

HPS-3D160 Solid-state Depth camera

SDK manual



HyperSen
HYPERSEN TECHNOLOGIES CO., LTD. 海伯森技术

Contents

1. SDK introduction	3 -
2. Integrate SDK into IDE	3 -
2.1 SDK used in C/C++.....	3 -
2.1.1 SDK used in Linux.....	5 -
2.1.2 SDK used in Windows.....	7 -
2.1.3 SDK used in ROS.....	9 -
2.2 SDK Used in C#.....	10 -
3、API function interface	12 -
3.1 USB Connection.....	12 -
3.2 Ethernet Connection.....	12 -
3.3 Close device.....	13 -
3.4 Device is connected.....	13 -
3.5 Device is Start Capture.....	14 -
3.6 Start continuous capture.....	14 -
3.7 Stop Capture.....	15 -
3.8 Single Capture.....	15 -
3.7 Register callback function.....	16 -
3.9 Unregister callback function.....	17 -
3.10 Get device version information.....	17 -
3.11 Get SDK version information.....	18 -
3.12 Get device serial number.....	18 -
3.13 Export Settings.....	18 -
3.14 Save Settings.....	19 -
3.15 Set Device ID.....	20 -
3.16 Set ROI Group ID.....	20 -
3.17 Set Camera Code.....	21 -
3.18 Set distance filter.....	22 -
3.19 Set Smooth filter.....	22 -
3.20 Set the distance offset.....	23 -
3.21 Set optical path compensation.....	23 -
4、Revision history	24 -

1. SDK introduction

The SDK provides the application interface of the HPS3D160 Solid-State Depth camera, which is currently available on the Linux platform, the Windows platform, the ROS platform, and most of the microcontrollers that do not run the operating system; Please read the user manual carefully before using the SDK;

2. Integrate SDK into IDE

In order to facilitate cross-platform and cross-language use of the SDK, the API interface defined by basic data types is currently provided. Refer to HPS3DBase_IF.h. Currently, this API has a secondary package in C/C++ and C#, which is convenient for users to integrate into the project. Languages such as Java and Python will be further expanded according to demand in the future;

2.1 SDK used in C/C++

In order to facilitate users to integrate into the project, we re-encapsulate the basic API, among which HPS3DBase_IF.h is the basic API interface, HPS3DUser_IF.c and HPS3DUser_IF.h are secondary encapsulation; the basic steps are as follows:

1. Copy HPS3DBase_IF.h, HPS3DUser_IF.C, HPS3DUser_IF.h to the project and include the HPS3DBase_IF.h, HPS3DUser_IF.C, HPS3DUser_IF.h three files in the project;
2. Define global parameters and initialize, Example:

```
int g_handle = -1;
static HPS3D_MeasureData_t g_measureData;

HPS3D_StatusTypeDef ret = HPS3D_RET_ERROR;
ret = HPS3D_MeasureDataInit(&g_measureData);
if (ret != HPS3D_RET_OK)
{
    printf("MeasureDataInit failed,Err:%d\n", ret);
}
```

Note: For the convenience of memory control, a dynamic memory allocation method is adopted here. When the program exits, memory release needs to be executed, and the HPS3D_MeasureDataFree interface is called;

3. Select the connection method according to the device model. Example:

```
HPS3D_HandleTypeDef handle;
HPS3D_StatusTypeDef ret = HPS3D_RET_ERROR;
ret = HPS3D_USBConnectDevice((char *)"/dev/ttyACM0",&g_handle); //USB Connect
//ret = HPS3D_EthernetConnectDevice((char *)"192.168.0.10", 12345, &g_handle);
if (ret != HPS3D_RET_OK)
{
```

```
printf("connect failed,Err:%d\n", ret);  
}
```

Note: When connecting a USB device under linux, you need to manually modify the device permissions by executing `chmod 777 /dev/ttyACM0`;

When connecting a USB device under Windows, enter the port number. In order to solve the encoding problem, it is recommended to add `_T` before the port number. If the port number is above COM10, you need to add `"\\\\.\\` before the port number , Such as `"\\\\.\\ COM15"`;

```
ret = HPS3D_USBCConnectDevice((char *)_T("COM3"), &g_handle);  
ret = HPS3D_USBCConnectDevice((char *)_T("\\\\.\\COM15"), &g_handle);
```

4. Register a callback function for event notification. Example:

```
void EventCallBackFunc(int handle, int eventType, uint8_t *data, int dataLen, void  
*userPara)  
{  
    switch ((HPS3D_EventType_t)eventType)  
    {  
        case HPS3D_SIMPLE_ROI_EVENT:  
        case HPS3D_FULL_ROI_EVENT:  
        case HPS3D_FULL_DEPTH_EVENT:  
        case HPS3D_SIMPLE_DEPTH_EVENT:  
            printf("Measure date!");  
            HPS3D_ConvertToMeasureData(data, &g_measureData, eventType);  
            break;  
        case HPS3D_SYS_EXCEPTION_EVENT:  
            printf("SYS ERR :%s\n", data);  
            break;  
        case HPS3D_DISCONNECT_EVENT:  
            printf("Device disconnected!\n");  
            HPS3D_CloseDevice(handle);  
            break;  
        case HPS3D_NULL_EVENT:  
        default:  
            break;  
    }  
}  
  
HPS3D_StatusTypeDef ret = HPS3D_RET_ERROR;  
ret = HPS3D_RegisterEventCallback(EventCallBackFunc, NULL);  
if (ret != HPS3D_RET_OK)  
{  
    printf("RegisterEventCallback failed,Err:%d\n", ret);  
}
```

5、Start capture, Example: :

```

/*Continuous capture*/
HPS3D_StartCapture(g_handle);

/*single capture*/
HPS3D_EventType_t type = HPS3D_NULL_EVENT;
ret = HPS3D_SingleCapture(g_handle, &type, &g_measureData);
if (ret != HPS3D_RET_OK)
{
    printf("SingleCapture failed,Err:%d\n", ret);
}

```

Note:

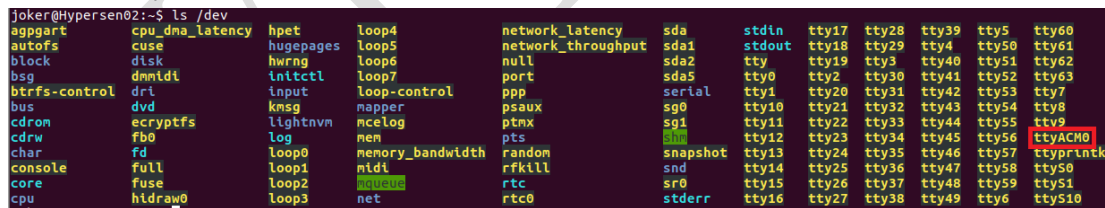
- The continuous mode measurement result is obtained in the callback function. The callback function is used for data notification. It is not recommended to perform more time-consuming operations in the callback function, otherwise the acquisition frame rate may be affected;
- After calling HPS3D_StartCapture, only executing HPS3D_StopCapture is valid, and all other interfaces return error values;
- The measurement result in single mode is returned immediately, and the return value needs to be checked to determine whether the acquisition is successful;

2.1.1 SDK used in Linux

xxx.so is suitable to use on Linux operation system, take Ubuntu as example. This example is based on the SDK with API version number **V1.8.0**.

- Device connection

Connect the HPS3D160 device to your computer, open the terminal and type ls /dev to view the device ttyACM*, as shown below:

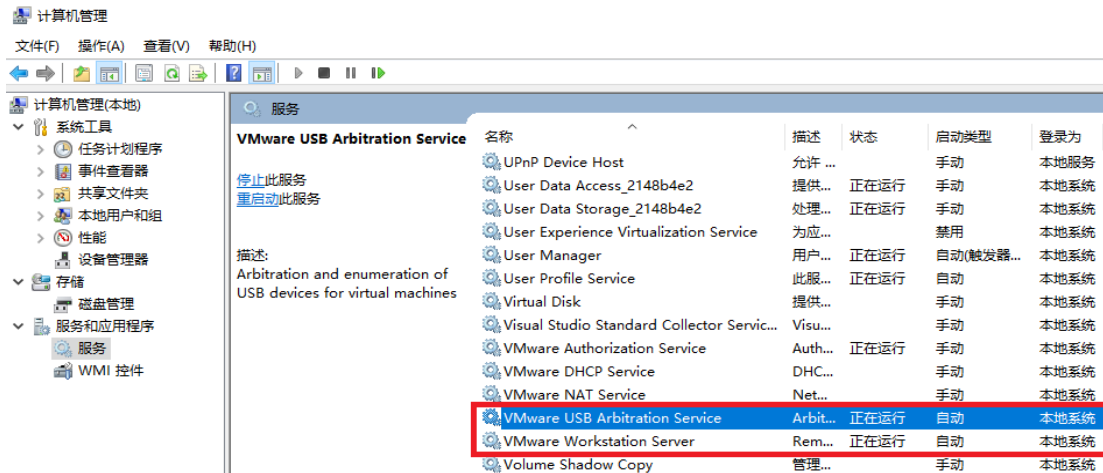


```

joker@Hypersen02:~$ ls /dev
agpgart      cpu_dma_latency  hpet          loop4          network_latency  sda            stdin          tty17          tty28          tty39          tty5            tty60
autofs       cuse             hugepages     loop5          network_throughput  sda1           stdout         tty18          tty29          tty4            tty50           tty61
block        disk             hwrng         loop6          null             sda2           tty            tty19          tty3            tty40           tty51           tty62
bsg          dmideid          initctl       loop7          port             sda5           tty0           tty2            tty30           tty41           tty52           tty63
btrfs-control  dri             input         loop-control   pp              serial          tty1           tty20          tty31           tty42           tty53           tty7
bus          dvd              kmsg          mapper          psaux           sg0            tty10          tty21          tty32           tty43           tty54           tty8
cdrom        ecryptfs         lightnvm      mcelog         ptmx            sg1            tty11          tty22          tty33           tty44           tty55           tty9
cdrw         fb0              log           mem            pts             snapshot       tty12          tty23          tty34           tty45           tty56           ttyprintk
char         fd               loop0         memory_bandwidth  random          snd            tty13          tty24          tty35           tty46           tty57           tty8
console      full             loop1         midi           rfkill          sr0            tty14          tty25          tty36           tty47           tty58           tty50
core         fuse             loop2         rtc            rtc0            stderr          tty15          tty26          tty37           tty48           tty59           tty51
cpu          hidraw0          loop3         net

```

If you do not see the ttyACM* device name, you need to re-plug and view it again. If not, go to "Computer Management -> Services and Applications -> Services" to see if the VMware USB Arbitration Service is running. If disabled, then turn on the operation, then re-plug the device; if you don't want to start the USB device service every time you log in to the virtual machine, you can set the VMware Workstation Server and VMware USB Arbitration Service to run and auto, restart the computer.



The connection steps of the network device are: connect the device to ubuntu, and configure the Ethernet connection IPV4 address, taking the default IP address of the sensor 192.168.0.10 as an example, the configuration steps are shown in the following figure:



- Use SDK under Ubuntu, run Demo program
 - 1、Copy the HPS3D160-Linux-C Demo program to any directory in ubuntu, open the terminal and enter make to compile the demo program. The execution result is as follows, the compilation is passed;

```

kevin@kevin-virtual-machine:~/HPS3D160-SDK/demo/HPS3D160-Linux-C_Demo$ make
gcc -Wall -O -g -c HPS3DUser_IF.c -o HPS3DUser_IF.o
g++ HPS3DUser_IF.o main.o -o ./app -Wl,-rpath=./ -L./ -lHPS3DSDK
chmod a+x ./app
kevin@kevin-virtual-machine:~/HPS3D160-SDK/demo/HPS3D160-Linux-C_Demo$

```

- 2、Enter ./app in the terminal to connect to the device and start measurement. After the connection is successful, the current device parameters are automatically exported as shown below. According to the prompt, enter 1 for single measurement, and enter 2 for continuous measurement;

```

kevin@kevin-virtual-machine:~/HPS3D160-SDK/demo/HPS3D160-Linux-C_Demo$ ./app
HPS3D160 C/C++ Demo (Linux)

SDK Ver:V1.8.0 21-6-10
Dev Ver:V1.8.0 21-6-10
SN:SN:HL21M03173D1901663

resolution:160 X 60
max_roi_group_number:16 cur_group_id: 0
max_roi_number:8
max_multiCamera_code:15, cur_multiCamera_code:0
user_id: 0
optical_path_calibration: 0

select capture mode: SingleCapture(1) ContinuousCapture(2) Exit(...)

```

- 3、Different types of sensor need to modify the connection method, the modification method is shown in the figure below

```

130 |
131 |
132 |
133 |
134 |
135 |
136 |
137 |
138 |
139 |
140 |
141 |
142 |

```

```

ret = HPS3D_USBConnectDevice((char *)"/dev/ttyACM0",&g_handle); //USB Connect
//ret = HPS3D_EthernetConnectDevice((char *)"192.168.0.10", 12345, &g_handle);
if (ret != HPS3D_RET_OK)
{
    printf("connect failed,Err:%d\n", ret);
    break;
}
printf("Dev Ver:%s\n", HPS3D_GetDeviceVersion(g_handle));
printf("SN:%s\n", HPS3D_GetSerialNumber(g_handle));
HPS3D_RegisterEventCallback(EventCallBackFunc, NULL);

```

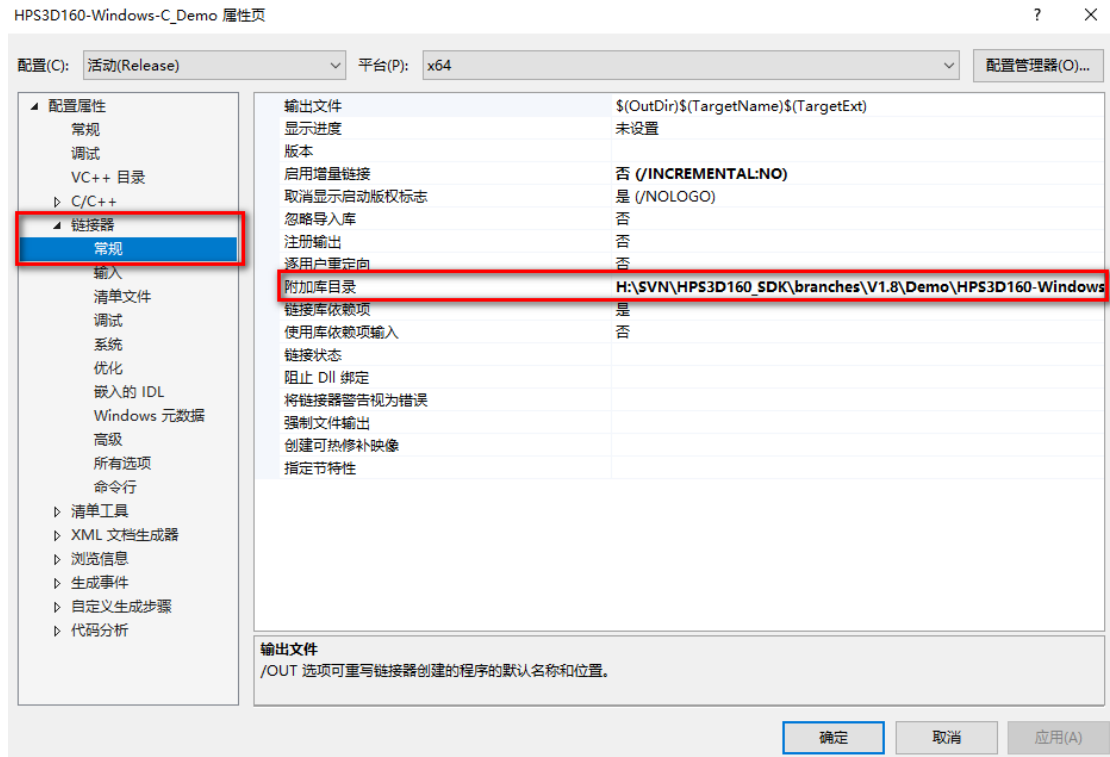
Note: The USB device connection failed. The reason may be that the device is No permission. You can execute the command `sudo chmod 777 /dev/ttyACM0` and try again;

2.1.2 SDK used in Windows

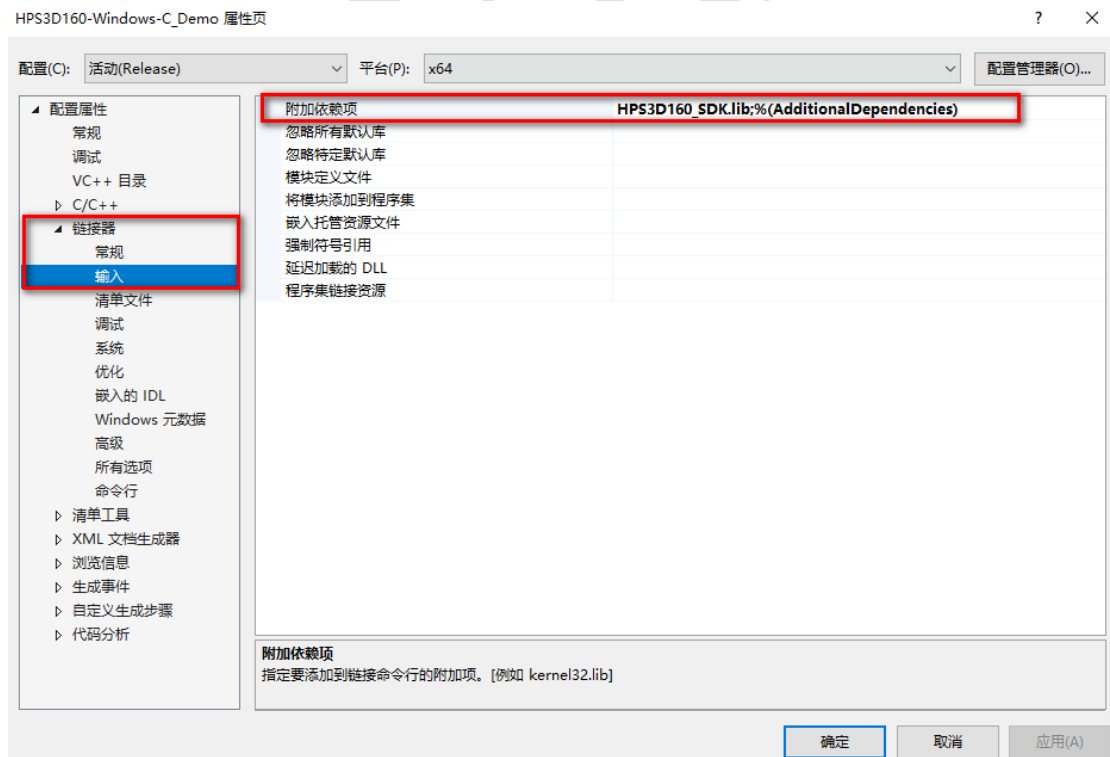
Xxx.dll is suitable for use on the Windows operating system platform, Here is an example of Microsoft Visual Studio 2017. This example is written based on the SDK with API version number **V1.8.0**.

- 1、Open the HPS3D160-Windows-C_Demo project and check the project configuration as follows:

Right-click the item-Properties-Linker-General. Specify the path of HPS3D160_SDK.dll in the additional library directory.



Right-click the item-Properties-Linker-Input. Fill in HPS3D160_SDK.lib in the additional dependency option.



Copy HPS3D160_SDK.dll to the program running directory, you can run the Demo program normally;

Note: due to encoding problems when USB devices are may faild. You can add `_T` before the port number to solve this problem. If the port number is above COM10, you need to add `"\\\\.\\` before the port number, such as `\\\\.\\COM10`;

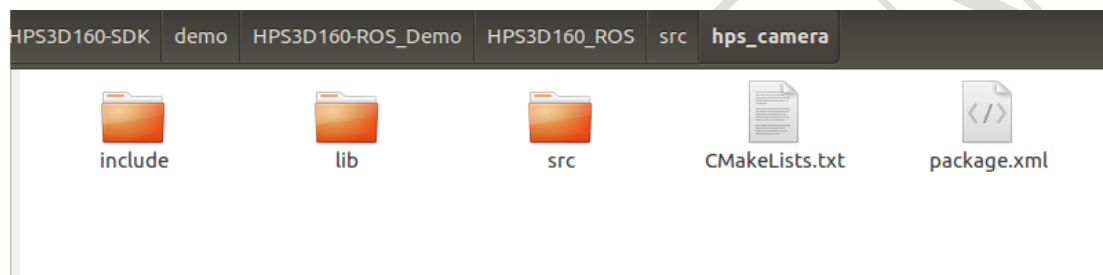
```
ret = HPS3D_USBCConnectDevice((char *)_T("COM3"), &g_handle);
ret = HPS3D_USBCConnectDevice((char *)_T("\\\\.\\COM10"), &g_handle);
```

2.1.3 SDK used in ROS

Here is an example of Ubuntu 16.04.6 LTS and kinetic。 This example is written based on the SDK with API version number **V1.8.0**。

Refer to Demo example: enter the source code directory

HPS3D160-ROS_Demo/HPS3D160_ROS/src/hps_camera.



- Copy HPS3DBase_IF and HPS3DUser_IF in the include directory to the include directory of the project directory
- Copy libHPS3DSDK.so in the lib directory to the lib directory in the project directory.
- Copy HPS3DUser_IF.c in the src directory to the src directory in the project directory, and refer to hps_camera.cpp to reference the relevant code to the project;
- Modify the content of the CMakeLists.txt file as follows:
Add related dependency libraries

```
7 ## Find catkin macros and libraries
8 ## if COMPONENTS list like find_package(catkin REQUIRED COMPONENTS xyz)
9 ## is used, also find other catkin packages
10 find_package(catkin REQUIRED COMPONENTS
11   roscpp
12   rospy
13   std_msgs
14   message_generation
15   std_srvs
16   sensor_msgs
17   cv_bridge
18   image_transport
19   pcl_conversions
20   pcl_ros
21 )
```

Specify include header file and library path

```

123 ## Specify additional locations of header files
124 ## Your package locations should be listed before other locations
125 include_directories(
126   include
127   ${catkin_INCLUDE_DIRS}
128 )
129 link_directories(
130   lib
131   ${catkin_LIB_DIRS}
132 )

```

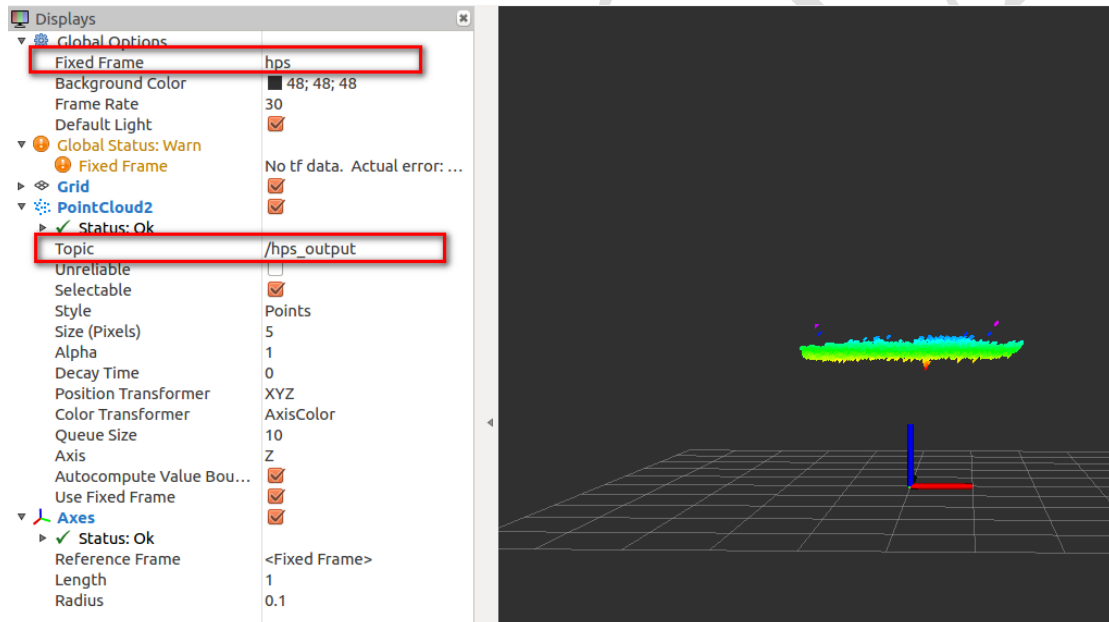
Add the dependent library name HPS3DSDK, which must be consistent with the library name in the lib directory.

```

141 # add_dependencies(${PROJECT_NAME} ${${PROJECT_NAME}_EXPORTED_TARGETS} ${catkin_E
142 find_package(PCL REQUIRED)
143 include_directories(include${PCL_INCLUDE_DIRS})
144 add_executable(hps_camera src/hps_camera.cpp)
145 target_link_libraries(hps_camera ${catkin_LIBRARIES} ${PCL_LIBRARIES} HPS3DSDK)
146

```

After the modification is completed, you can compile and run; the point cloud data can be displayed in real time through RVIZ, as shown below:

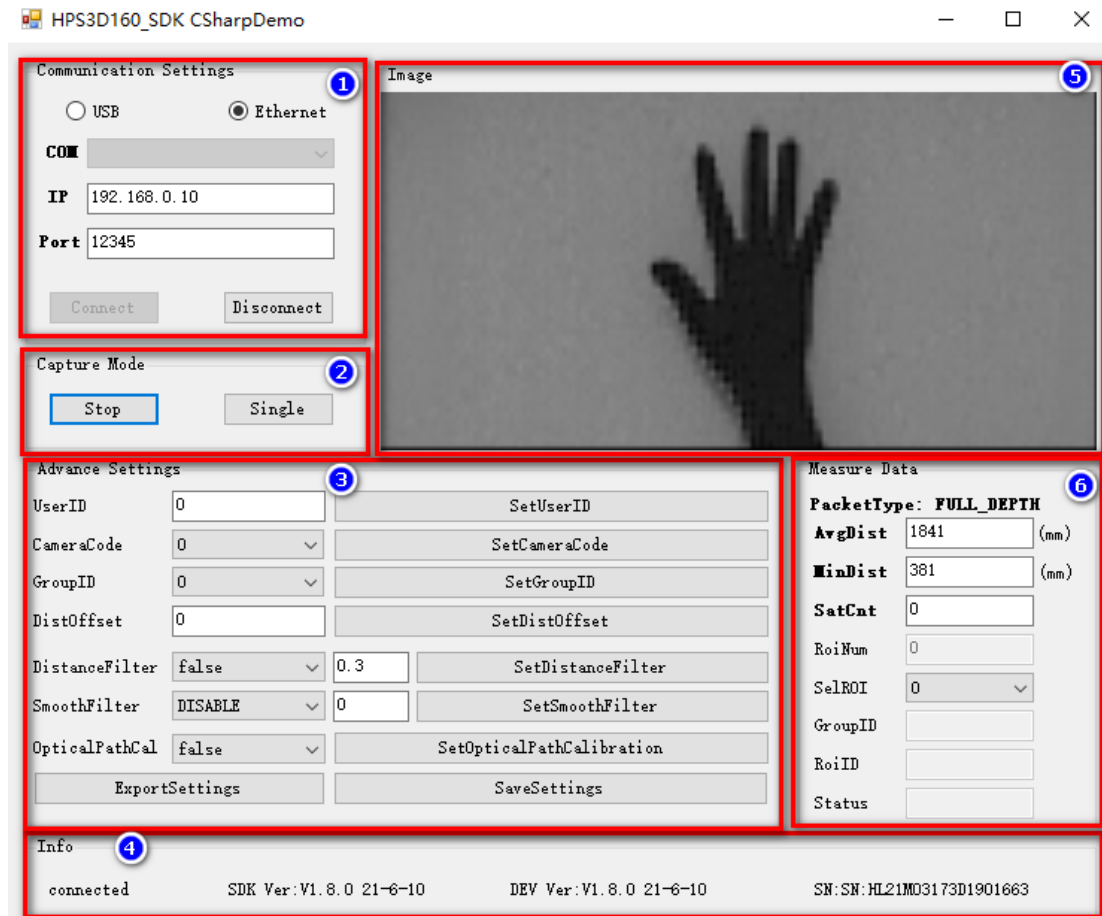


2.2 SDK Used in C#

In order to facilitate users to integrate into the project, we re-encapsulate the basic API. In the C# environment, we encapsulate the HPS3D160_Device class, which greatly facilitates the secondary development of the HPS3D160 device in the C# environment;

Here is an example of Microsoft Visual Studio 2017, based on .NET Framework 4.6.1. This example is written based on the SDK with API version number **V1.8.0**.

- Open the HPS3D160_CSharpDemo project and check whether the software running directory contains HPS3D160_SDK.dll;
- Build and run the project, if there is no error, you can connect normally and perform measurement;



Integrate HPS3D160_SDK in the C# project, just copy the HPS3D160_Device device class and HPS3D160_SDK.dll dynamic library in the Demo program to the program running directory;

3. API function interface

3.1 USB Connection

HPS3DAPI_USBConnectDevice

brief	USB device connection
define	<code>int HPS3DAPI_USBConnectDevice(__IN char* portName, __OUT int* deviceHandler);</code>
param	portName : device name (eg: COM3 、 /dev/ttyACM0) deviceHandler: Return device ID
retval	Successfully returned 1
note	When the port number is greater than 10, \\.\.\\ characters must be added before the port number, such as \\.\.\\COM15

Example:

```
int handle = -1;
int ret = 0;
ret = HPS3DAPI_USBConnectDevice ("COM3", &handle);
if (ret != 0)
{
    printf("USBConnectDevice failed,err:%d\r\n",ret);
    return;
}
```

3.2 Ethernet Connection

HPS3DAPI_EthernetConnectDevice

brief	Ethernet device connection
define	<code>int HPS3DAPI_EthernetConnectDevice(__IN char* controllerIp, __IN uint16_t controllerPort, __OUT int* deviceHandler);</code>
param	controllerIp : default 192.168.0.10 controllerPort : default 12345 deviceHandler : Return device ID
retval	Successfully returned 1
note	

Example:

```
int handle = -1;
int ret = 0;
ret = HPS3DAPI_EthernetConnectDevice("192.168.0.10", 12345, &handle);
if (ret != 0)
{
}
```

```
printf("EthernetConnectDevice failed,err:%d\r\n",ret);
return;
}
```

3.3 Close device

HPS3DAPI_CloseDevice

brief	Close device
define	<code>int HPS3DAPI_CloseDevice(__IN int handle);</code>
param	handle : device ID
retval	Successfully returned 1
note	

Example:

```
int ret = 0;
ret = HPS3DAPI_CloseDevice(handle);
if (ret != 0)
{
    printf("CloseDevice failed,err:%d\r\n",ret);
    return;
}
```

3.4 Device is connected

HPS3DAPI_IsConnect

brief	Device is connected
define	<code>int HPS3DAPI_IsConnect(__IN int handle);</code>
param	handle : device ID
retval	Successfully returned 1
note	

Example:

```
int ret = 0;
ret = HPS3DAPI_IsConnect(handle);
if (ret != 1)
{
    printf("Device is disconnected\r\n");
    return;
}
```

3.5 Device is Start Capture

HPS3DAPI_IsStart

brief	device is start capture
define	<code>int HPS3DAPI_IsStart(__IN int handle);</code>
param	handle : device ID
retval	Continuous measurement mode returns 1
note	

Example:

```
int ret = 0;
ret = HPS3DAPI_IsStart(handle);
if (ret != 1)
{
    printf("Device is standby.\r\n");
    return;
}
```

3.6 Start continuous capture

HPS3DAPI_StartCapture

brief	Start continuous capture
define	<code>int HPS3DAPI_StartCapture(__IN int handle);</code>
param	handle : device ID
retval	Successfully returned 1
note	

Example:

```
int ret = 0;
ret = HPS3DAPI_StartCapture(handle);
if (ret != 1)
{
    printf("StartCapture err:%d\r\n", ret);
    return;
}
```

3.7 Stop Capture

HPS3DAPI_StopCapture

brief	Stop capture
define	<code>int HPS3DAPI_StopCapture(__IN int handle);</code>
param	handle : device ID
retval	Successfully returned 1
note	

Example:

```
int ret = 0;
ret = HPS3DAPI_StopCapture(handle);
if (ret != 1)
{
    printf("StopCapture err:%d\r\n", ret);
    return;
}
```

3.8 Single Capture

HPS3DAPI_SingleCapture

brief	Single Capture
define	<code>int HPS3DAPI_SingleCapture(__IN int handle, __OUT int *type, __OUT uint8_t **data, __OUT int *dataLen);</code>
param	<p>handle : device ID</p> <p>type : Acquisition events (0: no event, 1: simple ROI data package 2: complete ROI data package 3: complete deep data package 4: simple deep data package 7: system abnormal event 8: abnormal disconnection event 5-6 reserved)</p> <p>data : The returned data pointer data analysis method can refer to the demo program</p> <p>dataLen: returned data length</p>
retval	Successfully returned 1
note	A single measurement must determine the retval value and type type at the same time. Only when the retval value is 1 and the type is a valid data packet, the acquisition is successful, otherwise the acquisition fails;

Example:

```
int ret = 0;
uint8_t *ret_data = NULL;
int dataLen = 0;
int type = 0;
```

```
ret = HPS3DAPI_SingleCapture(handle, (int *)type, (uint8_t **)&ret_data,&dataLen);
if (ret != 1)
{
    printf("SingleCapture failed err:%d\r\n",ret);
    return;
}
switch (*type)
{
    case 1:
    case 2:
    case 3:
    case 4:
        printf("SingleCapture succeed\r\n");
        break;
    default:
        printf("SingleCapture failed type:%d\r\n",*type);
        break;
}
```

3.7 Register callback function

HPS3DAPI_RegisterEventCallback

brief	Register callback function
define	<code>int HPS3DAPI_RegisterEventCallback(__IN HPS3DAPI_EVENT_CALLBACK eventHandle, __IN void *userPara);</code>
param	<p><code>HPS3DAPI_EVENT_CALLBACK</code> : Function pointer</p> <p>原型 : <code>void(*HPS3DAPI_EVENT_CALLBACK)(int handle, int eventType, uint8_t *data,int dataLen, void *userPara);</code></p> <p>Consistent with single capture</p> <p><code>userPara</code> : user param, can be empty</p>
retval	Successfully returned 1
note	

Example:

```
void EventCallBackFunc(int handle, int eventType, uint8_t *data,int dataLen, void
*userPara)
{
    switch (eventType)
    {
        case 1:
        case 2:
        case 3:
```



```

        case 4:
            printf("Is measure data\r\n");
            break;
        default:
            printf("SYS ERR\r\n");
            break;
    }
}

int ret = 0;
ret = HPS3DAPI_RegisterEventCallback(EventCallBackFunc, NULL);
if (ret != 1)
{
    printf("RegisterEventCallback err:%d\r\n", ret);
    return;
}

```

3.9 Unregister callback function

HPS3DAPI_UnregisterEventCallback

brief	unregister callback function
define	<code>int HPS3DAPI_UnregisterEventCallback();</code>
param	
retval	Successfully returned 1
note	

Example:

```

int ret = 0;
ret = HPS3DAPI_UnregisterEventCallback();
if (ret != 1)
{
    printf("UnregisterEventCallback err:%d\r\n", ret);
    return;
}

```

3.10 Get device version information

brief	Get device version information
define	<code>const uint8_t* HPS3DAPI_GetDeviceVersion(__IN int handle);</code>
param	handle: device ID

retval	Return device version information , eg: V1.8.0 21-6-11
note	

HPS3DAPI_GetDeviceVersion

Example:

```
printf("Device Version:%s\n", HPS3DAPI_GetDeviceVersion(handle));
```

3.11 Get SDK version information

HPS3DAPI_GetSDKVersion

brief	Get SDK version information
define	<code>const uint8_t* HPS3DAPI_GetSDKVersion(__IN int handle);</code>
param	handle: device ID
retval	Return SDK version information , eg: V1.8.0 21-6-11
note	

Example:

```
printf("SDK Version:%s\n", HPS3DAPI_GetSDKVersion(handle));
```

3.12 Get device serial number

HPS3DAPI_GetSerialNumber

brief	Get device serial number
define	<code>const uint8_t* HPS3DAPI_GetSerialNumber(__IN int handle);</code>
param	handle: device ID
retval	Return device serial number , eg: SN:HU21M06083D2100162
note	

Example:

```
printf("%s\n", HPS3DAPI_GetSerialNumber(handle));
```

3.13 Export Settings

HPS3DAPI_ExportSettings

brief	ExportSettings
define	<code>int HPS3DAPI_ExportSettings(__IN int handle, __OUT uint8_t *settings);</code>
param	Handle : device ID settings : <pre>typedef struct { int user_id; /* default:0*/ int max_resolution_X; /* default:160*/ int max_resolution_Y; /* default:60*/ int max_roi_group_number; /* default:16*/ int max_roi_number; /* default:8*/ int max_threshold_number; /* default:3*/ int max_multiCamera_code; /* default:16*/ int dist_filter_enable; /* default:false*/ float dist_filter_K; int smooth_filter_type; int smooth_filter_args; int cur_group_id; int cur_multiCamera_code; /* default: 0*/ int dist_offset; int optical_path_calibration; }HPS3D_DeviceSettings_t;</pre>
retval	Successfully returned 1
note	

Example:

<pre>int ret = 0; HPS3D_DeviceSettings_t settings; ret = HPS3DAPI_ExportSettings(handle, (uint8_t *)&settings); if (ret != 1) { printf("ExportSettings failed, err:%d\r\n",ret); return; }</pre>
--

3.14 Save Settings

brief	Save Settings
define	<code>int HPS3DAPI_SaveSettings(__IN int handle);</code>

param	handle: device ID
retval	Successfully returned 1
note	

HPS3DAPI_SaveSettings

Example:

```
int ret = 0;
ret =HPS3DAPI_SaveSettings(handle);
if(ret != 1)
{
    printf("SaveSettings failed, err:%d\r\n",ret);
    return;
}
```

3.15 Set Device ID

HPS3DAPI_SetDeviceUserID

brief	Set device ID
define	<code>int HPS3DAPI_SetDeviceUserID (__IN int handle, __IN uint8_t userID);</code>
param	handle: device ID userID: 0-255
retval	Successfully returned 1
note	

Example:

```
int ret = 0;
ret =HPS3DAPI_SetDeviceUserID (handle,1);
if(ret != 1)
{
    printf("SaveDeviceUserID failed, err:%d\r\n",ret);
    return;
}
```

3.16 Set ROI Group ID

brief	Set Group ID
define	<code>int HPS3DAPI_SetROIGroupID (__IN int handle, __IN uint8_t groupId);</code>

param	handle: device ID group ID: 0-15
retval	Successfully returned 1
note	

HPS3DAPI_SetROIGroupID

Example:

```
int ret = 0;
ret =HPS3DAPI_SetROIGroupID (handle,1);
if(ret != 1)
{
    printf("SaveROIGroupID failed, err:%d\r\n",ret);
    return;
}
```

3.17 Set Camera Code

HPS3DAPI_SetMultiCameraCode

brief	Set Camera code
define	<code>int HPS3DAPI_SetMultiCameraCode (__IN int handle, __IN uint8_t CameraCode);</code>
param	handle: device ID CameraCode: 0-15
retval	Successfully returned 1
note	

Example:

```
int ret = 0;
ret =HPS3DAPI_SetMultiCameraCode (handle,1);
if(ret != 1)
{
    printf("SaveMultiCameraCode failed, err:%d\r\n",ret);
    return;
}
```

3.18 Set distance filter

HPS3DAPI_SetDistanceFilterConf

brief	Set distance filter
define	<code>int HPS3DAPI_SetDistanceFilterConf(__IN int handle, __IN int enable, __IN float K);</code>
param	handle: device ID enable: 1 or 0 K : 0-1
retval	Successfully returned 1
note	

Example:

```
int ret = 0;
ret = HPS3DAPI_SetDistanceFilterConf(handle, 1, 0.3);
if(ret != 1)
{
    printf("SetDistanceFilterConf failed, err:%d\r\n", ret);
    return;
}
```

3.19 Set Smooth filter

HPS3DAPI_SetSmoothFilterConf

brief	Set Smooth filter
define	<code>int HPS3DAPI_SetSmoothFilterConf(__IN int handle, __IN int type, __IN int args);</code>
param	handle: device ID type: 0:disable 1:average filter 2: guass filter args : Filter parameter reference value is 2, 3
retval	Successfully returned 1
note	

Example:

```
int ret = 0;
ret = HPS3DAPI_SetSmoothFilterConf (handle, 1, 2);
if(ret != 1)
{
    printf("SetSmoothFilterConf failed, err:%d\r\n", ret);
}
```

```

    return;
}

```

3.20 Set the distance offset

HPS3DAPI_SetDistanceOffset

brief	Set the distance offset
define	<code>int HPS3DAPI_SetDistanceOffset(__IN int handle, __IN int16_t offset);</code>
param	handle: device ID offset:
retval	Successfully returned 1
note	

Example:

```

int ret = 0;
ret = HPS3DAPI_SetDistanceOffset(handle, -100);
if(ret != 1)
{
    printf("SetDistanceOffset failed, err:%d\r\n", ret);
    return;
}

```

3.21 Set optical path compensation

HPS3DAPI_SetOpticalPathCalibration

brief	Set optical path compensation
define	<code>int HPS3DAPI_SetOpticalPathCalibration(__IN int handle, __IN int enable);</code>
param	handle: device ID enable: 1 or 0
retval	Successfully returned 1
note	Optical path compensation can convert oblique line distance to vertical distance

Example:

```
int ret = 0;
ret = HPS3DAPI_SetOpticalPathCalibration(handle, 1);
if(ret != 1)
{
    printf("SetOpticalPathCalibration failed, err:%d\r\n", ret);
    return;
}
```

4. Revision history

Date	Revision	Description
2021/06/17	V2.1	V1.8 SDK

IMPORTANT NOTICE – PLEASE READ CAREFULLY

Hypersen Technologies Co., Ltd. reserve the right to make changes, corrections, enhancements, modifications, and improvements to Hypersen products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on Hypersen products before placing orders. Hypersen products are sold pursuant to Hypersen's terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of Hypersen products and Hypersen assumes no liability for application assistance or the design of Purchasers' products.

No license, express or implied, to any intellectual property right is granted by Hypersen herein.

Resale of Hypersen products with provisions different from the information set forth herein shall void any warranty granted by Hypersen for such product.

Hypersen and the Hypersen logo are trademarks of Hypersen. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2018 Hypersen Technologies Co., Ltd. – All rights reserved