CLAIMS

~~————~~ ~~1.–~~ A ~~virtual space connection device~~system comprising:

~~————~~ a first imaging unit which comprises a first imaging lens, and which is provided in a first space that is a first indoor space;

a first microphone provided in the first space;

a first speaker provided in the first space;

a first screen provided on a wall surface of the first indoor space;

a first projector which is provided in the first space, and which outputs a projection image to the first screen; and

a first arithmetic processing unit ~~configured to perform~~ that performs:

processing of transmitting, to a second-space side that is a second indoor space separated from the first space, a first picked-up image signal obtained by imaging ~~a~~the first space by the first imaging unit, and a first audio signal obtained by collecting sound in the first space ~~to a~~ by the first microphone; and

processing of receiving, from the second ~~-~~space side ~~separated from the first space, receive~~, a second picked-up image signal obtained by imaging the second space, and a second audio signal obtained by collecting sound in the second space, ~~and perform a display~~ causing the first projector to output, to the first screen, the projection image based on the second picked-up image signal~~–~~ ~~and an~~, and causing the first speaker to output audio ~~output~~ based on the second audio signal~~;~~ so as to virtually connect the second space to the first space,

~~————~~ ~~a second~~wherein the system performs:

first image analysis processing of detecting a person in the first space based on the first picked-up image signal; and

first directivity control processing of controlling a directivity of the first microphone so as to be directed to a position of the person in the first space detected through the first image analysis processing.

2. The system according to claim 1, wherein the first screen is provided with a hole that exposes the first imaging lens.

3. The system according to claim 1, further performing:

first audio analysis processing of detecting ambient sound in the first space; and

first attenuation control processing of performing attenuation processing on the first audio signal to a frequency band corresponding to the ambient sound in the first space.

4. The system according to claim 1, further performing first amplification control processing of performing amplification processing on the first audio signal when the person is detected through the first image analysis processing.

5. The system according to claim 1, further performing first attenuation processing of performing attenuation processing on the first audio signal when no person is detected through the first image analysis processing.

6. The system according to claim 4, detecting, through the first image analysis processing, the person having a face directed to the first screen.

7. The system according to claim 1, detecting, through the first image analysis processing, luminance in the first space, determining whether the first space is in a dark room state based on the luminance in the first space, and performing first attenuation processing of performing attenuation processing on the first audio signal when the first space is in the dark room state.

8. A virtual space connection device comprising:

a first imaging unit which comprises a first imaging lens, and which is provided in a first space that is a first indoor space;

a first microphone provided in the first space;

a first speaker provided in the first space;

a first screen provided on a wall surface of the first indoor space;

a first projector which is provided in the first space, and which outputs a projection image to the first screen;

a first arithmetic processing unit ~~configured to perform~~ that performs:

processing of transmitting ~~the~~, to a second ~~picked-up image signal and the second audio signal to the first~~ space side that is a second indoor space separated from the ~~second~~first space, ~~receive the~~a first picked-up image signal ~~and~~ obtained by imaging the first ~~audio signal, and perform a display based on~~space by the first ~~picked-up image signal~~imaging unit, and ~~an audio output~~

based on thea first audio signal; obtained by collecting sound in the first space by the first microphone; and

a first display unit configured to virtually connect the second space to the first space by making the display processing of receiving a second picked-up image signal obtained by imaging the second space, and a second audio signal obtained by collecting sound in the second space, causing the first projector to output, to the first screen, the projection image based on the second picked-up image signal within, and causing the first space accordingspeaker to a controloutput audio based on the second audio signal fromso as to virtually connect the second space to the first space,

a second imaging unit which comprises a second imaging lens, and which is provided in the second space;

a second microphone provided in the second space;

a second speaker provided in the second space;

a second screen provided on a wall surface of the second indoor space;

a second projector which is provided in the second space, and which outputs, to the second screen, a projection image; and

a second arithmetic processing unit; and that performs:

a second display processing of transmitting, to the first-space side separated from the second space, the second picked-up image signal obtained by imaging the second space by the second imaging unit configured, and the second audio signal obtained by collecting sound in the second space by the second microphone; and

processing of receiving the first picked-up image signal, and the first audio signal, causing the second projector to output, to the second screen, the projection image based on the first picked-up image signal, and causing the second speaker to output audio based on the first audio signal so as to virtually connect the first space to the second space ~~by making the display based on the first picked-up image signal within the second space according to a control signal from the second arithmetic processing unit~~,

~~wherein a parameter related to audio processing of the first audio signal is controlled according to conditions in the first space, and a parameter related to audio processing on the second audio signal is controlled according to conditions in the second space.~~

~~2. The~~ wherein the virtual space connection device ~~according to claim 1, wherein~~performs:

~~a parameter related to directivity of a microphone configured to collect sound which is the first audio signal is controlled as the parameter related to the audio processing on the first audio signal, and a parameter related to directivity of a microphone configured to collect sound which is the second audio signal is controlled as the parameter related to the audio processing on the second audio signal.~~

~~3. The virtual space connection device according to claim 1 or 2, wherein~~

~~a parameter related to noise reduction processing on the first audio signal is controlled as the parameter related to the audio processing on the first audio signal,~~

~~and a parameter related to noise reduction processing on the second audio signal is controlled as the parameter related to the audio processing on the second audio signal.~~

~~4. The virtual space connection device according to any one of claims 1 to 3, wherein~~

~~a parameter related to attenuation processing on the first audio signal is controlled as the parameter related to the audio processing on the first audio signal, and a parameter related to attenuation processing on the second audio signal is controlled as the parameter related to the audio processing on the second audio signal.~~

~~5. The virtual space connection device according to any one of claims 1 to 4, wherein~~

~~a parameter related to amplification processing on the first audio signal is controlled as the parameter related to the audio processing on the first audio signal, and a parameter related to amplification processing on the second audio signal is controlled as the parameter related to the audio processing on the second audio signal.~~

~~6. The virtual space connection device according to any one of claims 1 to 5, wherein~~

~~the conditions within the first space are determined on a basis of a result of~~ first image analysis processing of detecting a person in the first space based

on the first picked-up image signal~~, and the conditions within the second space are determined on a basis of a result of~~;

first directivity control processing of controlling a directivity of the first microphone so as to be directed to a position of the person in the first space detected through the first image analysis processing;

second image analysis processing of detecting a person in the second space based on the second picked-up image signal~~.~~; and

~~7. The virtual space connection device according to any one of claims 1 to 6, wherein~~

~~luminance within the first space is determined as the conditions within the first space, and luminance within the second space is determined as the conditions within the second space.~~

second directivity control processing of controlling a directivity of the second microphone so as to be directed to a position of the person in the second space detected through the second image analysis processing.