Qualcomm Developer Project C865DK-VisionTest3.0

Project Submission

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| **Attribution:** |  | |
| **Email address** | [zhangzz6687@thundersoft.com](mailto:zhangzz6687@thundersoft.com)  [yuandk0305@thundersoft.com](mailto:yuandk0305@thundersoft.com)  yiqiao.sun@thundercomm.com | |
| **Project Title**\* | **C865DK-VisionTest3.0** | |
| **Images**  *Upload up to 5 images of your project*  *Please submit/send the original JPEG/PNG files for all images included in the document* | C865DK.png  C865DK.png [alt tag: “C865DK-VisionTest3.0 using the C865DK which is designed with Qualcomm® QCS8250 processor as development board.”] **Type-C.png**   |  | | --- | | **typc** |   [alt tag: “**using the type-c line to develop on C865DK development board.** ”]  [alt tag: “use mini-hdmi line to connect display **.**”]  IP-Camera.png  ip-camera | |
| **Description**\*  *High level description of the project* ***(75 words or less)*** | Using C865DK, the data of 1080 camera is collected by RTSP, decoded and use AI algorithm to do gesture classification and create a scene to simulate the person's vision test through gestures. | |
| **Objective**   * *What inspired you to create this project?* * *What is your desired outcome?* | 1.Show the powerful decoding power of C865DK  2.Try to use tensorflow lite mode to inference and accelerate based on Android NN API | |
| **Materials Required / Parts List / Tools** | Part Name | Link to purchase |
| C865DK | https://www.thundercomm.com/app\_en/product/1590131656070623 |
| Type-c line | https://detail.tmall.com/item.htm?id=44425281296&ali\_refid=a3\_430582\_1006:1103572855:N:8BFxSxK119dzkfQCc2yGI2us815vvcUHETWnj5g1swo=:6399b40850a40201c56536531a885bcf&ali\_trackid=1\_6399b40850a40201c56536531a885bcf&spm=a230r.1.14.11 |
| IP Camera | https://item.jd.com/ |
| Models | https://github.com/ThunderSoft-XA/C865DK-VisionTest1.0/blob/main/C865DK-VisionTest1.0 |
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| Description | Link |
| [Source Code](https://github.com/canyudeguang/Home_Automation) | https://github.com/ThunderSoft-XA/C865DK-VisionTest3.0 |
| **Source Code / Source Examples / Application Executable**  *Link to open source / shareable code repository* |  |  |
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| Resource Title | Link or File Name (and provide file) |
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| **Additional Resources**  *List related links or resources such as websites, videos, presentations, or other materials* |  |  |
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| **Build / Assembly Instructions** | Sample outline:   1. Overall design framework and Test environment construction method.      1. Software Build Instructions   Prepare a PC (Ubuntu 16.04/ window10/ MAC);   1. Install app to C865DK device   adb device; adb install C865DK-VisionTest3.0.apk | |
|  | Sample outline:   1. How does it work?   Below are some usage instructions to test the project. Now let's introduce the C865DK-VisionTest3.0’s work flow .  C865DK-VisionTest3.0 application realizes the video and display that come from IP cameras decoding and use AI algorithm based on tensorflow lite API to do gesture classification, then create a scene to simulate the person's vision test through gestures, In the scene, there are 20 different sizes and directions of "E" displayed on the upper left of the screen. Person needs to make gesture judgments based on the direction of “E”. If the gesture is right, then enter the next round of testing. If it fails twice in a row, then the test ends, Get the corresponding score.Only one eye can be tested at a time, 2 eyes need to be tested twice.  [Directory](C:/Users/user/AppData/Local/youdao/dict/Application/8.9.5.0/resultui/html/index.html#/javascript:;) [structure](C:/Users/user/AppData/Local/youdao/dict/Application/8.9.5.0/resultui/html/index.html#/javascript:;) of project:  Main structure of java： ├── eBox //Main function directory│   ├── Activity //group-box control│   ├── Adapter│   ├── AI // AI task to do gesture classification and vision test│   ├── Config //Configuration module and vision test config│   ├── Constants│   ├── Data //some AI data structure│   ├── Gl //display module│   ├── Log│   ├── Model│   ├── Utils //some common functions│   └── VIew //display interface├── gateway //some info structure│   ├── data│   └── utils├── libyuv //the color conversion├── rtsp //rtsp client module└── util //common functions Function support by cpp：  ├── Affinity //CPU binding functions  ├── BasicUsageEnvironment  │   └── include  ├── groupsock //live555 feature  │   └── include  ├── libbitmap //same bitmap functions  ├── libyuv //mage color space conversion  │   └── libyuv  │   ├── build\_overrides  │   ├── docs  │   ├── include  │   │   └── libyuv  │   ├── infra  │   │   └── config  │   ├── source  │   ├── tools\_libyuv  │   │   ├── autoroller  │   │   │   └── unittests  │   │   │   └── testdata  │   │   ├── msan  │   │   ├── ubsan  │   │   └── valgrind  │   │   └── memcheck  │   ├── unit\_test  │   │   └── testdata  │   └── util  ├── liveMedia //live555 feature  │   └── include  ├── RtspClient //live555 feature  │   └── include  └── UsageEnvironment //live555 feature  └── include | |
| **Usage Instructions** | Sample outline:   1. Install app to C865DK device   adb install C865DK-VisionTest3.0.apk   1. Start app.   1)connect wifi/wired network, start “edgebox client” app  ic_launcher.png  2)Click Settings and click “+” to add RTSP URL  Screenshot_20210323-101538.png   1. Start to vision test   (1)Click “START”  start  (2)Display how to do vision test, and click “START TO TEST”  alert  (3)Pay attention to start the test  notice  (4)Correct gesture(right), pass  E_right  (5)Correct gesture(up), pass  E_up  (6) Incorrect gesture (left, actually down), try again  E_error  (7) Still fail, end this test,display score:4.6  E_over | |
| **Contributor(s) Info**  *Feel free to include headshots!* | Name | Title  Company |
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Filters and Tags for QDN projects page

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| **Platform/Hardware** | ☐ CSR 101x/102x Bluetooth  ☐ DragonBoard 410c  ☐ mangOH Red/Yellow | ☐ MDM920x LTE for IoT  ☐ QCA-402x WiFi/BLE/Zigbee  √  Turbox™ C865 Development Kit |
| **Software Tools** | ☐ 3D Audio Plugin for Unity  ☐ Adreno GPU SDK  ☐ Hexagon DSP SDK | ☐ Neural Processing SDK for AI  ☐ Snapdragon Profiler |
| **Operating System** | √ Android  ☐ Linux  ☐ ThreadX RTOS | ☐ Ubuntu Core  ☐ Windows 10 IoT Core |
| **Cloud Services/Platform** | ☐ Sierra Wireless AirVantage  ☐ Gizwits Cloud Platform  ☐ AT&T M2X  ☐ IBM Bluemix | ☐ IBM Watson IoT  ☐ Microsoft Azure IoT  ☐ Amazon AWS IoT |
| **Skill Level Required** | √ Advanced  ☐ Beginner  ☐ Intermediate |  |
| **Areas of Focus** | ☐ 3D Printing & Modeling  ☐ Alexa Voice Service  √ Artificial Intelligence  ☐ Bluetooth  √ Computer Vision  ☐ Digital Signage  ☐ Education  ☐ Embedded  ☐ Gaming | ☐ Healthcare  √ IoT  ☐ Robotics  ☐ Security  ☐ Sensors  ☐ Smart Cities  ☐ Smart Home  ☐ Toys  ☐ Smart Retail |

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