MEASUREMENT OF AR COMMERCIAL PLATFORMS-INSTRUCTIONS

Group Members: Saurabh Purkar, Varshaa Shree

STEPS FOLLOWED FOR EXPERIMENTS RELATED TO BACKGROUND SERVER:
Analysis of Background Servers
We performed 3 different experiments as mentioned below
In experiment 01 was a single user experiment
- Open JOIN XR Application
- User A joins the meeting and mutes themselves
- Stand still for 1 minute
- Move around without moving hands for 1 minute
- Move around by moving hands for 1 minute
- Stay still for 1 minute

In experiment 02 which was a two user experiment with
User A moving and User B being steady
- Open JOIN XR Application
- User A joins the meeting and mutes themselves
- User B joins the meeting after 30 seconds and mutes themselves
- User A and B keep standing
- User A moves by keeping hand still whereas User B is still standing for 1 minute
- User A moves with hand movement whereas User B is still standing for 2 min
- User A stands User B stands

In experiment 03 which was a two user experiment where both
User A and User B are moving
Open JOIN XR Application
- User A joins the meeting and mutes themselves
- User B joins the meeting after 30 seconds and mutes themselves
- User A and B keep standing
- User A and User B move by keeping hand still for 1 minute
- User A and User B move with hand movement for 2 min
- User A stands User B stands

WIRESHARK ANALYSIS FOR ABOVE EXPERIMENTS:
- For this we went to the conversation section
- We filtered out the background servers for which the source was the ip of the hololens
- We then determined the Round Trip Time by using the command ping ip-server using the command line. This gave us the average RTT
- Next, we went to website to determine location, anycast details for the server
- Lastly to get bytes transferred and protocol used we come back to the conversations on Wireshark.
- For device portal we put the average CPU/GPU Utilisation through the experiment.

Analysis of Latency with VPN

VPN Usage:
The VPN used is an application called VPN Shield available on Microsoft Store.
- Open VPN Shield
- Choose the country
- Click on connect
- Once VPN shows connected start exp[eriment

Analysis of start and stop of a shared video over various countries with variations in Avatar

Steps:
- Run a millisecond clock (this is done for synchronization)
- Join a JOINXR Meeting
- Start recording the video, make sure the millisecond clock is part of your video
- Start the VPN onUser B Hololens
- User A shares the video
- User A starts and pauses the video
- User B starts and pauses the Video

Variations
- The first variation was to check the experiment results where both users were without any photo on avatar.
- The second variant was to check the experiment results with both users having a photo on avatar.
- Last variant was mixed scenario was where one user had avatar and other user did not have any avatar

Analysis of Latency for tool Dictation in JoinXR with meeting and drop-in
- Run a millisecond clock (this is done for synchronization)
- Join a JOINXR Meeting
- Start recording the video, make sure the millisecond clock is part of your video
- Open dictation tool
- Make sure the dictation is visible for you and other users
- Start dictating
- Check which frame had first appearance for you and for the same for your partner to calculate latency

FFMPEG:
To convert video into frames we used FFMPEG Tool.
We used the command: ffmpeg -i input.mp4 -vf fps=1 out%d.png to generate the image frames.
Post this we checked which frame had first appearance for you and for the same for your partner to calculate latency