

**Overcoming Issues in User Experience in Multiplayer Games****Lag Fixtures**¹Anamika Dnyaneshwar Dhawan, ²Dr. Surekha Kohle¹Department MCA, VJTI College²Assistant Professor, Department MCA, VJTI College

Abstract —Virtual Reality also called as Augmented Reality has drawn much attention with passing every year in this gaming era. With time, in AR Gaming lagging and render issues has also come into existence. The problems are related to graphics processing power, Memory availability (w.r.t requirement of the game), the quality of user internet connection, etc.

Keywords-Virtual reality(VR); Lag; Memory management; Render; Processing Power; Internet connection

I. INTRODUCTION

In computer graphics, it is important to show or describe virtual objects realistically and make its visual effect to be perfect to a certain point for user/gamer eyes. The augmented reality (AR) environment contains virtual and real objects simultaneously. However, some difference in flow/working between the virtual and real objects is obvious, which obviously makes it difficult for AR to be realistic and attractive. To reduce this gap, certain algorithms are used, then too user experiences some issues in interaction with the AR. Issues with respect to Processing, Internet Connection and Memory and many more. which leads to lag, such a problem is addressed and some solution to overcome them are provided in this paper.

II. RELATED WORK

In today's World, although online games have been an important Internet activity today, players inevitably suffer from lag from time to time due to the Internet's non-QoS-guaranteed architecture. Lag can be referred as a phenomena when a game fails to respond to user commands or update the screen in a timely fashion due to long system processing or network delays. Through research of players view about lag it is found that is very frustrating and demotivating and players usually have no means to overcome lag, as they lack the required technical background. Moreover, users/developers are trying to find solutions that can help them to mitigate this problem^[1].

III. SOLUTIONS**3.1. Reducing depletion of Internet bandwidth**

Reduction of internet concurrent users and downloads can help in reduction of depletion of internet bandwidth. An internet connection can have numerous devices connected (at home or cafe), or at the same time in your media other applications may also be open consuming some amount of data.

Let's say one is trying to download a HD media file in the background or doing some online streaming over youtube and at the same time also playing the game. It's obvious that internet bandwidth will be quickly depleted.

3.2. Use of Good ISP

Playing online games requires a good Internet Service Provider(ISP). A good IS ensures to provide the lowest ping when playing online games. Having a fiber connection with around 6-8GHZ wifi and a good router you will definately get a lower ping then compared to other people with mobile connections. This low ping can help you fix the lag you face in-games.

3.3. Connection type

Nowadays, even though a dedicated good internet connection does not help in overcoming lag, there is still few tricks which can potentially fix the issue. Internet Connection are provided in two types Wired and Wi-Fi where each of them possess some advantages and disadvantages. As we can experience even the best wireless connection cannot ever match up to the speed and reliability of any ethernet-based connection. So one should try to switch to a dedicated wired connection

3.4. Router troubleshooting (Rebooting and Updating firmware)

Turning on and off a system is a very general way for making any electronic system work in a consistent and appropriate manner. So, if user is having inconsistent connection behavior or not getting a connection at all, user should try restarting the router. If router lacks any function buttons, then hard restart can be preferred, i.e, physically removing power cable or switching main power supply button.

Updating router firmware can also be helpful. The easiest way to update router firmware is to log in to the router itself and see if it supports auto-updating.

In the router menu, there will be an option for advanced settings, and most of the routers have the option to update the router firmware from these settings. While some routers required to download update files manually. These are made available from the manufacturer's website.

Updating router's firmware will possibly increase the internet speed as it detects any hardware conflicts between router and wireless card if any. This also helps to apply all latest security patches as well.

3.5. Use of TCP Optimizer

TCP Optimizer is a very useful tool to have. It helps to have optimal internet connection settings for any type of connection user is using.

Having proper advanced setting is crucial, but, while setting up internet connection at places where people belongs to a non-technical background these settings goes unnoticed. At such places, TCP Optimizer can help to get a properly configured internet connection leading to availability of faster connection speed.

3.6. Enable 4xMSAA and change animation scale (for PUBG 0.5)

A good developer settings really have a good impact on FPS when playing VR games in Mobile. By using these settings, we can fix the lag in pubg mobile. These settings include enabling 4xMSAA. MSAA stands for Multisample anti-aliasing. It help to fix lag and also helps to smoothen textures on only some devices.

3.7. Game Booster

Nowadays, all the gaming phones have started shipping with game mode setting included by default. So, it is recommended to to set the game mode on for the best performance and to get the best gaming experience. Unfortunately, not all phones have this mode. For others, who do not have game mode can use this app — called gaming mode. It is also recommended by XDA and works pretty well. You can also use **Game Booster by BGNMOBi**. Although such app has too many ads but still it works great.

3.8. Disable battery Optimization

Nowadays all android devices come with battery optimization settings. Disabling battery optimization helps in boosting up performance.

3.9. Use of right Graphics settings

For those gamers gaming on emulators, you need to use the right graphic settings while playing vr games if provided so by the company or custom. Without proper settings, games will obviously lag.

3.10. Use Gaming VPN

The last resort is to use a **gaming VPN** for playing games. This is difficult mainly because all the good gaming VPNs are of premium-based. So VPNs are effective enough to provide good speec and reliability but are expensive at the same time. So if one can afford it they should go for it. It can help you fix the ping issue. This is recommended for high graphics end-user games like pubg, gta, etc.

IV. CONCLUSION

As we know nothing is frustrating than facing any issues while playing a game, so above are some tricks and solutions to overcome these issues.

The above provided method can provide lag relief to certain extent in gaming world, in which some are only bounded for mobile gaming.

REFERENCES

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