Sonic Object Localization for reconstruction in Virtual Reality – Server

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INTRODUCTION

The main purpose of virtualization is to effectively use the hardware resources available.

Docker Swarm
- Docker Swarm is Docker container orchestration and clustering tool.
- It allows you to deploy and orchestrate containers on a large number of hosts which helps to scale the system.
- It performs load balancing of containers as well.

Docker Compose
- Using compose we can set the application services for the containers running by creating yaml files.

ARCHITECTURE

The system was tested with 27 Docker containers 25 containers representing on/off boxes and 2 containers representing receiving servers.

- The result visualizes the on/off boxes using the coordinates generated by the simulation program.
- Each orange boxes in the below figure represents an on/off box showing the volume, frequency and the X, Y co-ordinates.
- With 25 on/off boxes running in parallel, there is no latency in the transition of the position of the boxes in the visualization.

RESULT VERIFICATION

Using Processing Toolkit
- We calculate the distance between the on/off box and anchor 1, 2, 3, 4 and save it in the database.
- Render the on/off boxes using anchor 1 coordinates but additionally draw a line between the box and the remaining anchors. The length of the line represents the actual distance between the box and the anchor.
- Compare these values with the values we earlier computed and stored in the database.

RESULT

- The system is built to a point where it is possible to create a virtual reality application which would take data input from the on/off box application and provide users a wholesome experience of the tone generator boxes.

CONCLUSION

- The visualization built using Processing language and toolkit provides a substantial proof that we can build a Virtual Reality application which would take data input from the on/off box simulation module and provide users a wholesome experience of the tone generator boxes.

FUTURE WORK

- The system is built to a point where it is possible to create a virtual reality application using the data from the server side.
- Currently we are using only x and y coordinates from the x, y and z coordinates provided by the anchors. Since we are using 2 dimensional visualization. The z coordinate values which represent the elevation can be leveraged in the V.R application for placing the boxes at different heights.

REFERENCES


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