

Virtual Reality with Virtual Private Assistant Research: A Case on Amazon Sumerian

¹Anadi Sharma, ²Arpit Kumar and ³Akansha Gupta

^{1,2,3}Department of Computer Science and Engineering, Dr. APJ Abdul Kalam Technical University (AKTU), U.P., India

Abstract: In modern years, there is a growing recognition of **Virtual Reality (VR)** in education and the logic behind this may be the distribution programs in various walks of life. With the minimal device framework, the developers can easily construct and organize applications that can be reachable from anywhere without the in-depth understanding of editing and managing 3D objects. In an intended design, Intelligent Virtual Assistant offers the opportunity for hospitality services to enhance the customer experience. The Virtual Assistant can give guests a more personalized experience with either a touch or a Virtual Agent, a custom kiosk, or a smartphone. If you are visiting for the first time and need to identify the local business and location on the map, this MIET Virtual Assistant will help you find them. This paper outlines the results of a project undertaken by the Meerut Institute of Engineering and Technology, AKTU, India, which aims to provide a purposeful hosting service in the VR area using Amazon service which is known as AWS Sumerian. This project's benefaction and shortcomings are explored.

Keywords: Virtual Reality, Virtual Concierge, Map Concierge, Hospitality, Authentication, ID, Speech

1. Introduction

Since the past years, the concept of human machine interaction has received enough attention to achieve hybrid automation in production. The type of hybrid automation takes advantage of the impact of the interaction of human robots. When used in a meeting, the need for flexibility, flexibility, and security makes the design and reconstruction of robotic co-operative systems (HRCs) a complex and prone process. The use of continuous time-based simulation can provide a visual safe environment for testing and validation that facilitates the development of complex HRC systems. However, conventional simulation does not allow us to feel the future production system as the end user in the immersion environment. This paper examines technological advances in reality (VR) in the development of human-centered production systems and develops an integrated framework for integrating robotic simulations with VR. Simulation as an event-driven simulation helped to measure the times of the human robots cycle, to improve system-programming, order-making, and robotic control systems. Similar simulations are used in VR to communicate with production equipment and especially with a robot. In addition, the AWS Sumerian environment is used to create a virtual robot to assist VR users in the construction process. In the proposed scheme, the user can easily and efficiently find a correct venue with the help of AWS Virtual Private Assistant. Virtual Assistant completely looks like a human, and as efficient as the human. The user needs to interact with the Virtual Assistant through speech for which certain steps need to follow. Apart from this, the whole scene has been created through the AWS Cloud Formation template which gives a sight of Virtual Reality (VR) along with Augmented Reality (AR) to the users. Since, we have come up with the interaction of users with Virtual Assistant, for the users in order to interact with the Virtual Assistant we have used the Speech Component of Amazon Sumerian. Whenever the user wants to know the correct destination, he has to query the Virtual Assistant by simply communicating with it. And in response, the Virtual Assistant responds to the user's query using this speech component by locating the querying location on the Google Map. **The Virtual Assistant will also have the ability to construct logic, which will enable it to respond to queries for the MOST VISITED and LEAST VISITED areas of interest.**

2. Methodology in Context

To start growing with Amazon Sumerian, one must have an AWS account. We can access **amazon lex** and **amazon polly** which is used in our model and various other services of AWS by using that account. One isn't required system information because the Amazon Sumerian uses a programming structure dependent upon state-of-the-art encoding. However, as the developer's intentions become clearer, JavaScript information allows for off-the-counter AWS connectivity resources that are convenient in a structure that includes native language processing (NLP). From modeling plans (for ex blender, free, open source software) and online

clothing stores, the user can easily bring in 3D objects, as well as their own objects and animations with the help of Amazon services. Through understanding of speech recognition and text input, the Amazon Sumerian also includes hosting, personalized characters that can guide the users. In the proposed scheme, the users can easily and efficiently find a correct venue with the help of AWS Virtual Private Assistant. Virtual Assistant completely looks like a human, and as efficient as the human. The user needs to interact with the Virtual Assistant through speech for which certain steps need to follow. Apart from this, the whole scene has been created through the AWS Cloud Formation template which gives a view of Virtual Reality (VR) along with Augmented Reality (AR) to the users. Since, we have come up with the interaction of users with Virtual Assistant, for the users in order to interact with the Virtual Assistant we have used the Speech Component of Amazon Sumerian. Whenever the user wants to know the correct destination, he has to query the Virtual Assistant by simply communicating with it. And in response, the Virtual Assistant responds to the user's query using this speech component by locating the querying location on the Google Map.

2.1 Amazon Sumerian

AWS offers many amazing services, one of them is Amazon Sumerian. It permits the clients to develop and publish AR and VR groups with a URL that could be accessed from the latest versions of Google Chrome browser and Mozilla Firefox browser, which are standardised by the WebVR standard protocols. Amazon Sumerian holds up the humongous VR headsets on the market today, including the latest Google Cardboard. HTC Vive headset and controls have been utilised in the project due to its amazing quality. The first step to begin with Amazon Sumerian is creating an AWS account. Creating an AWS account gives you access to a large cluster of AWS services such as Amazon Lex and Amazon Polly, which plays a significant role in our project. One isn't required system information because the Amazon Sumerian uses a programming structure dependent upon state-of-the-art encoding. However, as the developer's intentions become clearer, JavaScript information allows for off-the-counter AWS connectivity services that can be utilised in a system that supports native language processing (NLP), as shown in the figure. From modeling plans and online clothing stores, the user can easily bring in 3D objects, as well as their own objects and animations with the help of Amazon services.



Fig.1. Workflow Mechanism

2.2 Our Proposed Scheme

The proposed scheme consists of four phases:

1. The First Phase: User:

- The user queries by interacting with the Virtual Assistant and ask it to show the desired venue.
- The interaction takes place simply by communicating through speech.
- Certain rules need to be followed by the user for the interaction :
 - ☐ On the keyboard, press the spacebar while interacting with the Assistant. ☐ The tag line should be as " Show me ".

2. The Second Phase: Virtual Private Assistant :

- Interacts through the Google map.
- Identifies the correct location in the Google Map.

3. The Third Phase: Google Map:

- Visualization of the correct Venue pointed by the Google Map automatically.

- It visualizes all those locations and venues simply by zooming in and zooming out.

4. The Fourth Phase: Virtual Private Assistant:

- Get the details of the correct destination and pointed locations on the Google Map.
- It finally responds to the user's queries.
- Can respond to the queries like **most visited and least visited** venues.

2.2.1 The Dialogue

Amazon web services introduces the conversational program called Amazon Lex, that requires objectives, sentences that the user can say. We have used some special keywords which help the client not get irritated if he forgets or pronounces the whole English sentence incorrectly. In addition, Amazon Lex was responsible for distinguishing on the basis of different words of the same name, which can be found in a specific phrase addressed to an assistant (Grace), such as Grace, to show me where I am going.

The dialogue is divided into 10 units in relation to the various components of the management user communication skills. The player may be suspended anytime.

Last but not least, we used Amazon Polly to provide the characters with a different variation of English. Amazon Polly is a speech-to-speech app that can be run smoothly from the Amazon Sumerian console. The customization of these words become possible with the help of Polly, which allows the characters to be heard closer to the human voice.

3. Further Steps and Result

The relative learning will be used for various visitors at the Meerut Institute of Engineering and Technology, to find specific locations to be searched at the same

enablement. The study will identify members, split into two categories (control and evaluation), VR and desktop scenarios to visit targeted areas related to departmental searches. For the VR-enabled test team, the HTC Vive headset and controllers will be used.

The results of the experimental evaluation, i.e. The previous and

following-departmental searches, and also the quality details, gathered from the polls, must be considered to give response to these questions: 1) Which department is the most visited?, and 2) which department is the most visited?

The web-based Amazon Sumerian is something to be considered if the output obtained in a test promises to provide hospitality services which means the research method will be easily redundant for some researchers, if high-end computers and headsets are not required.

4. Conclusion

Virtual Assistant completely looks like a human, and as efficient as the human. Our scheme is used to provide access to hospitality services to improve customer experience. We have demonstrated that our proposed system meets the need for flexibility and security. Also, it makes the design and reconstruction of cooperative robotic systems (HRCs) more composite and liable for erroneous processes. A secure viewing environment for analysis and verification can be provided by the utilization of constant simulations that aids in the development of complex HRC systems.

In future work, we shall extend our proposed scheme in some important applications such as the weather, facts appear e.g. Wikipedia or IMDb, set an alarm, make a to-do list and a shopping list.

References

1. Cho, Y. (2018). However, Spatial Presence in VR Affects Memory Retention and Motivation on Second Language Learning: A Comparison of Desktop and Immersive VR-Based Learning (Unpublished master's dissertation). Syracuse University, Syracuse, New York.
2. Curcio (2016). Virtual realities and education. *Analysis on Education and Media*, 8(2), 60–68. <https://doi.org/10.1515/rem-2016-0019>
3. GUPTA, S. (2016). OGMA: language acquisition system exploitation immersive computer game (Unpublished master's dissertation).
4. Koda, K. (2012). In S. Gass & A. Mackey. 303-318 New York: Routledge. Matlin, M. (2004). American state Janeiro|Rio|city|metropolis|urban center} de Janeiro: LTC.
5. Computer-Assisted learning, 15 (3), 221-239.
6. Vazquez, C., Xia, L., Aikawa, T., & Maes, P. given at the 2018 IEEE eighteenth International Conference on Advanced Learning Technologies (ICALT).