目录

Content

一、 技术介绍.....1
I. Technical Introduction.....1
二、 有线控制说明.....3
II. Description in Wired control model.....3
（一）、使用场景介绍.....3
(1) Introduction to the use scenario.....3
（二）、串口协议.....3
(2) Serial port protocol.....3
三、 Java SDK 说明.....7
III. Java SDK description.....7
（一）、使用场景说明.....7
(I) description of the use of the scenario.....7
（二）、使用说明.....7
(II) Instructions for use.....7
1、名词说明.....7
1. Description of nouns.....7
2、开发环境准备.....8
2. Preparation of the development environment.....8
3、使用步骤.....8
3. Steps of Usage.....8
四、 API 说明.....14
IV. API description.....14
（一）、使用场景说明.....14
(I) description of the use of the scenario.....14
（二）、功能说明.....14
(II) Function descriptions.....14
1、登陆鉴权.....14
1. Login authentication.....14
2、下发任务.....15

2. Distribution a task.....15
3、查看任务记录.....17
3. See the task record.....17

一、技术介绍

I. Technical Introduction.

3D全息智能炫屏，实现了全面的控制方式，包括有线连接控制、WiFi 直连控制、网络远程控制，三种方式对应不同的业务场景，用户可以根据自己的需求来选择使用。

Dsee.Lab holographic intelligent screen achieved comprehensive control, including wired connection control, WiFi direct connection control, and network remote control. Three ways correspond to different business scenarios. Users can choose to use according to their own needs.

下图显示了云系统架构及设备任务流程图。

Shown below is the cloud system architecture and task flow chart of the device.

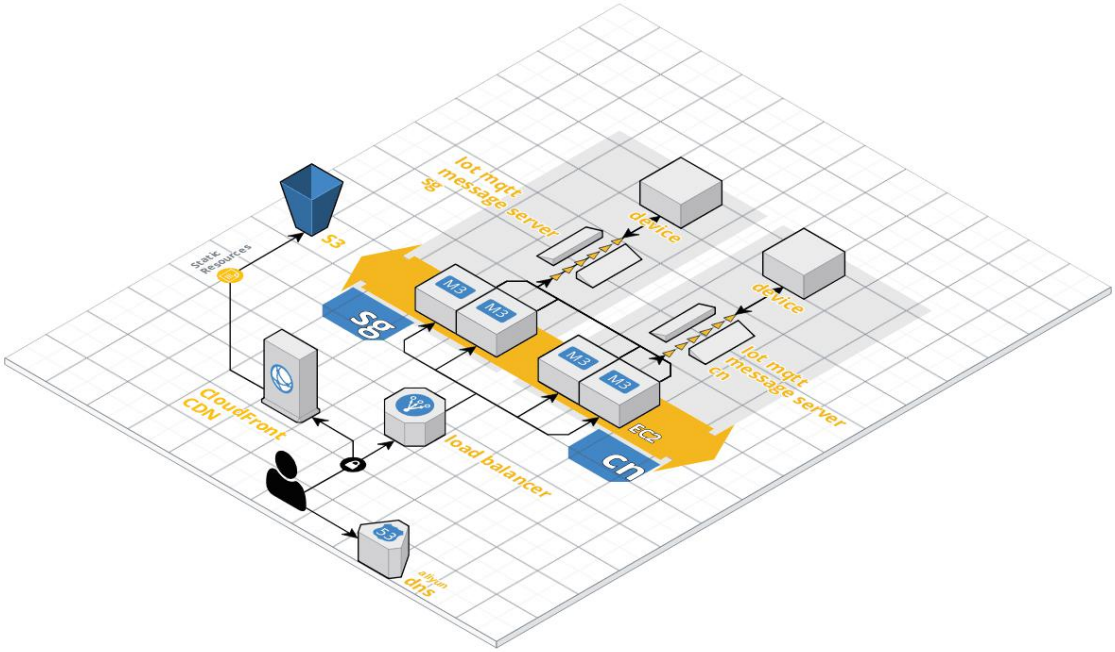

图 1.1 云系统架构图

Figure 1.1 Cloud System Architecture

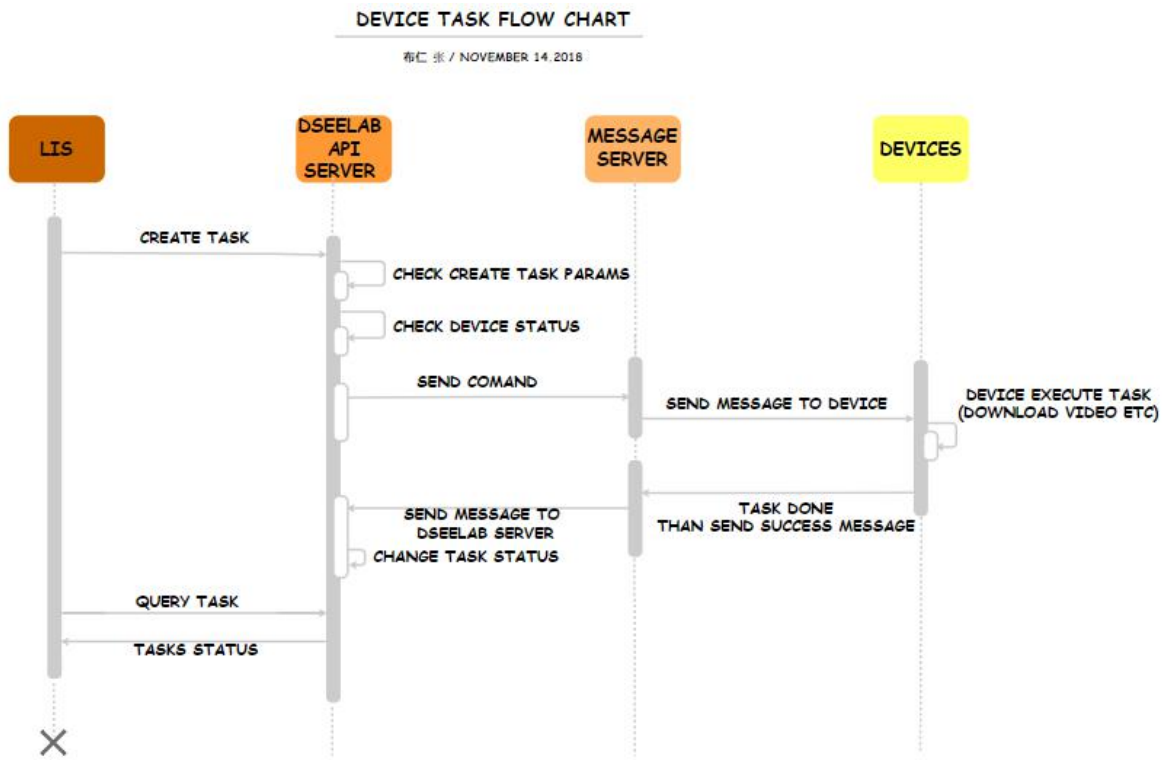

图 1.2 云系统设备任务流程图

Figure 1.2 Task flow chart of cloud system equipment

二、有线控制说明
II. Description in Wired control model

（一）、使用场景介绍
(1) Introduction to the use scenario

对于某些人机游戏互动场景，或者是对联屏同步性有较高要求的场景，可以使用有线控制来实现。使用线控，首先需要将设备设置为从机模式，此时设备不会自己切换视频或者播放，一切行为都听从串口线发来的命令来运行，可以实现对设备播放的精密控制。

For some scenes of the man-machine interactive games, or scenes with high requirements for screen synchronization, wired control is recommended. When using wire control, first of all, the device needs to be set to slave mode, which means the device will not switch to its own video or play anything by itself. All will run following the command sent by the serial line, to realize precise control over playing.

（二）、串口协议
(2) Serial port protocol

50 / 65 /100 UART 控制接口手册

50 / 65 / 100 UART Interface Control Manual

1) 在 PC 上安装 CH340 驱动程序;

1) install CH340 driver on PC;

2) 将协议转换器连接到 PC;

2) connect the protocol converter to the PC;

3) 使用 3.5 毫米音频线将转换器连接到第一个设备（设置为从机模式）;

3) use a 3.5mm audio cable to connect the converter to the first device (set to slave mode);

4) 将 PC 上的波特率设置为 9600-N-1;

4) set the baud rate on PC to 9600 μ N ≤ 1;

5) 控制协议简单，每个命令长度为 4 个字节。 协议列表如下：

5) the control protocol is simple, each command is 4 bytes long. The list of protocols is listed below:

控制帧头：0xB6

Control frame header: 0xB6

指令 Instruction	内容（两个字节） Content (Two bytes)	功能 Function
0x01	0x01 0x00	开机 Start up
0x01	0x02 0x00	关机 Shut down
0x02	0x00-0x0f 0x00	亮度 0-15 Brightness 0 - 15.
0x02	0x11 0x00	增加亮度 Increase brightness.
0x02	0x12 0x00	减小亮度 Decrease brightness.
0x03	0x01 0x00	设置设备为主机 Set the device as the host.
0x03	0x02 0x00	设置设备为从机 Set the device as a slave.
0x04	0x01 0x00	设为 AP 模式 Set to AP mode.
0x05	0x01 0x00	播放下一个 Play the next one.
0x05	0x02 0x00	播放上一个 Play the previous one.
0x05	0x03 0x00	暂停播放 Pause.
0x05	0x04 0x00	继续播放 Continue playing.
0x05	0x05 0x00	从头播放

		Playback from beginning.
0x05	**0x06 N**	**切换到第 N 个视频并暂停 播放完之后停在最后一帧 Switch to the Nth video and pause. Stop at the last frame after playing.**
0x05	**0x07 0x00**	**暂停/继续播放 Pause / restart playing**

6) 两个命令之间的间隔必须大于 250ms。

6).The interval between two commands must be longer than 250ms.

注意：使用 PC 控制设备时，视频会在到达结尾后暂停。 在发送下一个控制指令之前，设备不会继续播放或切换到下一个视频。

Note: when using the PC-based control device, the video would pause when it reaches the end. The device would not continue to play or switch to the next video until the next control instruction is sent.

图 2.1 串口命令发送示例

Figure 2.1 example of serial command sending

三、Java SDK 说明
III. Java SDK　description.

（一）、使用场景说明

(I) description of the use of the scenario.

在设备旁边时，手机等客户端可以搜索到设备 WiFi，直接建立 socket 连接，来实现对设备的控制。该方式简单直接，是最通用的控制方式。

When next to the device, the mobile phone and other clients can see the device WiFi, to establish a socket connection directly to achieve the control of the device. This method is simple and direct, and it is the most popular control method.

（二）、使用说明

(II) Instructions for use.

1、名词说明

1. Description of nouns.

下位机：设备本身，处于被控制端。

Lower computer: the device itself, at the controlled side.

上位机：设备的控制端，例如电脑、网页、手机。

Upper computer: the control side of a device, such as a computer, a web page, or a mobile phone.

Ap 模式（一般模式）：设备没有连接到任何路由器，由设备本身散发热点，散发的热点名称为设备编号，上位机(比如：电脑)可以连接到这个热点与设备通信。

Station 模式（联网模式）:设备连接到一个路由器上，上位机可以连接到相同的路由器后与设备通信。

Ap mode (general mode): the device is not connected to any router, and the hot spot is emitted by the device itself. The name of the hot spot is the device number, and the upper computer (for example, the computer) can connect to this hot spot to communicate with the device.

Station mode (networking mode): the device is connected to a router, and the host computer can connect to the same router and communicate with the device.

2、开发环境准备

2. Preparation of the development environment.

Java 环境：java6 以上（包含 java6）

Java environment: above java6 (including java6).

由于素材的分辨率和文件格式需要被设备支持，所以需要将传入的图片和视频进行转码，我们目前使用的时 FFmpeg 这个开源库，所以需要在电脑上配置 FFmpeg 的环境变量。将压缩文件解压，将 bin 目录的路径配置到环境变量的 path 中去。

Because the resolution and file format of the material need to be supported by the device, we need to transcode the incoming pictures and videos. We are currently using FFmpeg, which is an open source library, so we need to configure the environment variables of FFmpeg on the computer. Unzip the compressed file and configure the path of the bin directory to the path of the environment variable.

ffmpeg.rar

3、使用步骤

3. Steps of Usage.

1) 创建 SocketHelper 实例

1) Create a SocketHelper instance.

2) 连接到指定设备

2) Connect to the specified Device.

3) 调用控制设备的功能

3) Invoke the function of the control the device.

4) 结束后关闭连接

4) Close the connection at the end

3.1 初始化

3.1 Initialization.

MSocketHelper = new SocketHelper ();

3.2 连接到设备

3.2 Connect to Devic.

此方法适用于上位机先连接到设备散发的热点后调用的方法。

This method is suitable for the method that the upper computer has connected to the hot spot emitted by the device first.

参数 1：设备编号

Parameter 1: device number.

public boolean connect(String deviceSn)

Public Boolean connect (String deviceSn).

此方法适用于上位机和设备处于同一个局域网内。

This method is suitable for the upper computer and the equipment in the same LAN.

参数 1：设备 IP（可以通过搜索设备接口获得）

Parameter 1: device IP (available through searching the device interface).

参数 2：设备密码（设备出厂有固定的编号和密码）

Parameter 2: device password (device has a fixed number and password on it).

参数 3：设备编号（也可以通过搜索设备接口获得）

Parameter 3: device number (also available through search device interface).

public boolean connect(String ip, String passWord, String deviceSn)

Public boolean connect (String ip, String passWord, String deviceSn)

3.3 搜索附近的设备

3.3 Search for nearby equipment.

此方法用于搜索处于当前局域网内的设备。实现回调方法可以获得搜索到的设备列表，里面包含设备的名称和 IP。

This method is used to search for devices in the current LAN. The implementation callback method gets a list of searched devices that contain the name and IP of the device.

备注：此搜索方法结果会在 5 秒后返回结果，此方法搜索会有一定的遗漏的可能，如果确定处于同一局域网下而没有搜索到，可以多尝试几次。

Note: the results of this search method will be returned in 5 seconds, this method of search

could have a certain omission, if you are sure that it is in the same LAN and could not find it, try searching several more times.

public void searchDeviceIp(CallBack callBack);

Public void searchDeviceIp (CallBack callBack);

3.4 开启设备

3.4 Start up the device

public boolean openDevice();

3.5 关闭设备

3.5 Shut down the device

public boolean closeDevice()

3.6 暂停播放

3.6 Pause the Playing

public boolean pausePlayer()

3.7 继续播放

3.7 Continue the Playing

public boolean resumePlayer()

3.8 删除全部文件

3.8 Delete File

public boolean deleteFile(int position)

3.9 删除全部文件

3.9 Delete all the Files

public boolean deleteAll()

3.10 播放指定文件

3.10 Play the specified file

public boolean playVideo(int position)

3.11设置设备亮度

3.11 Set Brightness

备注：亮度范围 0-15

Note：Ranging from 0-15

public boolean setLight(int light)

3.12 读取设备状态

3.12 Read device status

public DeviceState readDeviceState()

3.13 读取设备播放列表

3.13 Read device playlist

public List<FileItem> readFileList()

3.14 更新设备播放列表

3.14 Update device playlist.

public boolean updateFileList(List<FileItem> fileItems)

备注：设备的播放列表，最终设备的播放顺序会以播放列表为准，不在列表中的素材不会播放。

Note: the playlist of the device. The final order of the play of the device will be the same as the playlist, and the material that is not in the list will not be played.

3.15 上传素材

3.15 Uploading material

备注：上传的文件路径，支持的文件格式：fig、mp4、avi、mkv、rmvb、wmv、mov、flv、jpg、jpeg、png、bmp

Note: the path of the file uploaded, the supported format：****

public boolean uploadFile(String[] inputPath)

3.16 Station 切换到 Ap 模式

3.16 Station switchs to Ap Mod.

备注：模式切换成功后，当前通信会断开，请等待 5 秒左右，模式切换成功，如果想继续控制设备，需要通过 Ap 模式下的连接方式重新列表到设备。

Note: after the successful mode switching, the current communication will be disconnected, please wait about 5 seconds. After the mode switching is succeeded, if you want to continue control the device, you need to be re-listed to the device through the connection mode of Ap.

public boolean sta2Ap()

3.17 Ap 模式切换到 Station 模式

3.17 Switch from Ap mode to Station mode.

参数 1：设备要连接的 wifi 名称

Parameter 1: wifi name to be connected to device

参数 2：设备要连接的 wifi 密码

Parameter 2: wifi password to be connected to the device.

备注：切换成 Station 模式的时候，请尽量确保 wifi 名和密码正确，如果错误了，则连接不到设备了。如果不小心输入错误，可通过将设备切换到出厂时的 Ap 模式。切换 Ap 模式有如下两种情况：

Note: when switching to Station mode, try to make sure that the wifi name and password are correct. If not, you will not be able to connect to the device. If you accidentally typed incorrectly, you can switch the device to Ap mode as it first leaves the factory. Switching Ap mode can be done in 2 ways:

如果设备后面有 2 个按钮，则长按短的按钮 3 秒即可切换成 Ap 模式。

If there are two buttons behind the device, press the short button for 3 seconds to switch to Ap mode.

如果设备后面只有 1 个按钮，则先长按 3 秒，然后按下遥控器的 25%，即可切换成 Ap 模式。

If there is only one button behind the device, press down and hold it for 3 seconds long, and then press 25% of the remote control to switch to Ap mode.

public boolean ap2Sta(String wifi, String pwd)

3.18 设置角度

3.18 Setting angle

参数：角度范围 0-359

Parameters: Angle range 0-359

public boolean setAngle(int angle)

3.19 开启定时

3.19 Open timing.

参数 1：每天定时开机时间（HH:mm:ss）

Parameter 1: setting start time every day (HH:mm:ss).

参数 2：每天定时关机时间（HH:mm:ss）

Parameter 2: setting closing time every day (HH:mm:ss)

private static void openTiming(String startTime, String endTime)

3.20 关闭定时

3.20 Shutdown time setting

public boolean closeTiming()

3.21 关闭连接

3.21 Closing the connection

public void close()

四、API 说明
IV. API description.

（一）、使用场景说明
(I) description of the use of the scenario.

对于需要远程控制的设备，可以通过设备连网，接入 云系统，此时可以利用云平台提供的 API，对设备进行远程控制。

For devices that need remote control, they can be connected to the Dsee.Lab cloud system through the device network. at this time, the API, provided by the cloud platform can be used to control the device remotely.

（二）、功能说明
(II) Function descriptions.

1、登陆鉴权
1. Login authentication

POST /aquarius/rest/v1/token

Header

Field	Description
Content-Type	"application/json"

Parameter

Field	Type	Description
username	String	username
password	String	password

Success 200

Field	Type	Description

Field	Type	Description
isPhoneBind	number	1 represents yes and 0 represents no
isMailBind	number	1 represents yes and 0 represents no

2、下发任务

2. Distribution a task

POST /manage-platform/rest/v2/task

Header

Field	Description
Authorization	"Bearer ${token}" ${token} is got by create login token

Parameter

Field	Type	Description
operation	Number	operation type

operation = 1 下发视频

operation = 1 Distribution a video

Field	Type	Description
deviceIds	List	device id list
materialIds	List	material list id

operation = 2 启动设备

operation = 2 Boot device

Field	Type	Description
deviceIds	List	device id list

operation = 3 停止设备

operation = 3 stop device

Field	Type	Description
deviceIds	List	device id list

operation = 4　修改播放列表

operation = 4　Edit playlist

Field	Type	Description
deviceId	Number	device id list
deleteList	String	json list format like [{"name":"xx","times",1,contentLength:123}] delete list
list	String	json list format like [{"name":"xx","times",1,contentLength:123}] add to play list. type is playVo

operation = 5　定时

operation = 5　Set time

Field	Type	Description
begin	String	begin time format HH:mm:SS
end	String	end time format HH:mm:SS
timeZone	Number	timeZone of time set// Deprecated
zone	String	timeZone CST format
deviceIds	list	deviceIds

operation = 6　清空视频

operation = 6　Clear video

Field	Type	Description
deviceIds	list	deviceIds

operation = 8　取消定时

operation = 8　Cancel timing

Field	Type	Description

Field	Type	Description
deviceIds	list	device id list

3、查看任务记录

3. See the task record

GET /manage-platform/rest/v2/tasks

Parameter

Field	Type	Description
pageNooptional	Number	pageNo Default value: 1
pageSizeoptional	Number	pageSize Default value: 20
taskTypeoptional	Number	Task type 1 for download task 2:start device 3: close device 4:change play list 5:set time 6：clear task 8 cancel time
taskStatusoptional	Number	Task status 1: 1:Transcoding 2:processing 3:completed 4:fail 5:timeout Default value: 0 Allowed values: 1, 2, 3, 4, 5
keysoptional	String	TaskName name words