FogScreen: The Walk through Virtual Environment

Naseema Shaik¹, Mubeena Shaik², Mohra Al alyan³

¹, ³Lecturer, King Khalid University, KSA
²Lecturer, Jazan University, KSA

Abstract: The FogScreen walk-through technology has become very popular and famous during recent years. It is an immaterial projection screen that consists of air and a little humidity, and enables high-quality projected images in thin air. In this paper we are discussing about close view of FogScreen, working, components, advantages and future of the technology.

Keywords: FogScreen, walk through technology, Virtual images, Virtual Technology, Dry fog.

1. Introduction

FogScreen[1,2 ] is an exciting new projection technology that allows to project videos and images on the screen of dry fog, which creates illusion that the images are floating in air. The FogScreen creates an image floating in thin air and encourages the audience to play with it. One of the features is the possibility to project different images on both sides without interfering each other. The fog is created by using with ordinary tap water without adding any chemicals.

Water is the only ingredient to make this device work. The water consumption depends on the size of the screen. A 2.2 meter wide screen consumes 6-10 liters of water per hour. The water is filled in the tank or water line is connected in the case of permanent installation[8].

FogScreen creates a dry fog by ensuring that the water droplets are in the range of 2-3 microns in size and are electro statistically charged so that they move around and away from other objects.

The FogScreen enables many novel applications, such as an example in art, theater, trade fairs, and in other fields of business, entertainment, and life. The audience or a performer can enter through the FogScreen, which could be a walk-through advertisement, or an entrance to a theme park. Mixed reality and immersive projection technology can use virtual rooms with fog screens [5].

Volume 6 Issue 8, August 2017

www.ijsr.net

Licensed Under Creative Commons Attribution CC BY
The screen can also be made interactive, reacting to the touch of the viewers [3]. This turns the passive projection screen into an immaterial touch screen, and greatly extends the application possibilities. Interaction can be implemented with, for example, laser scanning [4]. The finger or a hand of a person standing in front of the FogScreen can be tracked to emulate mouse functionality. The ability for a viewer to walk completely through the FogScreen makes it appropriate for enabling new viewing and interaction possibilities. While two traditional displays mounted back-to-back could present a similar pseudo-3D display to multiple viewers, the opaque displays would prohibit viewers from effectively collaborating across the two displays by obscuring users’ views of each other, distorting speech, and making it difficult to pass physical objects across the display. This permeability of the FogScreen is important not only for imaging and visualization, but also for a variety of new interface techniques.

**Formation of fog screen**

It is formed by using ordinary tap water without any chemicals and digital technology like ultrasonic device to create thin layer of dry fog which is sandwiched between two air curtains. The fog will create by fog generating device. It creates a dry fog by ensuring that the water droplets are in the range of 2-3 microns in size and are electro statistically charged so that they move around and away from other objects. The screen is created with dry fog.

After the screen is formed, images can be projected on it. With two projectors, we can project two different images on the both sides of the screen, which is called “dual sided nature”. Screen could operate within a broad range of environmental conditions. With lager water droplets, the fog which creates is wet, which cannot be used to form a screen. The fog we are using is dry, so it does not make you wet even you walk through it[7].

The dual sided nature allows for new possibilities in multi user face-to-face collaboration and pseudo 3D visual effect (Olwal et al. 2006), which shown in the following figure.

Olwal has created several pseudo-3D interactive applications[6]. This interactive application allows a user to stretch and sculpt, move and rotate a 3D model of head. The fog screen also used with volumetric 3D displays.

### 3. Applications

- The developers of FogScreen says the unique nature of it will make it a memorable experience for customers. It is environment friendly as it does not use any chemicals.
- FogScreen can be used in the seminars to make interactive presentations.
- It is used in case of project a 3D images in education systems.
- We can create luxurious interior with FogScreen.
- Immersive projection technology cloud use to create virtual rooms.
- Using FogScreen we can create effective advertisements.
- Increase productive skill and quality of products.
- Safety for kids, it is immaterial so that you walk through it.
- Increase production skills technology transfer.
- Mostly used in Museums, theme parks, Science Centers and stage productions.

### 4. Limitations

- It is very expensive, but FogScreen Inc working on providing it in a reasonable price.
- FogScreen works best with a dark background that enhances the brightness of the image on the Fog screen behind the projector. So it can be used in day light.
- Need 1k W energy to produce 1m long FogScreen.
• You can not make a high FogScreen, because fog would diffuse with distance.

5. Conclusion

In this paper we presented the FogScreen walk through technology is emerging and interactive and immaterial technology in which images float in air. Despite it is successful already and touching the all possibilities which can bring to the world of multimedia.

References


