

Captury Unreal Engine 5 Meta Human Interaction System - Doccumentation

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Chapter 1

Introduction

1.1 What is this system?

The system installed in room 4.05 contains many moving parts to create the interaction system. This document serves to explain the purpose of each component and instruct on how to operate the system for the purpose of academic experimentation.

The system aims to collect physical expressions from the head, face, body and hands of a subject. In order to do this there are several devices that are in use at the same time. Listed below are the machines and their purpose to the overall system:

1.2 How this guide works?

The order of operations in this guide usually follows an order when referring to machines. This order is usually:

1. Capture Server
2. UE5 Server
3. Client PCs
4. Networking Equipment
5. Meta Quest Pro Headsets

If a stage isn't mentioned in the guide, it is assumed that the stage is not required for the current operation.

Chapter 2

Using the System

2.1 Booting

To use the system you first need to boot all of the systems. This means Captury, UE5 Server and both client machines. The order in which you boot the systems is unimportant.

The Captury machine is located in the rack on the right of the observation room. The power button is located on the front behind a small swing window. Open the window and press the power button to boot the machine. This server also has a monitor, keyboard and mouse attached to it and runs Ubuntu. The login information is provided on the inside of the swing window.

The UE5 Server PC is located facing the window. This machine is running Windows 11 and is used to run the Unreal Engine 5 Server. This serves as a hub for all the information to be aggregated and sent to the client machines.

The client PCs are located facing the observation room, one on the left and one on the right. These machines are running Windows 11 and are used to control the avatars in the Unreal Engine 5 scene. The PCs are named PC1 and PC3.

Important: PC1 (left) is a bit annoying and will often turn on, but not display an image. If this happens, simply hold the power button on the PC to turn it off, wait 10 seconds, and turn it back on. This should fix the issue.

Each PC also has a Meta Quest Pro that should be located atop the tower. The headsets have a coloured band on the head strap to help identify which headset is which. The green strap belongs to the left PC and the blue strap belongs to the right PC.

Important: The Meta Quest Pro headsets are wireless and do not need to be connected to the PC via a cable. The headsets connect to the PCs via the internal Wi-Fi network.

Make sure the network router and switch is turned on. This is located in the rack on the right of the observation room, the model is a Ubiquiti UDM SE, it is a white brushed metal and has a small status screen on the left side. This switch is used to connect all the machines together and allow them to communicate.

Finally, boot the headsets, this is done by either waking them from sleep (press the power button on the side of the headset) or by turning them on (hold the power button for 3 seconds). The headsets should automatically connect to the internal Wi-Fi network after a few seconds.

2.2 Launching Software

There is a plethora of software used to make this system work. The Captury machine will be our first focus. Login with the information provided on the inside of the server's swing window where you turned on the machine, then launch the "CapturyLive" software. This should be located on the left bar of the desktop.

The next projects we will focus on is the Unreal Engine 5 Server. This is located on the UE5 Server PC.