Reviving the Lost City of al-Qaṭāʾi through Virtual Reality Technology

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ABSTRACT

Virtual reality technology is developing quickly, opening up new possibilities that have an impact on multidisciplinary work on cultural heritage sites, especially for those who are lost and are in ruins by passing times and ages. Its uses and benefits as a touristic product contribute to the economy and development of tourist destinations. The study aims to examine the ability of applying virtual reality technology to one of the most valuable lost heritage sites in Cairo, which is al-Qaṭāʾi city. The Tulunid capital was the third historical one during the Islamic era. It was enriched by wonderful buildings and running life until its burning in 905 A.D. by the Abbasid caliphate in his trail to re-control Egypt. The study presents an imagination of the city by exploring for example the Gate of Lions, which was one of the main old gates of the city, of which we have a full description by the historians of this period of history. The study describes how the life in the city was useful in converting it into virtual reality technology. The research aims to help the growing up of Islamic heritage existence on smart technology plans in Cairo. By presenting an imagination of how the buildings were designed and shaped. The city had markets, streets, gates, palaces, and administrative buildings. The research objectives are to provide a theoretical explanation for some lost buildings in the city, which could be a base for further researches.

Introduction:

It's clear that developments in technology have made real archaeological sites more approachable and understandable. Thanks to these developments, cultural heritage sites now have access to new technological virtual worlds through augmented reality. These environments can be used for lost archaeological sites that include a wealth of information and narratives that assist recreate the historical ambiance of those locations. Put differently, virtual reality technology has the potential to revitalize the metropolis. This experience was successful in a comparable situation

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involving the Spanish lost city of Medina al-Zahra, and it raised the average level of tourism development.

Virtual reality (VR) and augmented reality (AR) have been suggested for usage in heritage sites worldwide by a plethora of studies and ideas. The purpose of this study is to develop this advice by reviving historical lost towns, such as the Tulunid lost city in Egypt, that have a wealth of materials describing its archaeological characteristics. The primary goal of the research is to construct an artificial setting for the lost site using virtual reality (VR), which replaces reality. These applications are becoming more and more common, although they are found on real sites rather than abandoned ones, serving as a type of refreshment and a new source of revenue for travellers. AR and VR applications are facilitating the cultural tourist purposes, and are considered real methods for accessing information in general (Timón; Giralt, 2019).

Virtual reality applications focusing on cultural heritage could be employed through different areas of knowledge sources, helping in the plans of tourist marketing. (Rivas; Valdivieso; Rodríguez, 2020). In some cases, gamification is employed as a learning technique (Chrast; Beseda, 2018). Using this technology to revive the city of Al Qaṭāʾi in Egypt will broaden our knowledge of how life was in the city and improve our understanding of the historical life during the ninth century under the rule of Ahmed Ibn Tulun, who was strong enough to be independent from the Abbasid caliph in Baghdad. The project aims to increase global accessibility and proposes methodologies that interact with heritage site management.

The project also promotes some neglected sites in Cairo as new heritage destinations through innovation in its digital competence via imaginary virtual buildings, streets, and running life, which is one of the dominating features of virtual reality when it comes to heritage[2]. The research identifies a plan which is being carried out on the connection between heritage sites and digital application of VR for the lost city by giving all historical details about the archeological sites in the city.

The main aim of this study is the reviving of the city depending on the historical sources about the Tulunid history and architecture, following the same experience in Spain which gained the relationship between heritage sites and technology (Ibáñez-Etxeberria; Fontal; Rivero, 2018). The history of the lost city has the power to motivate visitors to the site, which is an unlisted attraction in Egypt. This would not be possible without reviving the city through a technological project that increases the number of tourists to the site. This research is an unprecedented contribution from the tourism point of view of the new Heritage revived site.

Although there have been previous studies on the uses of VR on heritage sites, none have focused on the lost cities in ancient Islamic Egypt. The project can be generalized to other capitals and sites that are in ruins today but exist in historical narrations and sources, which provide opportunities for recognizing the history of old cities (Ibañez; Carrasco, Cosme; Fontal; García-Ceballos, 2020), The initial hypothesis of this research suggests that presenting a full descriptive nonexistent Tulunid capital as a virtual reality application will increase heritage tourism averages.

Therefore, the specific objectives of this study are:

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[2] http://www.bocyl.jcyl.es/boletines/2015/10/14/pdf/BOCYL-D-14102015-1.pdf (accessed on 20 July 2022)

- SO1: To revive the lost city of Al-Qaṭāʾi through a historical presentation with a typology of heritage virtual environments relying on documentary analysis of its archaeological contents.
- SO2: To introduce the theoretical framework for a complete map of the city to be applied as a virtual reality channel from the tourist point of view.
- SO3: To contribute to the knowledge of the archaeological ensemble of the city of Al-Qaṭāʾi from the tourist point of view, and to understand the heritage motivations that lead to visiting it as a new destination in historical Cairo."The investigations related to the Archaeological Ensemble of al-Qaṭāʾi would be part of the studies that were carried out in planned long run destination though the mosque of Ibn Tulun is visited by some of tourists as a mosque not as a part of an old lost city.

The Lost city of Qaṭāʾi:

After *Al-Fustat* and *Al-ʿAskar* cities, the third capital of Islamic Egypt was found in 256 A.H/ 870 A.D by Ahmed Ibn Tulun, It was named *Al-Qaṭāʾi* means quarters, he found it upon his establishing his independent dynasty in Egypt (Ibn Duqmaq, 1893). It was a rich flourished city of Islamic architecture and brilliant history before its collapse by the hand of Soliman Al Kateb in 292 A.H/905 A.D, it has magnificent and spectacular points of construction like "*Al Midan*", the Shari' Al Aazem or the greatest street, Dar Al Emara or the house of ruling, *Bīmārestān* or hospital and its outstanding mosque of *Ibn Tulun*, other constructions are found like small toms. *Ḍarīḥs* like the one of sidi Haroun and markets aswell. All of the city is constructed on the blessed mountain of *Yāshkur*. The Tulunid City was more urbanized than major cities and towns of levant and the all over the Islamic world in the ninth century as the Tulunid historians confirmed like *Bālawi* (Salmon, 1902). The city's design layout is well described on the historical documents which gave an enough imagination for its streets, alleys, public paths, even its mills and bakeries.

The name of the city comes from the districts of tribes or wards or quarters that the founder followed the same manner of distributing according to social and working classes like the idea of division in the other Islamic cities especially in Samraa in Iraq where *Ibn Tulun* was grew up, actually its name reflects in helping in imagining its design and composition, the historians fed-up the Tulunid history by details of those allotments like their names of the Sudanese, the Nubians, the Greeks, servants of the palace, the young slaves and others[3] which are mentioned in the lists of *Bālawi*, he main historian of the Tulunid narrations(Al Balawi , 1939) . Scattering the layout of the city into wards was repeated in the older two Islamic cities in Egypt in *Al-Fustat* and *Al-ʿAskar* (Creswell, 1969).

Though the city is totally in ruins, the plenty of its description is found between the lines of Tulunid narratives and writings especially in the city markets and daily life scenes, Tarek Swelam mentions the lists of *Bālawi* of those markets and souqs like the market of weighting gold and silver which is known as Souq *Al-'ayyarin* (Swelam,2015), also the market of performers and medical herbs which was known as Souq *Al-'attarin* (Al Balawi , 1939). *Maqrīzī* mentions other names for markets like Souq *al-bazzāzīn* which was used for selling and buying linen and clothes (Swelam,2015).

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[3] Like a district called "Haroun" the residents of which are unclear.

The city also was known for its crops markets and centers of harvests like the peas at the market of "*al-fāmiyyīn''*, and those food ones who roasted and grilled cooking and named as "*al-shāwāiyīn*" and that or "*al -Tabbākhīn*" or cookers, in addition to the normal markets of butchers, grocers, backers, pastry makers and money changers (Salmon, 1902).

To determine the location of the markets in the suggested layout, it is necessary to depend on the parallel positioning in Samraa city of Iraq which usually comes around the main congregation mosque of the city (Yaʿqubi, 1957). the Tulunid city followed *Sāmarrāʾ* in all details of design so, it's strongly probable that markets were an aspect of imitation as well. That's because no information confirming its location in *Al-Qaṭāʾi*.

Locations of markets of the city could be guessed in its center according to the same layout design of Samraa, and that's could be appeared in the presented imagination of the city. The historians agreed about the area of the city like *Ibn Duqmāq* and *Maqrīzī* who said that the city measured one mile by one mile(Ibn Duqmaq, 1893). which means that it extends from the citadel to the Tulunid mosque from North to south covering 1.5 km, while from Saladin Square to *Zayn al-ʿĀbidīn* mosque from east to west covering 2 kilometers and was known as "Mashhad al-Ras" Memorial of the Head (Creswell, 1969) . And for sure Saliba Street cut the main layout as *alshareʿ al aʿzam* in samara city. Swelam confirmed the main dimensions of the city layout, which means the original location of the city had well bounders of nature like *Muqattām* hills, *Yāshkur* mountain and the grand lake of the elephant (Swelam, 2015).

 The idea of the main street "*al-Salība*" in the city is confirmed by the historians *Bālawi a*nd others to be the main link of all side zigzags starting by the main gate of *al-Salība* which lied near to the Tulunid mosque and was considered the thoroughfare of *al-Qaṭāʾi* ' (Al Balawi , 1939). The street is mentioned in the historical documents as the greatest street or "al share3 al a3zam" like *Ya'qubi.*

Ibn Tulun was walking from his palace to the mosque throughout the street, also the ceremonial procession as well throughout this gate which lies at the head of the old street. The historians claimed that the gate had an honorific triple gate arch similar to the ones belong to the roman models as Swelam confirmed (Swelam, 2015).

From the main elements that should be included in the reviving plan of the lost city in this research is the aqueduct which was built in the southern tip of the city near an ancient well which was known asʿAsfa well (Creswell, 1969),   to serve the inhabitants of the new city and also to serve the local population in the older capitals of Egypt *Al-Fustat* and *Al-ʿAskar*, *al-Ma'afīr* area was the water supplier for the Tulunid aqueduct. Some historians gave details about the hidden reason behind its building (Al – Maqrīzī, 2013). It was one of the earlier structures of its kind to be built in Egypt[4]. Some of its remains are currently visible in a poor condition in *al Basātīn* area.

The Tulunid *Bīmārestān* also could be drawn in the reviving lost city as one of the its major charitable and pious structures that carried out in the city to serve its newcomers. It was built in 259 AH/ 873 AD, and it was seen by the traveler *Ibn Jubiar* in 580 AH/ 875 AD though it wasn't survived in the time of the historian *Al-Maqrīzī* who didn't refer to finding the structure itself (34). In the same time, he wrote about the special interest of Ibn Tulun to the *Bīmārestān* by visiting it

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[4]The modern excavations of Istabl Antar which were enhanced by Roland Pierre Gayraud confirmed existence of some earlier models of aqueduct earlier than the Tulunid period.

every Friday to personally meet its physicians and patients (Al – Maqrīzī, 2013). Its inner descriptive elements are well known in the historical writings; it incorporated two bathhouses or hammams one for men and the other for women (Swelam, 2015), also when the patients entered the *Bīmārestān* should keep his valuables and clothes with a supervisor who normally gives him cloths instead. The historian *Al-Maqrīzī* wrote about the detailed well-organized system in the *Bīmārestān* which could be helpful in reimagining who it worked, from the mentioned details in his writings the free medicine that were given to the sick food and care of physicians under the supervision of *Ibn Tulun* himself, he mentioned that "only when the patient was able to swallow a chicken and a bread, he could leave the hospital and take back his clothes and personal valuables" (Al – Maqrīzī, 2013).

In the target imagination of reviving, it will be difficult to give an architectural description for it as it was completely destroyed by the Abbasids in 905AD. And no available alternative can be an indication for its design and description, two other *Bīmārestāns* were known before[5], smaller in size with no architectural details about any of both. Even the *al-Ikhshīdīyūn*'s one was built by Kafur in the tenth century, nothing wrote about its inner architectural mapping. But what will be enough useful in the presented map of reviving is the location of the *Bīmārestān* which is confirmed by Al Maqrīzī to be in the area between the mosque and the mound of Kom Al -Jarih which was overlooking the canal of *Al-Khālīj*, it means that it was close to the lake of *Birākat* Qarun near to the desert areas of the Al Askar city[6].

On the southern eastern side of the Tulunid Mosque, the administration office or "*Dār Al Imāra*" was constructed, *Ibn Tulun* used the older one of the Abbasside Capital *Al- 'Askar* before moving to the new building in his new city (Al Balawi, 1939). The historian *Bālawi* gave details of the inner decorations of the office which was furnished with curtains and implements, in addition to the storerooms and the large containers filled with all kinds of drinks (Al – Maqrīzī, 2013).

Ibn Tulun usually use the door to enter the mosque from its eastern side throughout a specific door, near to the main Mihrab, was built for that purpose only after changing his garments and perfuming himself with incense especially before Friday ceremony. linking Dar al Imara with the mosque was an Egyptian tradition that *Ibn Tulun* followed not an Abbasside tradition in Samraa as the ether elements of the city (Bacharach, 1991). It was an administrative building from where he ruled the new capital of *Al Qaṭāʾi* instead of the older Abbasside place in Al Askar as a kind of confirming his independency from the caliphate and getting rid of all related to Abbasids[7].

Dar Al Imara is destroyed now and totally not survived, all the other investigations confirmed that it was a large building, with no indications of the dimensions and size of the structure. Due to the lack of information. So, in this part of the reviving plan, it could be useful its location, its contents, its door in the mosque and the story of its usage by *Ibn Tulun*. With considering the limited size in terms of the available area behind the mosque. Also, it's easily to give more imaginations to its

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[5] One was called Zuqaq Al-Qandil and the other was that of Murafir, without knowing enough information about both of them. (ʿIsa, 1981.

[6] Not Much scholars wrote about the *Bīmārestān* like Al-Maqrīzī, Creswell and George Salmon refer to it briefly without giving more details about it. (Creswell, 1969).

[7]The Administration center was continued during the *al-Ikhshīdīyūn* and Fatimids, while during the Ayyubids, it was moved to the citadel and stayed there till 1874 when Khedive Ismael moved it to Abdeen Palace.

inner design like the open doors into the around streets and the courts which allow the light and air to enter the site, with the existence of guards and servants, clothes changing chamber for the ruler, inner chambers for the clerks and other champers with different administrative purposes. These all elements could be imagined in the reconstructing plan of the lost city.

From the main items in the Tulunid lost city was the hippodrome in the main square of the city near to the mosque, the historians agreed that *Ibn tulun* began to build it up after two years of his coming to Egypt in 256AH/869AD. It had the main palace of the founder nearby an open area where the games were played like polo which was popularly spread out between the locals of the new capital (Al Balawi, 1939). In addition to the polo gaming in the square, a racing course for chariots, entertainment theater and horse trainings as well. The historians have narrated that the military parades are performed in the open areas of the hippodrome (Lane, 1986); (Marcel, 1877). Those all activities are imaginable in the reviving plan for the lost city. Especially the square's location is well known and determined in the area underneath the actual location of the citadel according to *Maqrīzī* referring to a part from *Al-Rumāyla* nowadays square. This area was occupied by markets of camels, donkeys and horses, Swelam claimed that it was near from *Qubbat Al-Hawa* (Swelam, 2015). While *Maqrīzī* wrote about small domes were seen in the same location and called it "*al-qubaybat*" (Al – Maqrīzī, 2013).

The details of the gates names and hours of working could be included in the plan of reviving the lost city, the names of those gates are various and could be classified in several groups; Some names related to the function of the gates like gate of the parade ground "*Bab al- Maydan*" or Gate of the Polo Mallets" *bab al Sawākijā*" as Swelam refers to, both names are meant by the same gate for the miliary purposes for the army soldiers and Leaders or even for the Polo practice, another gate belongs to this group its function is to lead passers to the hills of *Al-Muqattam* so it was known as "*Bab Al-gabāl*", also the gate of Prayer "*bab al salāḥ*" led people directly to the mosque of *Ibn Tulun* (Al Balawi, 1939).

Second group of names related to the class who use it like the gate which relates to the nobles and the upper class and was known as "*bab al-khāsa*", and the gate of the women quarters" *bab al-hārīm*" which couldn't use expert for the women and female family of *Ibn Tulun* in addition to eunuch servants (Al – Maqrīzī, 2013). The third group of gates relates to the names of its keepers like the one of *Darmun*, the name of its gigantic keeper[8], and another gate bears a name of another gatekeeper whose name was "*Daʿnaj"* as the historians *Maqrīzī* and *Ibn Duqmāq* confirmed.

The Gate of Lions "*Bab al-Sebaâ*" is considered one of the most interesting details of the reviving process of the city. The gate gained its name from the lions found on its frontal part, what makes its reviving through technologies more possible than the others. The historians wrote about decoration of two stucco lions it had. Some historians claimed that it was the same gate of prayer which normally lead to the Tulunid Mosque (Al – Maqrīzī, 2013) . So, its location could be found near to the mosque and cut to the greatest street. The two stucco lions are interpreted as two ancient Egyptian-style sphinxes were put on both sides of the gate (Swelam, 2015). Swelam presented two other claims of those lions being carved in high relief on the walls of gate itself or reminiscent of the waterspouts as a Greco-Roman style. Historians confirmed that it was used by *Ibn Tulun* during

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[8] Swelam Mentions that he was an official whose job to punish both male Sudanese ghulams and men for their crimes. (Swelam, 2015)

his way to the mosque every Friday, and for his military troops during feasts only as a triumphal gate (Al Balawi, 1939).

It was described also a tri loped arched gates that normally has three entries in the main structure, also some narrations talk about a ruler seating area was watched attached to the gate and has a full overview to the whole city. *Bālawi* and *Maqrīzī* said the river Nile was watched from this seating area by *Ibn Tulun* himself, also he could watch and follow the racing competitions of men, soldiers and sometimes of horses that were held in the main square, it was destroyed by Sulayman Al-Katib in 292 AH/ 905 AD (Swelam, 2015).

The tomb of *Ibn tulun* wasn't exist and couldn't be in the plan though Swelam referred to it (Swelam, 2015). The historians agreed that he was buried near to the hills of *Al-Muqattam* without determining its exact point.

Another building in the lost city was located in the same site of the nowadays citadel which is QUBBAT ALHAWA this domical building that was constructed near to the square overlooking the whole city, near to the hills of *Al-Muqattam* in the nowadays location of Saladin Citadel. Though the historians had confirmed that it wasn't a Tulunid building, because it was built by the Abbasids in 810 AD, they were agreed that *Ibn Tulun* and his son *Khumārawayh* used it and did enough restorations and decorations to the building. They used to enjoy the marvelous view of the royal palace and the whole city, though it was originally it was used before as a residence oriented towards the winds of the region (Al – Maqrīzī, 2013).

From the building the scene of the royal palace could be viewed with the gate of al-Siba which leads to the greatest street of the city, its end was distinguished by *Ibn Tulun* royal administrative house "*Dar Elemāra*" and his brilliant magnificent mosque which was built on the mountain of *Yāshkur*.

Birkāt al-Fil was located on the bounders of the city, the lake which was in the midst of agricultural lands near to the canal of al-Khalig which overlooks green area on side of the Nile (Younes, 2010) ,To the south of the city, Al-Askar, the second Islamic capital, was found at the north of al fustat city the first Islamic capital in Egypt.

After Ahmed *Ibn Tulun*'s death, *Khumārawayh* gave an interest to the city of his father, by feeding with gardens full of trees and various types of flowers, the historians gave more details about the trees of the shady gardens that they were lined with lead water pipes, each one has a gilded lily and a fountain, he presented exotic fruits, and built house for pigeons. *Ibn Tulun*'s son built a parade ground for horse racing competitions. He usually used to take the view of his botanical gardens and trees through a pavilion or "*Dīkka*" he built in his palace which was similar to QUBBAT ALHAWA as *Al-Maqrīzī* claimed. It wasn't the only pavilion was built by *Khumārawayh*, he added a house of gold that was constructed to his wife, from its terrace he was listening to poets reciting to his favorite female slaves singing. The house was lined entirely with gold, and its walls were decorated with layers of gold and Lapis Lazuli (Al – Maqrīzī, 2013). He built in this house fifty cubits in both length and width Pool filled with mercury with floated inflated skins forming waves above to allow him to fell sleep. The pool has silken cords stretched away from its edges as a helpful method for him to sleep (Aldrige, 1970).

The extremely luxury life that *Khumārawayh* presented in the lost city didn't stop here, but also extended to his unusual Lion house which had cages for real lions and lioness, the historians have been presented a plenty of information about those cages; the keeper's work of feeding, sanding and cleaning, each lion had his own name that he was called by the keeper to get out from its cage and back. it was a goal to watch for all the inhabitants in the city and the older capitals. It was a complete zoo that we can imagine at our maps for the reviving plan for the lost city, the zoo lied in the royal palace itself, contained well trained animals like leopards, tigers, ponies, giraffes, elephants and lions (Al – Maqrīzī, 2013).

One of the lions called *Zouriak* planned to be in the suggested plan for imagining how the life it was in the city, the lion was famous by his blue eyes and it was as a guardian for his master, sleeping after him, was fed by him, has a distinguished treatment by *Khumārawayh* who gave it a golden collar (Aldrige, 1970).

After *Khumārawayh*'s death, ten years was the rest of the Tulunid Royal city which started into the decline line till the Abbasside leader Sulayman Al Katib burnt the city, and was converted to be in a miserable almost dead ruins that finished four decades of flourishing and constructions.

No plan is set of reviving the lost royal city of Tulunids without referring to its distinguished mosque of *Ibn Tulun*. Though it still exists nowadays, but much details about the life around could be created in the reviving plan.

The Mosque is the most brilliant surviving element in the city, it is the main feature of the planned project of reviving the city, it was constructed in 263AH/876-77 AD, and completed in 265 AH/ 879 AD (Al – Maqrīzī, 2013). Its importance due to being the third congregational mosque built in Egypt during the Islamic era, It's the longest surviving one between other older mosques in Islamic history of Egypt, and it's one of the oldest intact in the whole Islamic world (Swelam, 2015). It is distinguished by its positioning on *Yāshkur* hills to be hanging and higher than the ground level (Al Balawi, 1939).

The mosque was built of limestone knoll, but mainly the red bricks were used extending up to the ceiling (Al – Maqrīzī, 2013). The mosque is neighbored from the northwest by the mamluk mosque and madrasa of prince *Sarghatmish* from the 14th century, while from the side are the famous museum and house of the English officer Gayer-Anderson. The Main approach to the mosque lies in the northeast side at the street (Ibn Duqmaq, 1893).

The mosque also has a unique minaret which is spiral shaped design lies in the northern western *ziayda*, and it's connected to the building by a bridge to the roof, its entrance gives way immediately to the outer stairs, its spiral shape consists of four distinct stories, its style resembles the one in the great mosque of *Samarra* in Iraq (Swelam, 2015).

The mosque is related with several historical narrations and legends which gave it an especial importance like the non-satisfactory statue by the people in the beginning which made them refusing to pray in as they didn't know the source of money used to construct it (Ibn Duqmaq, 1893). The architectural description of the mosque could be featured throughout an open court centralized by an ablution fountain, and surrounded by four porticos on all four sides, its minaret

is distinguished by its circular shape, the mosque is unique also by its huge number of pillars it has, and multiple mihrabs[9].

The crowdedness around the mosque was clearly documented by the historians who determined the rent price for a mastaba measure only one cubit with 12 dirhams a day, and it worked for three different shifts for same area; cotton candy maker in the morning, baker in the afternoon, seller for chickpea and beans in the evening (Abd ar -Rāziq, 2006). This crowdedness made some researchers believe that it was the reason for building *Ziyadas* around the main enclosure wall of the mosque. The scene of this mastaba could be imaginarily used in the virtual reality episodes in this research.

Reviving the history of the city could also include some scenes of history of the mosque such as its usage during different eras in Islamic history like a resting place for Moroccans during their pilgriming trips in the Ayyubid era and multiple purposes during the Mamuk centuries.

Conclusion:

- This study points out that by using imaginary scenes as a preface to convert the reviving procedure of the lost city into a practical virtual reality process, it achieves progression in presenting several episodes through the historical narrations about the lost city, like representing the Gate of Lions as one of the nine gates around the main square of the Tulunid city, which could be virtuated with the ruler pavilion above towards the greatest street, with two representations of two stucco lions in front of each gate or drawn on both sides of the gate itself (Figure 3).
- Throughout the theoretical conclusion of the research, other scenes could be used in virtualizing the city like:
    - The Tulunid *Bimaristan* with presenting its location between the mosque and the canal, entirely two bathrooms for men and women and another room for changing the clothes with imaginary clothed people according to the style of this period of history.
    - The Scene of the ruling administrative house or "*Dar Elemara*" which lies attached to the mosque through its eastern qibla wall, the episode concentrate on the entry of Ibn Tulun to the mosque from the house through the door near to the Main mihrab, the actual architectural building of the mosque could be useful, while other part supposed to be revived by virtualizing a huge building with curtains and rooms for drinks on shelves, rooms for clerks, and a distinguished room for Ibn Tulun to change his clothes before marching to the pray inside the mosque.
    - Another Gate of Al-Daramun with a representation of a gigantic black skinned slave keeping the gate, and appears while punishing two male Sudanese men for their slaves.
    - A third gate of those nine ones of the square could be revived through representation of army forces on their horses bearing swords and headed by helmets while entering and exiting through the gate with a consideration of its location on the imaginary map on the foot of the citadel in same location of the nowadays Saladin square.

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[9] It has 160 Pillars, 42 doors, and 128 windows. The main portico of Mihrab or niche that gives the direction to Mecca has 6 mihrabs to be one of only two in Islamic world has multiple mihrabs; five of them are stucco flat ones, and two pairs of them are flanked to each other along the axis of the main one which is concave style.

- ▪ A scene of the hippodrome in the main square with representing and reviving market of camel and another one for donkeys.
- ▪ Another scene in the further virtual plan could be added which related to the northern side of the actual mosque, by building imaginary mastaba measured only one cubit to sell some products like cotton candy, bread, chickpea and beans, or put set up for three mastabas where the baker appears in one of them to sell bread, and another one for sweet seller, while the third for selling beans. This points to what extend the life was crowded around the building which is the main goal of this episode. (figures 5)

Those examples could be run out through a technical study of converting this theoretical research into a virtual reality episode of the reviving project of the Tulunid lost city, which helps in achieving sustainable development for the area and targeting it as a market tool for the cultural heritage in Cairo. The idea is possible to be repeated in other places that are in ruins nowadays, like the Egyptian capital, while witnessing a grand history in the past.

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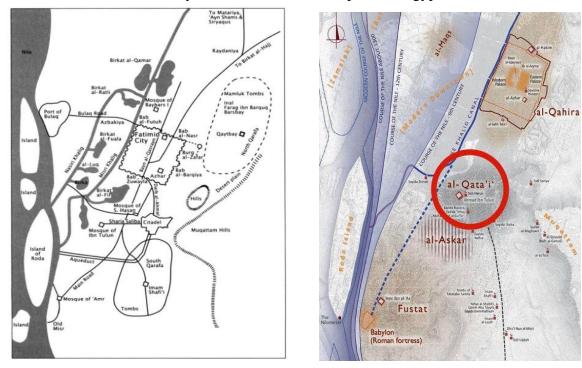
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- https://www.watercolourworld.org/painting/view-mosque-ahmad-ibn-tulun-tww0024df (last accessed 4/1/2023, 21:23)

Figures

Figure 1. Location of the lost city between the Islamic Capitals of Egypt

(Williams, 2002)

Figure 2. An imagination for the life in the most complete survived Tulunid Monument, Ahmed Ibn Tulun Mosque

(Swelam, 2015)

Figure 3. Reviving of the Gate of Lions to be used in visualization of the lost city
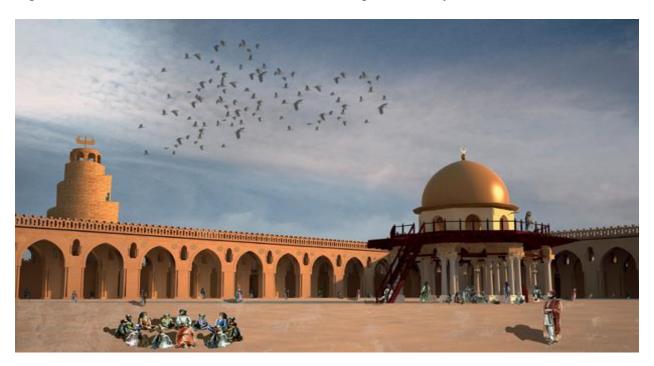

(By the Author)

Figure 4. Reviving Layout, Life in the Tulunid Mosque

(Paintings of Pascal Coste, 1839)[10]

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[10] https://www.watercolourworld.org/painting/view-mosque-ahmad-ibn-tulun-tww0024df (last accessed 4/1/2023, 21:23)

Figure 5. Visualization for the life at the Tulunid mosque, Bird's Eye View

(Swelam: 2015)