FAQ summary

Depth camera how to

SUPPORT

2018/6/6

This document describes the common use problems of Tu Yang's depth camera products.

Revision description

version	date	Revised by	judges	Description
V1.0	06/06/2018			Common product usage issues explain the initial version.

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Product Specifications FAQ

1.1. What are the series and models of Tu Yang products?

Tu Yang has mature applications of products are divided into three series:

1. DS series: pure depth close range series, ranging from 0.2 to 3m, frame rate up to 30 fps, can be used for faces in various scenes

Identification scheme.

2. FM series: It can output the aligned color and depth data simultaneously. It has been widely used in the construction of home robots and industrial AGVs.

Navigation and obstacle avoidance; deep visual positioning during robotic arm grasping; indoor 3D scanning modeling.

3. DM series: pure depth middle distance series, used for low resolution (VGA) visual recognition scene. BM series, ordinary binocular series,

For outdoor use only.

For more information, please download our product selection table from the official website (http://www.percipio.xyz/support/doc/) to view.

1.2. What are the product advantages over Kinect or other devices?

The binocular structured light scheme we use is more adaptable to the environment, and multi-device linkage is also a great advantage of our technology. Besides, I

Division can provide more dedicated models to meet the needs of different industry use scenarios.

1.3. The parameter specifications of your standard modules do not fully meet our requirements. Can you provide customized

Yes, but you need to analyze specific specifications, please contact our technical support for more information. Generally speaking, the following parameters

The number of pairs can be customized within a certain range: blind zone distance / farthest distance, output resolution / frame rate, measurement accuracy / measurer

Requires RGB, etc.

1.4. Does your equipment need to occupy the upper computer resources?

The depth map calculation process of Tuyang depth camera is completed inside the device, and it does not occupy the computing resources of the upper computer at a

The upper computer needs to occupy a small amount of computing and memory resources. The specific upper computer required by different versions of the device in

Resources are different. Customers can measure the SDK's resource occupation in the real environment, or contact our technical support for more help.

help.

1.5. Does your device support RGB?

Tu Yang provides different versions of the device with and without RGB for different customers to choose. Tu Yang's RGB-D device can guarantee RGB and

The strict synchronization and pixel alignment of the two Depth code streams facilitate the flexible use of the application layer algorithm.

1.6. Do multiple devices interfere with each other when used simultaneously?

This is a serious problem common to traditional structured light equipment, and our equipment does not have this problem.

1.7. When multiple devices work at the same time, can they be controlled to work synchronously?

Yes. Please refer to the product instruction manual to configure this function.

1.8. Does your device recognize glass or transparent objects?

No. Transparent objects and specular reflections are natural enemies of all optical systems, which cannot be physically solved, and require customers to pass through s

Obstacle detection sensors to avoid.

1.9. How effective is your device in scenarios where texture and color characteristics are not obvious?

This is one of the biggest advantages of our equipment over ordinary binocular solutions, and our use environment is not restricted by object color and texture charact

1.10. Does the light source interfere with your equipment?

Common light sources and heat sources in indoor environments will not interfere with our equipment. We are only sensitive to interference sources at a specific wavel

All other interference sources can be well avoided. Sunlight will affect the effect of our equipment to a certain extent, please note that we do not claim that we

The equipment can work outdoors or under sunlight, but in actual use we can withstand a certain degree of indirect sunlight

Disturb, but the effect may be discounted.

1.11. Is the laser projector emitting infrared light to illuminate the target object?

Yes. The laser projector is an optical enhancement system. The component code in the SDK is TY_COMPONENT_LASER.

2 Image and configuration FAQ

Image and Configuration FAQ

2.1. Can your equipment provide raw images?

Can provide raw infrared image data, and products that support RGB-D can provide color images at the same time. Note that the original image transmission will

Occupies a large interface bandwidth, each device needs to analyze the interface bandwidth situation, and may reduce the transmission frame rate under some models.

The Tu Yang depth camera only provides uncompressed raw image data, and does not support intra-frame or inter-frame image compression in any format.

2.2. Can your device output Point Cloud data?

The Tu Yang SDK software development kit works with a depth camera to provide depth map or point cloud data.

2.3. What about depth data and point cloud data recorded with Percipio Tool?

The "video" saved by this tool is in .dat format, which is actually a collection of multi-frame depth maps / point clouds.

The files are written to the file in chronological order and original format, that is, the file contents are "first frame" and "second frame". . . . "Last frame", one frame at

Frames are stored continuously, with no padding in the middle, no compression, and rows first.

Each frame is a header followed by image data. Then there is the depth / point cloud data of each pixel, and the pixel arrangement line is stored first.

[Header format]

```
struct {
    int32_t width;                  // number of pixels per line
    int32_t height;                 // number of pixels in each column
    int32_t pixel_size; // Each pixel occupies several Bytes
};
```

The total data size is: width * height * pixel_size bytes.

- The pixel_size storage space used by the point cloud pixels is 12 (byte) by default.
- The size of the storage space occupied by the depth pixel pixel_size is 2 (byte) by default.

2.4. Does your device support 3D point cloud based application layer computing?

Our deep module does not provide the computing resources available to customers. The application layer software needs to run on the host computer. But we can also

For all-in-one products with embedded computing units, you can contact us for more information.

2.5. Does your device support OpenNI middleware?

We support the access of OpenNI 2.0 for Linux platforms to facilitate customer support for certain platforms, such as ROS. But since

After PrimeSense was acquired by Apple, OpenNI has been officially closed. Currently OpenNI has lost its maintenance and evolution, but

Still others are offering download services for free. Therefore, we do not recommend that customers continue to use OpenNI in new designs. Our SDK provides

Easy-to-use device access and management interface.

2.6. Do you provide application software design services based on 3D point clouds?

3D vision is beginning to find a large number of applications in various markets. We are committed to providing commonly used low-level 3D basic software, specific

To use the algorithm, please contact us for more software support resources.

2.7. Why does the driver installation fail after the depth camera is connected to the PC?

Cause Analysis

1. The driver of the host computer system is related to the running operating system and CPU architecture. The correct driver was not specified during the installation,

Or X64, WinXP or Win7.

2. The system may use unique security measures, such as proprietary security software.

solution

1. Reinstall the driver.

2. You can try pausing the security service for confirmation.

2.8. Why am I always prompted to fail to open the device after running the sample software?

The example program compiles successfully, but reports an error: "open device failed" when executed

Cause Analysis

1. After the depth camera is connected to the PC, it takes some time to complete the power-on and initialization. You need to ensure that the status indicator is on and

After that, run the sample program again.

2. The Linux system has device access management. The USB depth camera requires root permission to run the sample program by default; if the system uses

udev manages devices, and permissions to insert devices can be defined by udev's rules file.

solution

First create a new file in the /etc/udev/rules.d directory with the following content:

```
SUBSYSTEM == ”usb”,
ATTRS {idVendor} == ”04b4”,
ATTRS {idProduct} == ”1003”,
```

GROUP = ”tofu”,

Then, add users to this group.

2.9. How to obtain the distortion coefficient of the camera?

The corresponding component of the camera has the feature TY_STRUCT_CAM_INTRINSIC.

TY_STRUCT_CAM_INTRINSIC can get the camera internal parameters, the specific usage can refer to SimpleView_Registration

2.10. Can the intensity of the laser projector be adjusted?

There is a property TY_INT_LASER_POWER in the SDK, and the laser projection intensity can be adjusted by adjusting this property value. The valid range of this

0-100 means that 0% to 100% intensity projects infrared light.

2.11. The depth camera has several lenses. What is the corresponding relationship with the components in the SDK?

The number of lenses for different depth camera configurations varies. Pure Depth camera with a number of infrared cameras; RGB-D cameras

Equipped with two infrared cameras and one color camera. The specific correspondence is: TY_COMPONENT_IR_CAM_LEFT (infrared on the left

Camera), TY_COMPONENT_IR_CAM_RIGHT (right infrared camera), TY_COMPONENT_RGB_CAM_LEFT (color

Color camera).

2.12. Which component is used to obtain the depth image?

Use the TY_COMPONENT_DEPTH_CAM component to obtain depth image data, which is calculated from the left and right infrared images

owned.

2.13. Which component is used to obtain the point cloud image?

Use TY_COMPONENT_POINT3D_CAM to obtain point cloud image data, which is calculated based on camera internal parameters and depth data

To.

2.14. What image data can the depth camera provide?

According to the specific configuration of the camera, the highest specifications can provide depth map, point cloud map, left infrared map, right infrared map, RGB n

Kind of image data.

2.15. How to set the resolution?

Use the TY_ENUM_IMAGE_MODE feature to set the resolution of the corresponding image component output.

2.16. From the perspective of the product overview, only the resolution of the depth map and RGB map, then is it right? Is the resolution consistent with the depth map?

No, the depth map resolution can be adjusted individually.

2.17. How to set the resolution of the point cloud?

The point cloud resolution output by the component TY_COMPONENT_POINT3D_CAM is the same as that of TY_COMPONENT_DEPTH_CAM.

Set by the TY_ENUM_IMAGE_MODE parameter.

2.18. Win10 driver installation fails, prompting how to deal with the signature problem?

The problem stems from the WIN10 signature limitation, refer to the lib / win / driver / Win10 Driver Installation Instructions for SDK Percipio Device.pdf file.

2.19. What are the image data that PercipioTool can record?

You can record depth data.

2.20. How to get the internal parameters of the depth map?

Read the TY_STRUCT_CAM_INTRINSIC attribute of TY_COMPONENT_DEPTH_CAM through the TYGetStruct interface.

Hardware FAQ

3.1. Can we add custom hardware interfaces?

If it is not that special interface, if we do not need special PHY chip support, then we can easily add new hardware interface.

Support, but please contact our technical support for confirmation. Common interfaces we support include USB2.0 and USB3.0, Ethernet,

Camera DVP interface, etc.

3.2. What should you do if the external dimensions and structure of your module do not meet the overall structural design of

You can contact us to customize the size and structure. The binocular baseline distance in our module needs to be fixed according to the design parameters. Other devi

The placement, circuit board layout and appearance structure can be adjusted flexibly.

3.3. What is the service life of the equipment under 7x24 hours of continuous operation?

The inability to work uninterrupted for a long time is one of the significant disadvantages of traditional structured light depth camera equipment. The main constraint i

The uninterrupted working life is much lower than the nominal value. All civilian laser light sources have this problem, but we can add a small amount by

Hardware cost to achieve a highly redundant laser light source usage method to meet the strict requirements of 7x24 hours of work for more than 15,000 hours, details

Contact our technical support.

3.4. Why the image display is unstable?

Fluctuations in the power supply affect image quality. It is necessary to ensure that the power supply voltage is stable at 5V, and the power supply output current needs

Maximum load current. Please consult the camera specifications to determine the operating current of each camera.

Buy FAQ

4.1. Does your company have a Taobao shop?

Please search for the keyword "Tuyang Technology" in the column of Taobao merchants, or go directly to: http://shop143588279.taobao.com/

4.2. Is there a technical support QQ group?

Tu Yang official support group: 602754096