the need to accommodate faiths and beliefs different from the Catholic and testimonials to the aesthetic tendencies spreading in Italy, with a particular attention to the Neoclassical experience, which had its own original declination in Bologna and is widely testified by the artworks gathered in the cloisters and main points of interest of the site. Starting from 1833, new plans to enlarge the cemetery were begun and new spaces of classical inspiration, like *Sala del Colombario*, were added to the existing area, and this tendency continued spreading after the unification of Italy, with spaces like *Galleria degli Angeli*. Important additions were introduced during the XX century, with the edification of the Monumental Entrance, on the side of the stadium, and of Cloister VI, *Campo degli Ospedali* and *Campo Carducci*, which today host some of the main historically relevant star assets of the Monumental Cemetery.

By the end of the XIX century, the cemetery was affected by a huge expansion plan involving the western area, with the addition of the Jewish Cemetery, inaugurated in 1869, and the creation of *Ara crematoria* and *Cinerario* to address the needs related to the increasing spread of crematory practices. This section of the cemetery was further enlarged after World War II, with the edification of what is currently known as *Cimitero Moderno*, which, however rich of beautifully executed caps and tombstones, marks the shift from monuments as spaces of public memory to private burials.

From this brief history is clear how the Certosa presents a multifold nature: the needs and features related to the burial site coexist with its historical, artistic and cultural relevance, all aspects that were taken into consideration and were somehow reflected in the project design. Due to the chronological stratification and artistic richness of the eastern area of the Monumental Cemetery, the project is strictly focused on this section of the Certosa as a privileged space for enhancing the cemetery as a Cultural Heritage site.

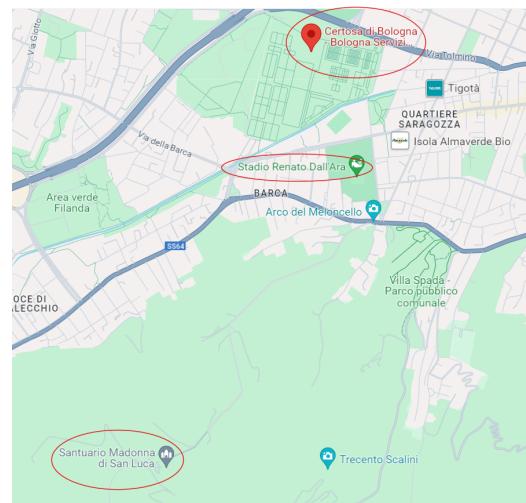
1.2 Location and structure

The Certosa Monumental Cemetery is located in Via della Certosa 18, right outside the city walls, near some of Bologna's major attractions, such as the "Renato Dall'Ara" stadium and the Sanctuary devoted to the Madonna of San Luca, which makes it easily reachable with public transportation.

In its current configuration, the cemetery occupies a total surface of about thirty acres, nine of which are reserved to the monumental area. The two main areas previously introduced are accessible through

Fig. 1. Google maps location

several entrances. Two main entries – Monumental Entrance and Piangoloni Entrance – connect to the actual monumental area, hosting the former monastery structures, the cloisters, halls, galleries and sections introduced between XIX and XX century, while two more entrances directly lead to *Cimitero Moderno*. An additional entrance is reserved to the Jewish Cemetery.



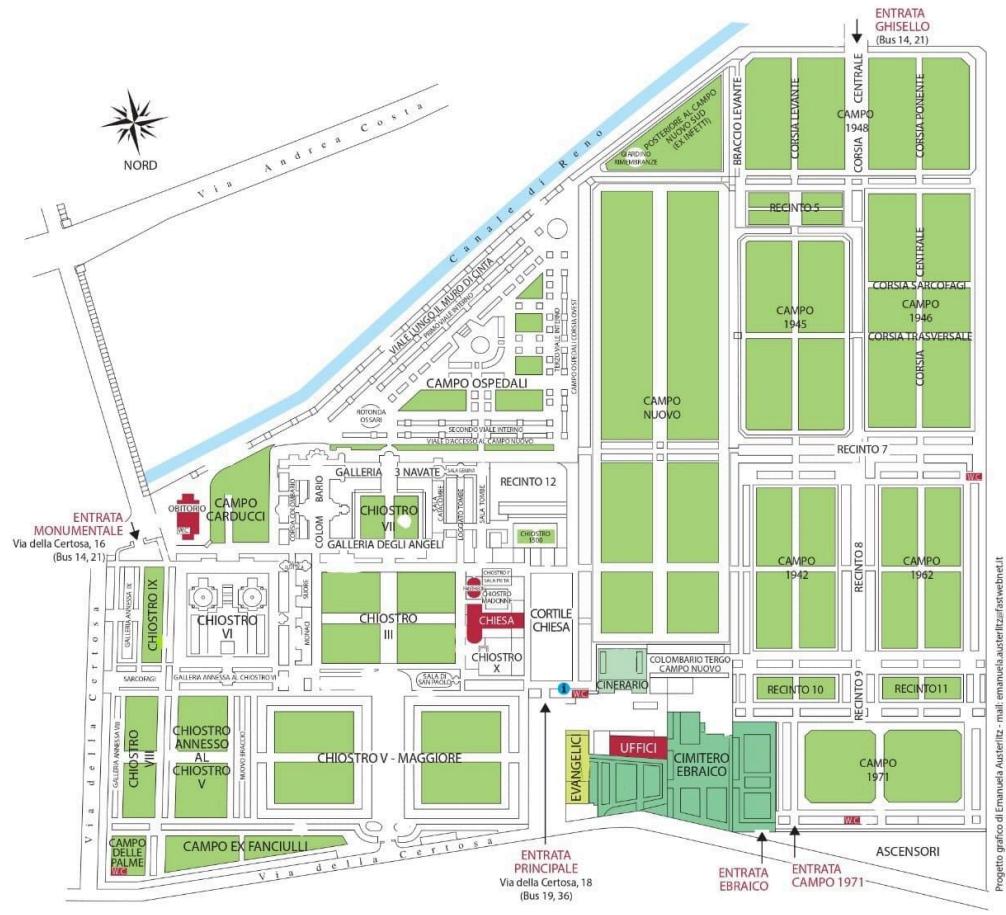


Fig. 2. Certosa Cemetery map

As a public space, the Certosa presents the appealing possibility of a free and casual visit, almost unbound by temporal limitations, fostering a genuine discovery of some of the most valuable results of local artists belonging to different areas and artistic currents, and encouraging critical thinking about the history of the city and of the country. Moreover, its multiple character of burial site, historical site, artistic site, enables it to potentially attract a large set of visitors, from local citizens of all ages, to students and schools, to tourists.

1.3 Star assets

Granted that the location itself can be considered one of the Monumental Cemetery's star assets, the site presents a remarkable variety of artworks, the majority of which is condensed in its eastern section. Some of them are:

Piagoloni Entrance: it was introduced in 1809. The sculptures on top of the pillars were realized by Giovanni Putti (1771-1847), one of the main artists in Bologna during Napoleon's occupation and the subsequent Restoration period. Putti is considered to be one of the most important sculptors of the local Neoclassicism.



Fig. 3. Piangoloni Entrance

Church of Saint Jerome: with the surrounding spaces belonging to the former Carthusian monastery (Madonnas Cloister, Piety Hall, Pantheon, Cloister I) it is the most ancient core of the Monumental Cemetery. The construction of the building began in 1334. The original medieval brick facade is still visible, though partially hidden by the porch, enlarged in the XVIII century with the addition of the monumental entrance composed of five arches.



Fig. 4. Church of Saint Jerome

Cloister III: placed right behind the apsis of the Church, it was introduced between the half and the end of the XVI century. This is where, when the Cemetery was established, the first monumental tombs were erected by some of the most relevant artists of the XIX century Bologna. The Cloister is also renowned for its beautiful painted graves, which represent a *unicum* in Europe.



Fig. 5. Cloister III

Carducci's grave and Lucio Dalla's grave: the fame of the cemetery is also due to the personalities buried inside its walls. One possible example is represented by the poet Giosuè Carducci, whose burial monument is located in the field that brings the same name, at the end of the path facing Cloister VI. *Campo Carducci* also hosts the grave of the singer and songwriter Lucio Dalla, whose memory in Bologna is greatly vivid.



Fig. 6. Carducci's grave

Cloister VI: it is one of the smallest and yet most monumental cloisters of the Certosa. The project, by Filippo Buriani and Attilio Muggia, was completed between the 1920s and the 1930s. The Cloister hosts artworks from some of the best local sculptors, like Giulio Ulisse Arata and Ercole Drei, although its importance is also due to its historical relevance, testified by the presence of two commemorative monuments: the *Monument Ossuary to the Fallen of the Great War* and, and right behind, in an ideal continuity, the *Monument to the Martyrs of the Fascist Revolution*.



Fig. 7. Cloister VI

Frassetto Monument: it is located within *Campo degli Ospedali* and represents one of the most suggestive burial monuments in the Certosa. The monument was realized in 1953 by Farpi Vignoli, an original local artist who enriched the cemetery with other works, such as the *Ennio Gnudi Sarcophagus*.



Fig. 8. Frassetto Monument

Monument to the Fallen Partisans: this asset is located in the middle of *Campo degli Ospedali*, right in front of *Giuseppe Dozza's Sarcophagus*. It was completed in 1959 by Piero Bottino, who managed to create a highly evocative structure. The monument is relevant both for its artistic value, being a significant example of Italian Rationalism, and for its historical and cultural meaning, hosting the remains of the partisans who lost their lives during the civil war.



Fig. 9. Monument to the Fallen partisans

1.4 Institutional Goals

The Certosa Monumental Cemetery is one of the museal institutions managed by the city Municipality, specifically by the area “Storia e Memoria” (“History and Memory”) of “Settore Musei Civici di Bologna” (“Bologna’s Civic Museum Section”), which has its main core in Museo Civico del Risorgimento. This disciplinary area is in charge of the promotion of the city’s historical heritage. Since 2009, the cultural enhancement of Certosa Monumental Cemetery’s heritage is handled by Museo Civico del Risorgimento.

The main goal underlying the activities promoted by the institutions and the projects implemented over the years can be summarized in the effort of spreading awareness on the value of the Certosa as historical-artistic site, making it widely known not only as the city’s main place of burial, but as a museum space in all respects.

This objective has been pursued through a variety of strategies, starting with the growing digitization of museum assets. A massive photographic campaign has led to the digital acquisition of more than 6000 artifacts, a selection of which has been organized according to thematic paths in the Monumental Cemetery’s website. Recently, the Monumental Cemetery has also been the subject of virtual tours that retrace the points of major artistic interest, the most recent of which are the [VN360°](#) and the [Virtual Tour of the Church of Saint Jerome](#).

A complementary activity in this respect is the dissemination of the knowledge gathered within the Monumental Cemetery, that goes beyond the extraordinary amount of information collected in the website dedicated to the Certosa, with events and activities in situ addressed to various kinds of audiences, children included, and aimed at promoting the multilayered reflections fostered by the place and its complex and fascinating history. Some examples can be retrieved from the website of [Museo Civico del Risorgimento](#), which presents a list of proposals for schools inside the walls of the Monumental Cemetery, involving different thematic pathways, such as the history of the city, the Great War, the main artistic tendencies and the role of women as enlightened by their presence within the Certosa.

Discover Certosa falls within the scope of the main institutional goals, promoting the discovery of the most significant artistic artifacts of the monumental cemetery through a device-based interaction experience and disseminating knowledge about the site.

1.5 Target audience

As mentioned before, the strategic location of the cemetery, together with its manifold nature of intimate place for meditation and mourning, cultural and artistic site and collector of the city's history, has the potential for attracting a diverse range of audiences. The challenge, however, is to enhance the museal component intrinsic to the Certosa since its foundation, promoting it to the widest possible set of visitors. Taking into account the relevance of the site for the city of Bologna, locals may be more aware than other possible audiences of the features of the place and engage with it in multiple ways. On the other hand, university students, due to the particular status of Bologna as university city that welcomes every year thousands of students coming from all over Italy and the world, may not know the Monumental Cemetery at all, or know it just for its main function, possibly ignoring its historical and artistic relevance. For this reason, off-site students were chosen as main target for the project, as will be further argued in the devoted section (§ The Audience).

1.6 Cognitive Goals

The Certosa is a wonderful collector of cultures, artistic experiences, private and public memories, but its very strength may also become a challenge. As mentioned, the Monumental Cemetery extends over an area of about thirty acres: without a proper guidance, one can easily lose track of its path through the intricate structures and underground corridors of the cemetery, possibly missing major points of interest and getting frustrated. The serendipitous discovery of the stunning spaces, monuments and artworks gathered in the cemetery is doubtless one of its most fascinating features, however it could be complemented by the provision of a more structured itinerary, that allows the visitor to easily navigate through the site.

Making the visitor's experience meaningful was one of the main goals in developing the project design. In this respect, different strategies have been adopted, starting from the attempt to stimulate meaningfulness through ordered and defined pathways, in order to eventually boost the visitor's memories of the main steps within its itinerary. Additionally, the design provides the proposal of a task to help the visitors make the most out of the individual itineraries and stops, each with its set of characteristics and cultural and historical background, thus fostering sense of purpose and agency in the user. At the beginning of the experience, the

visitors are asked to focus on details or stops they were particularly impressed by and to take pictures of them, so that to have a personal collection of the treasures of the Monumental Cemetery at the end of the tour.

Developing a sense of care for the Certosa was the other main point taken into consideration in the development of the design. Though it may be more difficult to foster caring for users who don't feel an intimate connection with the city and its history, the universal concepts and emotions triggered by the very nature of the Certosa and the stories unveiled by its monuments can have an impact on the way the visitor engages with the place. To encourage this process, two main strategies were adopted. On the one hand, the visitor's knowledge about the place was developed, giving attention to stories about people buried in the Monumental Cemetery, but also focusing on the main artistic tendencies and results displayed within the site and on the hidden details revealed by the Certosa's underlying symbolic imagery. On the other hand, there is also the attempt to encourage an emotional engagement with the place, trying to trigger empathy through auditorial narratives and stimuli and historical empathy from the main spaces of historical relevance – such as the multiple examples of commemorative monuments to the victims of the wars – with the employment of perspective taking strategies.

2. THE AUDIENCE

Our primary target audience consists of university students, with a particular focus on those who are studying away from their hometowns. According to our survey results, 78% of respondents are non-local students, while 21% are from Bologna. The survey also revealed that 56% of the respondents do not know about the Certosa of Bologna, and of those who do, only 16% have ever visited it. This indicates a significant opportunity to **raise awareness and interest** in Certosa among students.

Are you a citizen of Bologna or a transfer student ?

60 risposte

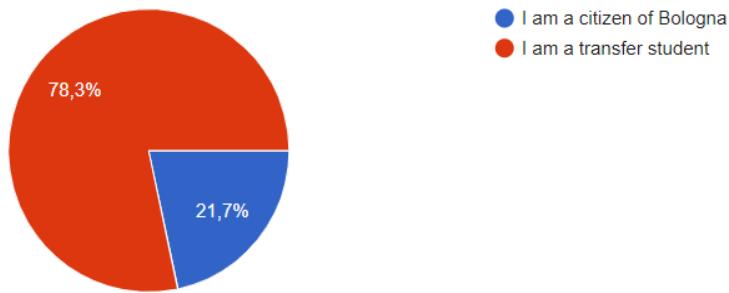


Fig. 10. Graphic “Are you a citizen of Bologna or a transfer student?”

Do you know the Certosa Monumental Cemetery of **Bologna**?

60 risposte

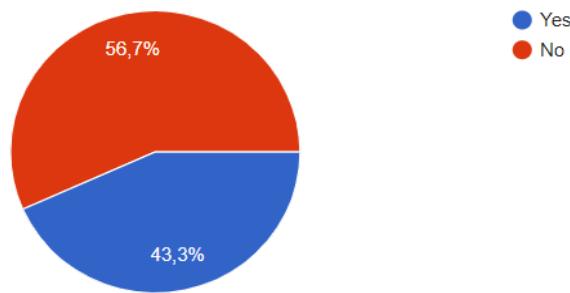


Fig. 11. Graphic “Do you know the Certosa Monumental Cemetery of Bologna?”

Have you ever been to the Certosa Monumental Cemetery of Bologna?

60 risposte

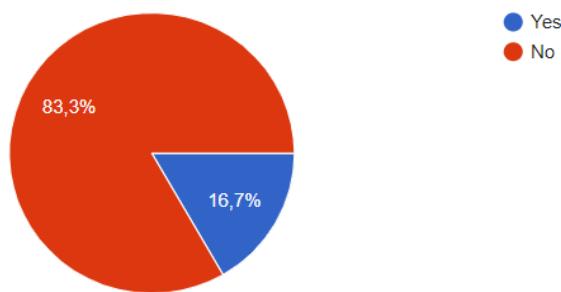


Fig. 12. Graphic 3 "Have you ever been to the Certosa Monumental Cemetery of Bologna?"

We also have secondary audience made by individuals who already frequent Certosa, such as residents visiting the cemetery to pay respects to their deceased loved ones and people using the cemetery as a shortcut. The Certosa is located near the stadium, and it is common to see football fans passing through it, without paying attention. Our goal for this secondary audience is to change visitor attitudes or beliefs and encourage them to see Certosa from a different perspective, highlighting its historical and artistic value. While these individuals may not initially be interested in art and history, we have developed the tours to be engaging and interactive to attract this type of audience as well.

The Cemetery of Bologna is a beautiful open-air museum, rich in historical and artistic significance. Students, especially those who appreciate art and history, will find the experience visually and intellectually stimulating but also those who are less interested in this discipline will be satisfied by the **aesthetic pleasure** provided by the Cemetery. Moreover, the application offers different thematic tours (one based on art, one based on famous people buried in the Certosa and one that's about mystery) that make the experience more compelling and stimulating. This variety is thought to cater to different interests, ensuring that there is something appealing for everyone. As a cemetery, Certosa provides a serene and quiet environment conducive to introspection and **contemplation**. Students might appreciate the opportunity to take a break from their busy lives and from the noisy city center, and spend some quiet time reflecting in a peaceful setting. Lastly, many out-of-town students, often on tight budgets, find themselves seeking affordable and enriching activities. Visiting Certosa is not only **cost-free** but also offers a unique opportunity to explore Bologna's cultural heritage without financial constraints. This accessibility makes it an appealing choice for students looking to engage in **meaningful experience** during their time in the city.

Discovering the Cemetery of Certosa as a cultural gem faces several challenges that impact its recognition and accessibility. From misconceptions about its cultural significance to issues with promotion,

information availability and physical accessibility, these barriers hinder potential visitors from discovering Certosa and from fully appreciating the historical and artistic richness of this unique site. Addressing these challenges is essential to enhancing visitor engagement and fostering a deeper appreciation for the Certosa. First of all, the Monumental Cemetery of the Certosa is often **overlooked as a cultural site** when people search for attractions to visit in Bologna. Unlike centrally located museums and exhibitions, Certosa is perceived primarily as a cemetery rather than a historical and artistic treasure. Also there is lack of promotion and this leads to its exclusion from typical recommendations and diminishes its visibility among potential visitors. Another important factor to consider is the **lack of information**. The site suffers from inadequate information accessibility. The official website functions poorly and obtaining comprehensive details about Certosa proves challenging. The current paper map provided for navigation within the cemetery is ineffective, and it may cause visitors to abandon exploration of key points of interest due to difficulty understanding the map. Moreover, there are some QR codes intended to provide information on major works, but none of them are currently working, limiting visitors ability to engage with the historical and artistic aspects of the site. Another crucial barrier to face is about accessibility. While the route is relatively straightforward, it is uneven and impassable in several areas, making it difficult for wheelchair users or individuals with mobility impairments to navigate. Additionally, staircases are present at various points throughout the site and are required for access to several monuments, further restricting accessibility.

To fully experience what we have created with the app Discover Certosa, users will need the following **devices**: smartphone, headphones, internet connection, smartphone camera, GPS navigation device. The smartphone is the central element for using the application, available on both iOS and Android platforms. The application will be freely downloadable from a QRcode on the flyer promoting our application, placed at the different entrances of the cemetery. The application is required to access the interactive guide and multimedia content offered. For those wishing to use the audio guide included in the application, headphones are necessary. This allows users to listen to detailed descriptions and audio stories about the points of interest within Certosa, enhancing their experience. Users are encouraged to take photos of details and significant moments during their visit. By using the smartphone's camera they can capture and share their discoveries with other users through the application. An integrated GPS navigation device in the smartphone will help users navigate within Certosa. The application's interactive map will guide users through various points of interest and thematic routes, ensuring smooth and accurate navigation.

We also provide at every entrance printed maps to provide users without smartphones an alternative method to explore Certosa's thematic routes. This ensures that all visitors can engage with and appreciate the cultural and historical richness of Certosa in a manner that suits their preferences and needs.

3. CONCEPT

3.1 Problems

1. When thinking about developing an application for the Certosa, the first thing that occurred to us was the problem of **the audience**. The locals in fact for sure appreciate the beauty of this place but, despite this, the Certosa is mainly known for its function as a cemetery, it's not considered a museum or a cultural/artistical place to visit.

In addition, from the survey that we conducted on the population of students between 18-28 years old, it emerged that most of them didn't know about the Certosa at all.

So on one side we have the people that already know the Certosa but just as a cemetery, and on the other we have students (mostly off-site) who never ever heard of it.

That was our first problem: to understand our audience's prejudice and work with it, trying to figure out ways to emphasize the Certosa as a cultural heritage site and to entice to visit it.

We tried to face the problem from different perspectives, but it was particularly useful to choose a target audience, so that we could lead on our proposals based on that specific target.

But we didn't want to exclude the rest of the population from our proposal so, when possible, we tried to always provide alternatives, so that the experience could be enjoyable for everyone.

To make the site more appetible we thought it could be useful to underline, through the social pages and flyers, the great use of new technologies in the site (panoramas, audio features available, qr code presence, geolocalisation..), so that it should not just be considered an old-fashion cemetery.

The cemetery itself and the area around it is actually really frequented, both for the stadium nearby, but also for the Saint Luke path. So basically what we need to do is just to make the passengers aware of the beauty that is hidden inside the Certosa, and the social media pages might be really useful for this scope.

Also the presence of a challenge in the app with a final prize is an incentive designed specifically for our target audience, so that they could have an additional motivation to visit the Certosa.

2. Another problem that we had to face was the one regarding the **several entrances** of the cemetery. Since we wanted to provide pre-imposteted paths, we had to make a choice: or we

could have developed 4 different paths with one for every main entrance of the Certosa where you could start your tour, or we could have found a starting point that could be easily reachable from all the entrances and focus the division of our paths on the thematic area. After several inspections of the place, we decided for the second option since it was quite clear that all the main attractions of the cemetery were almost in the same area, so regardless of the entrance that you might take, you should eventually still reach a specific point that is quite in the center of the Certosa. But to make the experience more enjoyable for our visitors, we thought it was a good idea to start the tour with a general audio guide/text that could keep company to the visitor during the walk to the starting point, so there won't be any waste of time and the visitor could start the tour immediately after walking through the chosen entrance.

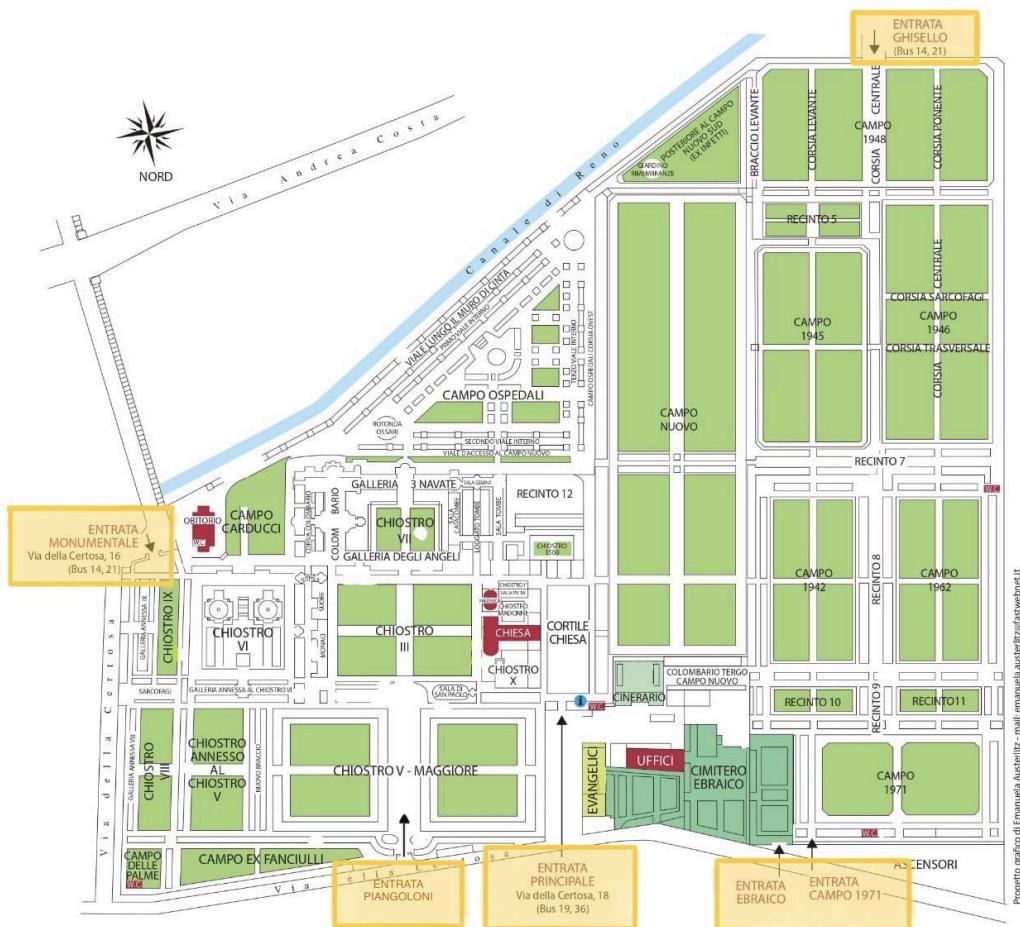


Fig. 13. Certosa Cemetery entrances map

3. One of the main issues was the **orientation**. The first time we went to inspect the Certosa, we experienced a number of problems dealing with the map provided by the site. In fact the map itself is not really accurate and the position of the monuments does not always match with reality. In particular we had difficulties reaching some parts of the cemetery because the alleys were blocked and unable to be accessed. To overcome this problem it immediately became clear to us the need to implement the already existing map with a geolocalisation system, so that the visitors could always see its position live on the map, and the proximity to relevant monuments. Also we want to indicate in real time the presence of restoration works blocking the road and provide alternative ways to overcome this obstacle and return to the main path.
4. Another important issue that we had to face was the one regarding the **Internet connection** and the devices availability. Having chosen as our target audience young students, we kind of just assumed everyone nowadays has a smartphone and the possibility to connect to the Internet everywhere. But in this way, we excluded a large and older part of the population that regularly visits the cemetery. To provide this audience with the possibility to consider the Certosa not only as a graveyard but also as a cultural site, we decided to supply maps with our cultural offer at the entrance, so that they could still choose a path and try to enjoy it. In addition, on the back of the map they will find the most important information they need to have for the tour, to make up for the lack of the audio guide. Sure, the experience could not be as accurate as the one provided through the smartphone and through geolocalisation devices, but is still something to expand our audience.

3.2 Museological approach

The Discover Certosa app adopts a thoughtful and respectful museological approach that aligns with the unique nature of the UNESCO site Certosa of Bologna. This approach is guided by principles that ensure the preservation, education, discovery and respectful engagement with the site's historical and cultural significance.

1. Valorization of the cultural site: the Certosa is not mainly known for its value as an artistic and cultural site. With our app we want to change that and make the visitors focus on the great heritage that one can find here, with no peer in the world.

2. Preservation of Cultural Heritage: the app emphasizes the importance of preserving the Certosa's cultural and historical heritage. This is achieved by providing detailed and accurate information about the site's history, art and famous people buried there. The content is curated to respect the integrity of the site while making it accessible and engaging for visitors.
3. Educational Aim: the app employs interactive features to enhance user engagement and learning, Audio guides, detailed texts and multimedia content such as images and videos bring the history and stories of the Certosa to life. Users are encouraged to explore the site actively, participate in challenges, and share their discoveries, fostering a deeper connection to the site.
4. Enjoyable experience for everyone: to overcome the different expectations of the visitors, the Discover Certosa app provides a general path that will later split into 3 other paths: creepy, artistic and famous people. The aim is to meet the needs of different types of visitors to offer a special immersive experience.
5. Respectful Engagement: given that the Certosa of Bologna is an active cemetery, the app ensures that all content and activities are designed with the utmost respect for the site's primary function as a place of remembrance. Audio guides are recommended to be used with headphones, and group challenges are avoided to maintain a peaceful environment. Visitors are reminded to behave respectfully throughout their visit.
6. The app aims to make the Certosa of Bologna accessible to a wide audience. This includes providing a paper map for those without smartphones, offering offline functionality, and ensuring that information is presented in a clear and concise manner. The thematic routes are designed to cater to various interests, ensuring that there is something for everyone.
7. Continuous Improvement and Feedback: to ensure the app remains relevant and effective, user feedback is actively sought and incorporated. This ongoing process of improvement helps maintain high standards of content accuracy, user engagement, and overall satisfaction.

By adhering to these museological principles, the Discover Certosa app not only enhances the visitor experience but also contributes to the preservation and appreciation of the Certosa di Bologna's rich cultural heritage.

3.3 specific themes and topics you have selected as case study for your PW

The Discover Certosa principal aim is to valorise the cultural site and all its heritage. For doing that, we selected the most important features and monuments of the Certosa and tried to develop paths for thematic areas, in order to satisfy different tastes and expectations of the public.

First of all we decided to identify all the monuments that we thought are unavoidable if visiting the Certosa, and around them we built a [GENERAL PATH](#). This general path represents the shared intro to all the other paths and here the user will find information about the history of the Certosa and its characteristic, about the Church of Saint Jerome, the Madonne Cloister, the Pity Hall and the Pantheon. At this point the roads will separate and the user will have to choose one particular path. Despite this, he will continue to find blue intersections(Monument to the Fallen Partisans, Cloister VI, Piangoloni entrance): these are additional monuments of the general path that, if desired, the user can choose to add to his journey.

As regarding the other paths, they are all marked on the app and on the map with different colors.

In violet there is the [CREEPY PATH](#): we decided to treat this theme because in the popular view the cemetery is usually associated with shady and macabre events and some people have a particular interest in this area. Choosing this journey the user will be transported in a suggestive world characterized by esoterics symbols, gloomy stories and infested by ghosts. The experience will be made even more immersive thanks to the accompanying music worthy of a horror film.

Another sectoral alternative is the one offered by the [ARTISTIC PATH](#): in here the user will observe the change in the artistic paradigm and taste over the centuries, from neoclassicism and romantic style, to gothic and liberty world. There will be analyzed the most important artistic features of the cemetery and of the monuments that have attracted tourists from all over the world during the era of the Grand Tour. The visitor will feel encouraged to explore this open-air museum with the awareness of the artistic greatness of the works here present, result of the meticulous work of prestigious artists from Bologna.

The last one is the [FAMOUS PEOPLE PATH](#), where have been selected some of the most important people buried at the cemetery. The Certosa is a very huge cemetery that hosts the tomb many excellence of Bologna, from Carducci to Lucio Dalla, from Respighi to Zanichelli. This is a really inspirational path where the user will discover the lives of those who made Bologna the Bologna that we know nowadays.

With every path comes also the option (in the app) for the visitor to participate to a treasure hunt: there will be provided different images with details of some tombs. The user will have to find them and take a picture. If he finds them all, he will have the possibility of claiming a prize at the info point.

Through the choice of thematic paths, the goal that we want to pursue is that the user can choose a path that is more inclined to his interests, so as to live a personalized experience more pleasant and not boring. In this way the user will feel appreciated and heard in his need, and it is more likely that he will remember the experience pleasantly enough to come back and try a new path.

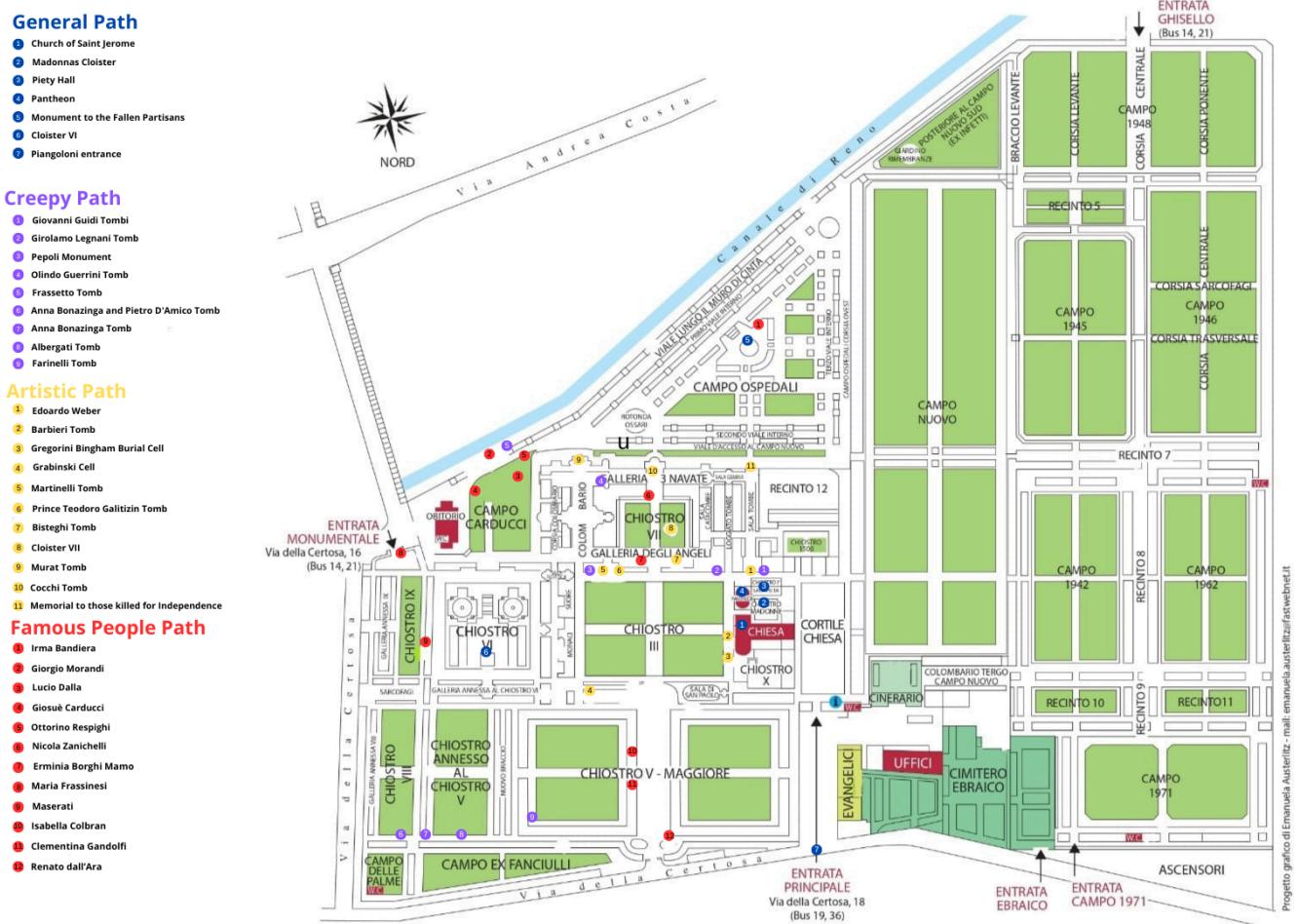


Fig. 14. Certosa Cemetery paths map

4. REQUIREMENTS

The project focuses on many different goals such as increasing educational activities with reference to the promotion and conservation of the cultural heritage of Certosa Cemetery, changing visitor attitudes and beliefs, digitizing more assets and even enhancing visitor experience.

In order to achieve these goals there are specific requirements needed.

4.1 Must

The experience MUST require:

- Respectful behavior: establishment of rules to protect and safeguard the tombs and the monuments such as prohibiting running among them, drawing on them and ruining them. There must be rules referring to the behavior of people inside the cemetery such as prohibiting shouting and disturbing other people;
- Ownership and access to smartphone with internet connection in order to use the application;
- Paper maps availability, located in the info point, allows the user to experience the tour even with very bad or without internet connection (alternative to the app on the smartphone).
- Accessibility: ensure that the experience is accessible to users with different abilities (except for underground monuments).

Mobile Application MUST require :

- Simple, intuitive, user-friendly and engaging interface. The app must have different pages, homepage included, clearly subdivided that help the user to better navigate and understand the history and the monuments located around him or her;
- Integration of educational, historical, cultural and artistic content that can evaluate the prestigious Certosa Cemetery;
- Compatibility with both iOS and Android devices so that everyone can have the chance to use it.
- Implementation of the geolocation service to help the user to better find his or her way around the Certosa Cemetery. The geolocation optimizes the user experience in terms of

time and effort. He or she will find monuments and Tombs in which he or she is interested in a quick and precise way and without sparing time.

4.2 Should

The experience SHOULD require:

- Use of Headphones in order to enjoy the full experience with audio guide and sound effects. The Headphones usage allows the user to feel part of the place without disturbing other people nearby.
- Interactivity: Users should be able to interact with the environment in meaningful ways while following the suggested path, which can include making choices concerning the different interests of the user or engaging in tasks referred to the different paths.

Mobile Application SHOULD require :

- Scheduling regular updates to always provide correct and updated content (if needed, to correct mistakes) and improve functionality.
- Possibility upload of photo for engagement
- Incorporation of interesting and engagement information that aims to entertain the user during the discovery of new information.

4.3 Could

The experience COULD require:

- Fulfillment of questionnaires to provide feedback at the end of the experience;
- Virtual guides, using augmented reality to create a even more immersive experience;
- Implementation of additional features that facilitate the development of virtual guides, leveraging augmented reality to create an immersive experience
- Accessibility: alternative or optional experiences such as virtual tours could be implemented to allow the user to see spaces or monuments that can not be reached in case of the monument or the space is not accessible because of maintenance works, obstacles, or because of the user's impediments.

Mobile Application COULD require :

- Implementation and subsequent disposition of QR code scanner referring to tombs and monuments providing additional information, interesting curiosities and even new activities related to them.
- Use of the photocamera (connected with geolocalization service) while walking around monuments and tombs in order to navigate better inside the Cemetery of Certosa. This would be very helpful since the cemetery presents a huge and complex map that is not immediately understandable for the user once he or she is inside.
- Scalability: The application should be able to handle increasing amounts of textual data information and users without compromising performance.

4.4 Won't

The experience WON'T require:

- Imposition of additional costs on the visit to the cemetery
- Changes in the physical structure or operating hours of the cemetery;
- Group challenges, to maintain a respectful atmosphere in the cemetery.
- Profit or financial purpose associated with the experience

Mobile Application WON'T require :

- Expensive hardwares and maintenance investment that could make the deployment and ongoing support of the app challenging.
- Complex features that could distract the user from the main purpose and content of the application.
- Provision of user's personal information or creation of user's account, preserving privacy and ensuring an easy usage
- Spam notifications: the application avoids sending too many notifications that are not relevant or useful to the user.

5. IDEATION

5.1 The Experience



Fig. 16. Flyer Certosa Cemetery experience



Fig. 17. Certosa Cemetery experience app interface

When the user arrives at the Certosa Cemetery, they will find a flyer at each entrance briefly explaining our application: Discover Certosa. The flyer will include a QR code that allows users to download the application. Once the app is downloaded, the user will be presented with a little overview of the experience. The first step to let the experience begin is to enable geolocation. If the user consents, an interactive map will appear. If the user does not consent or lacks a smartphone or internet connection, they can find a paper map at every entrance to still complete the experience, in a non-interactive way. After opening the map, the user will be asked if they have headphones. If yes, an audio guide will accompany them to the starting point of the experience. If they do not have headphones, a text version of the guide will appear instead, to maintain the quiet atmosphere of the cemetery.

Once the user reaches the starting point, the Courtyard of the Church, they will be guided to discover the initial points of interest nearby. As the user approaches each point of interest on the map, photos, videos and information related to the location will appear on the app screen. The user can always choose to receive more or less information or to skip passages based on their preference.

After visiting the initial points of interest, the user will be asked to choose a thematic path:

1. **Artistic Path:** the interactive map will guide the user to tombs, monuments and locations particularly significant for their artistic value.
2. **Famous People Path:** the interactive map will guide the user to discover the graves of famous and illustrious individuals buried at Certosa
3. **Creepy Path:** the interactive map will guide the user to discover graves and figures relevant to themes of mystery, esotericism and the occult.

During the chosen path, if the user is near a general point of interest, they will be asked if they want to make a small detour to explore it or continue their path. Photos, description and curiosity about every point of interest are always provided.

Additionally, the user will be informed of a small challenge. They will be asked to photograph three details that caught their attention during their chosen thematic path. At the end of the experience, the user will be asked to upload these photos to the dedicated section of the application. At the end of the path, if the user decided to upload the photos requested, they will be directed to the information point to collect their gadget.

5.2 The Conceptual Map

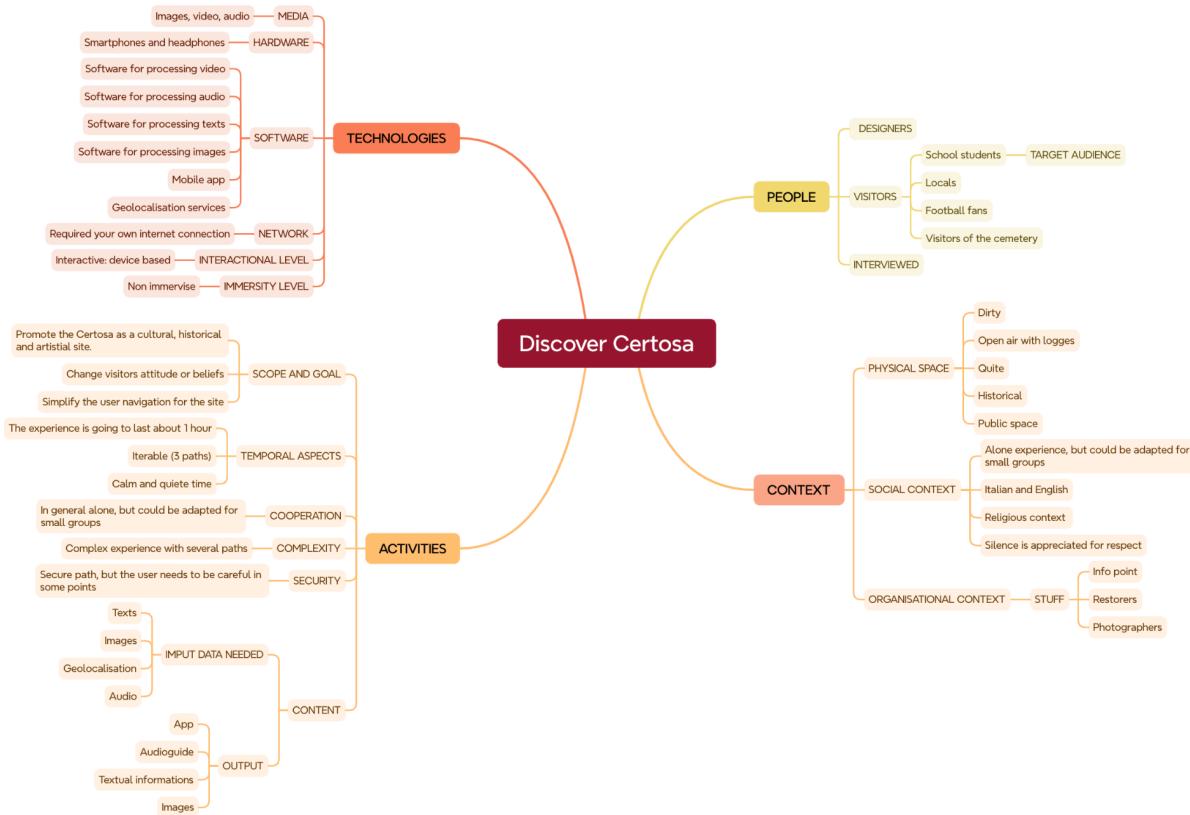


Fig. 18. Conceptual map

5.3 Twine

Fig. 19. Twine

5.4 Interaction Diagram

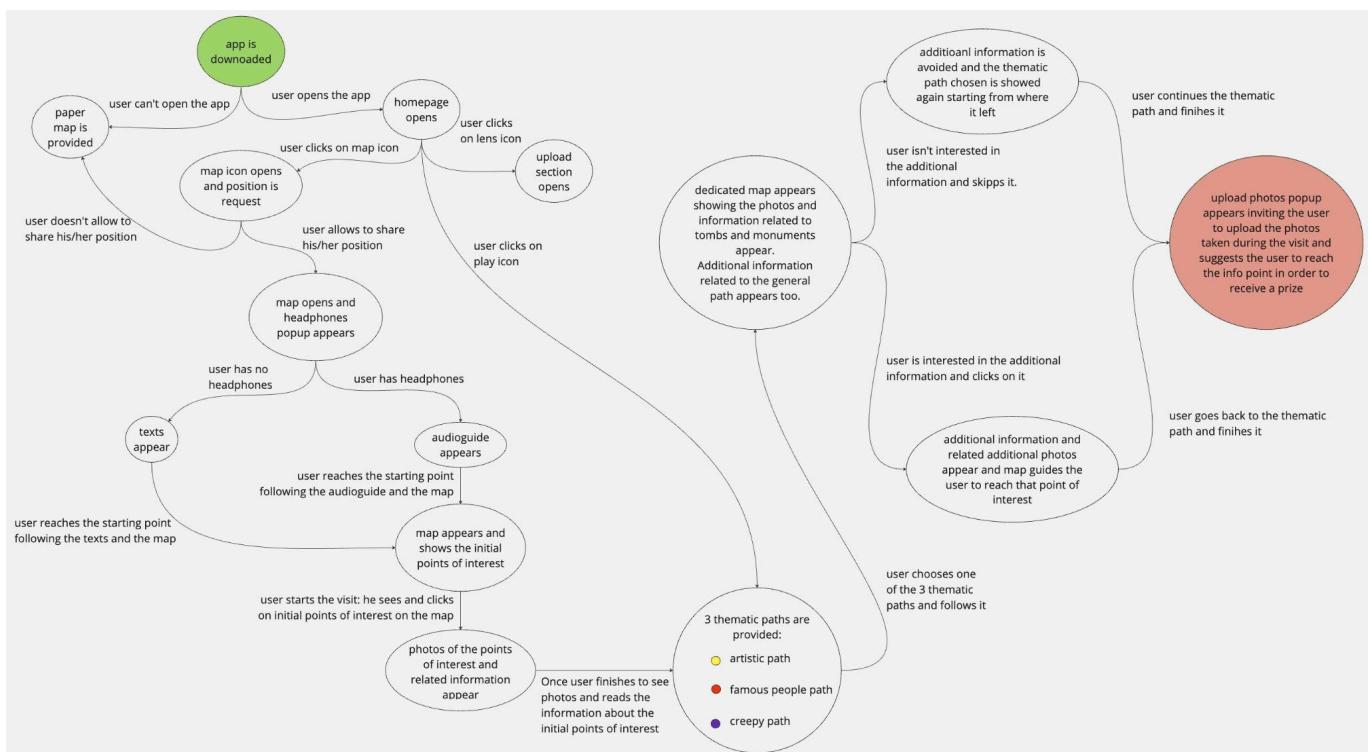


Fig. 20. Interaction Diagram (GitHub link of the image: <https://shorturl.at/SHlgs>)

5.5 Foreseen workflow

Our experience is designed to be used inside of the Certosa of Bologna to make the cemetery known and discovered by visitors for its cultural and artistic value.

- We first of all stated our goals, that is valorizing the Certosa and its heritage and attracting more tourists to it, and decided that our outcome would have been an application that could be downloaded on smartphones to guide the visitors in their tour.
- Then we had a brain storm trying to figure out all the tasks that we needed to complete to reach our aim: starting from the practical visit to the site, to the identification of thematic areas, to the search hunt idea and so on. We also tried to understand in advance what problems we would have to face in the development of the app, and tried to find solutions right away.
- We proceeded with individualizing all the instruments that we might need for our project and we also tried to implement our competence in a particular area (such as Twine) that we already knew could be useful. We then defined all the things that we might have needed for each part of the development of our project.
- Afterwards we defined the different paths in a more specific way, dividing them between us depending on our competence. We also defined the details that we wanted to add, such as the audio guide and the music, the possibility to connect the paths between them and so on.
- Then we actually started with the development of the project itself: we went again to the site for the image acquisition and for defining the details of all the paths, we started our twine project, and we created a github repository...
- We constantly keep in contact with each other, in order to complete together some parts of the project, such as the design brief, and also to discuss the development of our paths for greater internal homogeneity.
- We also keep meeting to unify our project and for monitoring the general outcome of the twine structure. These sessions were really helpful for developing further ideas and to specify the evolution of some passage of the work, such as the creation of the map.
- Once everything was completed, we finally had all the project together and we were able to see our final outcome.

5.6 Set-up: Foreseen hardware, software and Media (digital asset needed)

The technical requirements for the mobile application *Discover Certosa* are the following:

- **Hardware:** for users to interact with the app, a smartphone is required. Headphones are not technically mandatory for the application to work, but strongly suggested in order to prevent possible discomfort to other visitors and ensure a quiet and respectful atmosphere within the cemetery.
- **Software:** the mobile application must be compatible with both iOS and Android devices. The main softwares involved in the implementation of *Discover Certosa* will include: image and audio editing softwares, text processing software, geolocation services and mapping APIs, and possibly a content management system and a cloud storage to manage the information related to the points of interests along the itineraries and to handle data received from the user.
- **Digital assets:** the application requires a diverse set of digital contents, starting from reliable and engaging texts, accurate images of the assets selected for the itineraries and audio materials, such as dramatic readings of stories narrated from the perspective of the people who are buried in the Monumental Cemetery and different kinds of soundscapes.

5.7 Further development and maintenance issues

To keep the app relevant and engaging, continuous updates will be necessary. This includes adding new thematic routes, updating existing content, and incorporating user feedback to enhance the overall experience. Maintaining the app's functionality across various devices and operating systems is crucial. This involves regular testing and updates to fix bugs, improve performance, and ensure compatibility with new software versions. It is also crucial to maintain the physical materials, such as the flyer and the paper maps. These materials should be checked regularly and replaced as needed.

Another important aspect to further improve is accessibility for ensuring an inclusive experience. This includes making the app more user-friendly, providing content in multiple languages and ensuring the physical navigation aids within the cemetery are updated and well maintained. Also as further development alternative paths will be provided to people with physical disabilities.

6. DISRUPTION

1. Technical Issues

Users might encounter technical difficulties, such as poor internet connectivity, not having an adequate smartphone or not having a smartphone at all. To address this threat, we provide a paper map that outlines the thematic path and includes a brief explanation of each point of interest.

2. User Engagement

Keep users engaged throughout their visit , especially those who may not initially be interested in history or art, could be challenging. To face this problem we designed dynamic and interactive content that includes gamified elements like the possibility to choose and challenge and rewards. The thematic routes will cater to different interests, ensuring that there is something engaging for everyone. The content is designed to be concise and straightforward, ensuring that users stay engaged and do not become bored.

3. Accessibility

Physical accessibility issues within the Certosa could limit the experience for users with mobility impairments. Since we cannot alter the physical landscape of the Certosa, we will provide the user with rich multimedia content to still see the area on the application.

4. Promotion and Visibility

To promote our application flyers with QR codes will be prominently displayed at the cemetery entrances and other strategic locations around the city. Additionally, the attractive gadgets we provide at the end of the experience will encourage students to share photos on social media, further promoting the app through word-of-mouth.

6. Teams roles and work

ALICE PIAZZI: Image acquisition, Twine development (Famous People Path), Design Brief (Interaction Diagram, Requirements, Flyer design).

ANNA PASETTO: Image acquisition, Twine development (Creepy Path), Design Brief(Introduction, Audience, Ideation, Disruption, Maps design)

FRANCESCA GAETA: Image acquisition, Twine development (Artistic Path), Design Brief (Concept, App interface, Ideation).

MATILDE PASSAFARO: Image acquisition, Twine development (Introduction, General Path), Design Brief (The Context, Ideation).

7. UX Scenario

Link to the Twine scenario file:

https://github.com/Interactive-Media-Design/project/blob/main/IMD_scenario_fine_finito.html

Bibliography and Sitography

The website of the Certosa Monumental Cemetery and all the resources connected to the network of Bologna's civic museum were thoroughly consulted in the development of the concept and project design and use as reference frame for the development of the narratives and information.

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