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# Implementation of Wearable Device Using IoT for Smart Museum

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## ABSTRACT

*Museum is one of the major tourist spots around the world even nowadays many peoples are interested to learn the traditional values through museums and some people are also interested to collect information from the art frames. Therefore, museum is an important role for the tourism. Many technologies are implemented to know the complete information about an art present in the Museum but still people are not effectively using the technology because of their time constraint and weakness about the particular objects. So no one technology is not an effective one for creating interest among the people and also patients for the people to listen the complete information within a shorter time. To overcome this the proposed system creates the complete information in short form to the user. An IOT based smart museum relies on wearable device that act as a mentor of museum.*

***KEYWORDS:*** *Museum, IOT, tourist, wearable device*



## I. INTRODUCTION

Museums have been one of the major sources of enjoyment. Visitors will visit the museum during the weekends to relax themselves. Exhibitions have been a place where visitors took their families along with them because museums are not only the one of the major sources of enjoyment but they also provide extensive amount of technical knowledge to gain from them. Peoples will view the museum not only as a source of enjoyment but it is also a spot where we can learn more knowledge. Visitors can choose the kind of enjoyment which also offers anything to learn as well.

When visitors themselves are ready to learn something and they visit the museum in that resolution it is the duty of the museum caretaker to make sure that the knowledge must be conveyed toall the visitors in a most systematic way. Though museums offer most important amount of knowledge, the visitors of exhibitions lack in the process of managing the information to the visitors and this is where the issues arise. This is the problem which has been existing in museums for decades. Many possible ways were introduced over the years but nothing seems to restore the problem. Now, we exist in a generation where technology takes over in most of the location and this is the time where new technologies should be introduced in the field of museums as well. IOT [3] Museum and art galleries usuallyprovide visitors either with paper booklets or with audio guides it is often boring because it is hard for museum curators. It suffers many hardware damages.

In [4] Nowadays people are more attracted to home environment and they do have sufficient time to interact with the environment so system should

provide some development tool which enables the user to create software without any programming knowledge We propose the system to address all the issues. IOT based smart museum exhibit all the guides by giving the cultural experience. The client is suite with a wearable gadget which provides the complete information about an art and these devices interact with the users through the physical device This system provides extension to several other IOT technologies which progress the system effectiveness in any public exhibition environment. For example, when the user is standing behind the object, the object automatically starts talking about its life story, and status. This paper presents a IOT based smart museum using wearable device has been composed.

In our proposal, the wearable device has been used it gives the complete information about the corresponding art frames without any user invention. In addition, competence evaluated are based on the IOT technology model in [1]. Thus, in [6] by using the RFID technology it improves the overall user experience and reduce the response time for the user. The initiation of technology can be achieved by creating the public exhibition. These museums also have the advantages of restoring the visitor's interest in the smart museums. It provides a way of looking at the smart museums with the initiation of smart environment. A smart museum has been developed by creating the indoor area oblivious design which enhances the client experience. In particular it is difficult to sketch a visit for each one of the visitors, since interest may vary from individual to person. The way of treating the tourist is by providing them with either paper booklets or an audio guide. Paper booklets are the commonly existing system used by the visitors. The main objective of this project is to create a smart environment in the public exhibition by validating an indoor-location aware which increase the client experience in the smart museum. The proposed system depends on the wearable gadget which synthesize image recognition and limitation potentially to give the visitors with social substance.

## II. RELATED WORK

In the related works, several proposals have been designed in order but none of them gives a flexible idea that deals with the considerable number of issues**.** In [7] creator proposes the framework Smart museum database do not contain real user accessible content due to the copyright issues solution should be deeply optimized for context aware content selection needs of mobile users to minimize the human control actions. In the smart environment context, several proposals have been created in order to provide the locality awareness in the accreditation processes.

In [ 8] the author implements the RFID to consider thelocation reduction and he proposed the efficient access control mechanism for indoor location aware environment. The limitation of this localization is that it does not require additional hardware.

RFID technology has proposed in [9] NFC tag demands an explicit interaction of the user with the tag as well as sensor on theuser phone In [10]the author proposed Museum Finland is not based on search paradigm and it is possible to make collection semantically, to provide the museum visitor's with intelligence search and browsing services .In [15] RFID technology illustrates that Unauthorized devices may be able to read and even change data on tags without the knowledge of the person who enter the museum[16] Additional hardware or infrastructure is not required so we plan to explore the use of additional techniques for enhancing the privacy such as attribute based signature method.

## III. SYSTEM ARCHITECTURE

An admin of museum has the permission to maintain the museum by keep track the list of all artworks, status, history to give a enjoyable environment. An admin of the smart environment uploads all the images of smart objects present in museum as well as the information in multimedia format. While entering into the museum everyone provided with the wearable gadget. Museum contain many artworks. To match the image in the database, go to audio, video to the user. If the image is not matched with the database then no information is provided to the visitors.

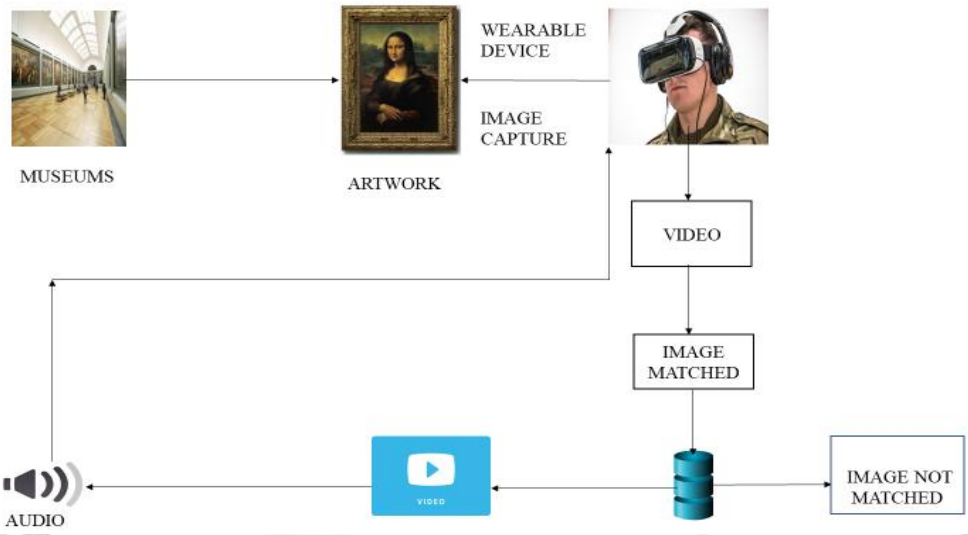



*Fig 1 Architecture Diagram*

Fig 1 gives the overall proposed framework. Museum contain many artworks. Wearable device is converted video file. To match the image in the database, go to audio, video to the user. captured the picture using wearable device. Compare each artwork with the information available in the database. If the image matches the database then the corresponding information will start playing as an audio. If the image doesn't match then the operation is not performed. In the past decade the users to the public exhibition has been decreasing exceptionally due to some reason's visitors find it too boring and there are many other locations which offers a lot of relaxation than the public exhibition. This explains the interest of the visitors against the tourists. The visitors provide the tourists either with the paper booklets or with audio guides. For example, when the user is in the front of the artworks such as title, artist, historical contents, critical analysis can be easily and automatically provided.

## IV. RESULT AND DISCUSSION

An artwork which is accompanied with the gateway of the administrator, the administrator has to make sure that the art or statue must be placed in a capacious area with the shaded background. This allow the wearable device conveyed by the user to capture the image faster with an efficient quality. In this way the image which is deducted is compared with the artwork which is present in the particular room.

**Table 1 Artworks and time consumed**

| ARTWORKS | ACTUAL ARTWORKS | CAPTURED ARTWORKS | TIME CONSUMED |
|---|---|---|---|
| MONOLISA |  |  | 3 seconds |
| CHAIRMINAR |  |  | 3.2 seconds |
| ROMAN COLOSSEUM |  |  | 3.4 seconds |

From the table 1, we can understand the operation of capturing the artwork or statue with the user wearable device

**EXPERIMENT**

1.Capture the object using the wearable device
2.Compare each artwork of the image with the available database
3.If the image matches with the database, the corresponding image will start playing as an audio
4.If the image doesn't match then no operation is performed

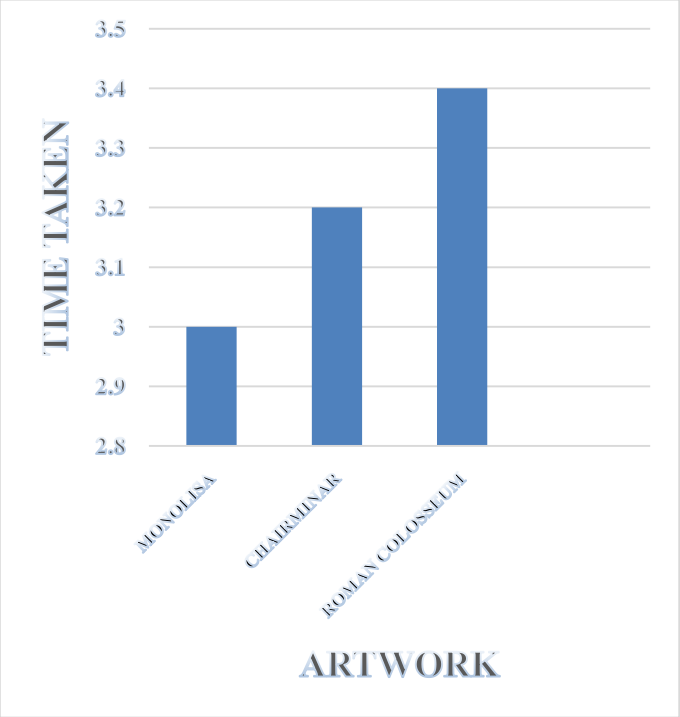
**PERFORMANCE EVALUTION BASED ON EXECUTION TIME**

The chart explains the time consumed to capture different kinds of artwork. The x-axis in the artwork shows the varying artworks and the y-axis in the artwork shows the time consumed for each artwork.

**Table 2 Time consumed to capture the images**

| ARTWORK | TIME CONSUMED |
|---|---|
| MONOLISA | 3 seconds |
| CHAIRMINAR | 3.2 seconds |
| ROMAN COLOSSEUM | 3.4 seconds |

Fig 2 Chart represents the time consumed to capture the different kinds of artwork.




## V. CONCLUSION

In this work, wearable device for smart museum is proposed. The proposes system relies on wearable device furnished with localization capabilities to automatically provide visitors with cultural information related to the observed artworks without any user intervention.

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