Qualcomm Developer Project DarkEnhance-demo

Project Submission

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| **Project Title**\* | **DarkEnhance** | |
| **Images**  *Upload up to 5 images of your project*  *Please submit/send the original JPEG/PNG files for all images included in the document* | **Qualcomm® RB1**  RB2  [Alt tag: “StyleTransfer-demo using The Qualcomm® QRB2210 SOC Open Kit”]  **Type-c usb line**   |  | | --- | | **typc** |   [Alt tag: “using the USB line to develop on Qualcomm® QRB2210 SOC Open Kit” ]  **charger**  charger  [Alt tag: “using round-hole charger to power Qualcomm® QRB2210 SOC Open Kit”] | |
| **Description**\*  *High level description of the project* ***(75 words or less)*** | The project is based on the source code of the QRB2210 development kit system and runs on the QRB2210 development board, making full use of the diversification and powerful connection and computing capabilities of the development kit. Opencv was used to load the image, and the brightness of the image was calculated. For images with brightness below 200, libtorch and Zero-DCE model were used for brightness enhancement. Both processed and unprocessed images are stored in the r\_images directory using Opencv to generate new images. | |
| **Objective**   * *What inspired you to create this project?* * *What is your desired outcome?* | It is hoped that some images with low brightness can be processed to have high brightness, so as to obtain more information for subsequent related processing. | |
| **Materials Required / Parts List / Tools** | Part Name | Link to purchase |
| Qualcomm® QRB2210 SOC Open Kit | https://www.thundercomm.com/zh/product/qualcomm-robotics-rb1-platform/ |
| USB Line | https://item.jd.com/40759941966.html |
| Charger | https://www.thundercomm.com/zh/product/qualcomm-robotics-rb1-platform/ |
| **Source Code / Source Examples / Application Executable**  *Link to open source / shareable code repository* | Description | Link |
| Source Code | https://github.com/ThunderSoft-XA/RB1-DarkEnhance.git |
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| **Additional Resources**  *List related links or resources such as websites, videos, presentations, or other materials* | Resource Title | Link or File Name (and provide file) |
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| **Build / Assembly Instructions** | Example overview:  (1) After configuring the RB1 SDK, create a cross-compilation environment.  (2)Configure libraries such as Opencv, libtorch, etc. to run the Zero-DCE model in a cross-compiled environment.  (3) In the cross-compilation environment, the product is directly compiled and generated by Cmake | |
|  | Sample outline:   1. How does it work? 2. Prepare the image to be augmented and place it in the images directory on the same level as the DarkEnhance executable. 3. Place the trained zero-dce model file (which must be named model.pt) in a cfg directory on the same level as the DarkEnhance executable. 4. the thrid - patry\_librarys directory of all libraries, using adb push to RB1 / lib directory   (4) Execute DarkEnhance executable. | |
| **Usage Instructions** | The Demo running results are as follows：  final result: | |
| **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  √ Qualcomm QRB2210 | MDM920x LTE for IoT  QCA-402x WiFi/BLE/Zigbee  Qualcomm Robotics RBx Dev 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 |

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