

PureView Imaging Competition 2012Q2



WINNERS SELECTED (22 Jun 2012): The competition is now complete and our winners have been selected. See [#The Winners](#) below for more information.

The Winners

The winners are (in no particular order):

- (GRAND PRIZE) galazzo for QHdrCamera component for High Dynamic Range Imaging, How to add multithread support to your Qt application and QAugmentedReality - Local based augmented reality component
- meh.at for Multi-Threaded Image Processing using Qt Camera
- riussi for Access camera viewfinder data
- daliusd for Real-time edge detection in camera viewport and MeeGo Camera VideoSurface manipulation
- fred.duarte for Augmented Reality Applications with NyARToolkit and Qt3D

In addition to the winners listed above, the following competitors below have been given an "honourable mention". Unlike in previous competitions these developers will be awarded the (awesome) consolation prize of a Nokia Lumia 800 device. This is a reflection of the fact that we only have five PureView 808s to award, but we *really* liked what they came up with.

- veektor for Making a facing direction aware camera in Qt
- kunal_the_one for Detecting motion of a coloured object from camera viewfinder and Capturing image using QML Camera and uploading to Facebook
- Sheenmue for Image editing techniques and algorithms using Qt

Please join me to congratulate all the winners on the discussion boards.

Winner's Articles

Below is a brief overview of the winners articles. Please note that this was a hard-fought competition and there are many other great [#Competition entries](#) to read.

- QHdrCamera component for High Dynamic Range Imaging (galazzo) describes a reusable QML component for HDR images - allowing you to take better pictures in areas where parts of the image would otherwise be over or under exposed. The article is well written, and provides an overview of how the component is used, how it works, and the compromises made in its construction.
- How to add multithread support to your Qt application (galazzo) describes how to add multithreading to your application, using the example of the QHdrCamera above.
- QAugmentedReality - Local based augmented reality component (galazzo) describes a reusable QML component for implementing augmented reality apps.
- Multi-Threaded Image Processing using Qt Camera (meh.at) describes how to implement multithreaded Qt camera app. It stands out because of the depth of practical experience shared.
- Access camera viewfinder data (riussi) explains very clearly how to access camera viewfinder data in Qt, making it accessible to almost any technical reader.
- Augmented Reality Applications with NyARToolkit and Qt3D (fred.duarte) demonstrates how to create an Augmented Reality (AR) application using Qt, which adds a 3D virtual person to the video displayed in the camera viewfinder. This is an impressive and well explained (though technically dense) explanation of how to integrate QtQuick3D, the 3rd party NyARToolkitCPP project (for AR imaging algorithms), and the viewfinder. It should be invaluable to any other developer who wants to work in AR, and in particular in 3D AR.
- Real-time edge detection in camera viewport (daliusd) explains how to optimise an image edge detection algorithm so that it can be used for "real-time" previewing of video in the camera's viewport. While this effect looks great, the article was selected because the techniques are applicable to other algorithms, and should open be helpful to many other developers.
- MeeGo Camera VideoSurface manipulation (daliusd) describes how to access and process camera frames, and how to support the UYVY color space (as output by MeeGo) in the Qt camera.

Competition background

The Nokia 808 PureView is a great smartphone with a revolutionary 41 MP camera sensor and PureView Imaging technology. To celebrate the launch of this extremely desirable device we're holding a wiki article competition. The GRAND PRIZE will be flights, accommodation and entry to a Nokia sponsored event in the winner's region, along with a beautiful new Nokia 808 PureView smartphone. At least two additional Nokia 808s will be awarded to our other winners.

This is a wiki competition, so we'll be looking for articles, tutorials and guides that showcase the opportunities offered by this new camera and our existing Qt imaging and gallery APIs. We've put some ideas below to get you started - you'll be pleased to see that the scope of articles we'll accept is extremely broad.

Using the Camera

You can integrate with the camera using QML, Qt C++, or Symbian C++ ECAM APIs; or even take images using the native camera app and retrieve them back to your app for image editing and display.



The QML APIs are the easiest to use but are somewhat limited in functionality (for example you can't use video or query supported settings), while the Symbian C++ ECAM API provides full access to the camera, but you need to be proficient with Symbian C++ to use them. The Qt C++ API is somewhere in between - you can do *most* things offered by the Symbian C++ API but with a lot less effort.

To get you started, we've created a [camera guide](#) which compares and contrasts the alternatives in more detail. There are also good examples of camera apps created using each of the above techniques:

- [QML Camera Example](#)
- [\[\[\[:File:Qtcamerademo v1 2 1 NokiaDeveloperExample Qt.zip|Qt Camera Demo\]\]](#)
- [S60 Platform: Camera Example v3.0 \(Symbian C++\)](#)



[specifications/808 PureView/ Nokia 808 PureView.](#)

How to participate

First download and install the [Qt SDK 1.2](#) (this contains camera and gallery APIs for Qt Quick, Qt C++ and Symbian C++). Then write a great tutorial, guide or an article with code, which shows how to use the camera and any other APIs related to imaging in useful, imaginative and innovative ways.

To encourage early and sustained contribution we've decided to award the Nokia 808 PureView prizes across the competition. The winner of the first phone will be selected on May 15th. If you don't win then your articles remain valid entries when we award the second phone on May 29th, and the third phone (and now fourth and fifth too) on June 17th. The single best entrant at the end will be the winner of the grand prize. Note that if the grand prize winner was one of the same people who won the earlier segments then they won't get an additional phone - that will go to the "runner up" as assessed on the last day.

Here are the competition rules:

- The article and associated [Code Example](#) are submitted under the site [Terms & Conditions](#).
- Articles must be written in English. Translations may be provided in other languages, but only the English version will be judged.
- The article should include the text: **{ {Note|This is an entry in the [[PureView Imaging Competition 2012Q2]]} }**. We recommend you also add a link to the article as a comment here.
- Developers can create one or many articles. However there is only one prize per developer.
- Developers who contributed *relevant* imaging apps in our last competition ([Symbian Qt Quick Components Competition 2012Q1](#)) may enter articles based on the same code for this competition. New articles will be required in most cases because this is a wiki competition about writing code rather than an app "beauty" contest.
- Teamwork is allowed and even endorsed, but only one prize will be granted to a winning team (this will go to the person who *creates* the article initially). Teams may also receive additional complementary Nokia products.
- At least 3 Nokia 808 PureView phones will be awarded as prizes (we may award more if there are more than three particularly impressive entries).
- The article must be submitted by 23:59 GMT on the days which mark the competition segments - May 15th, May 29th, June 17th.

All content created in the competition period that has the note **{ {Note|This is an entry in the [[PureView Imaging Competition 2012Q2]]} }** will be considered valid entries for the competition. See the [fine print](#) for more information.

The prizes

The single best article/contributor will win the GRAND PRIZE, a [Nokia 808 PureView](#) along with accommodation, flights and entry to a Nokia event. This will be a great opportunity for meeting both Nokia and other developers in your community.

At least 2 other [Nokia 808 PureView](#) devices will be awarded to worthy contributors - we may give out more if we get a lot of great submissions. On top of all that, winning a Nokia Developer Competition gives you instant fame and kudos in the community and promotion through the wiki and our newsletters. It also looks really great on your CV!

Note: The devices are not in production at time of writing. They will be sent as soon as we can get hold of them from the factory.

Evaluation of entries

Entries are judged first and foremost by the usefulness, quality and presentation of their technical information. Multiple entries are encouraged but will be assessed on their individual merits - so a single great entry will win over multiple less-good articles.

The entries will be judged by the Wiki Moderation team and selected Nokia technical experts after the competition period. The results for each part of the competition are expected to be announced within a few weeks of the end of the segments.

Feedback

Generic questions or comments concerning this competition can be addressed as comments to this wiki page.

We'd also appreciate any feedback on Qt camera and imaging APIs, or on the competition itself - for more information see [this discussion board post](#).

Stuck for ideas?

While we're looking forward to seeing some entries that showcase the possibilities provided by the PureView camera, this competition is in no way limited to software for the Nokia 808 or indeed using the camera.

This is an imaging competition, covering all and any aspect of working with images and video. To give you an idea of exactly how broad in scope we're hoping entries will be, below are a few ideas:

- Enhanced camera and video photography - enhancing existing photography through new features. For example, adding a "horizon" overlay, or

- arbitrarily setting exposure or focus points through the camera UI
- Filtering and imaging features - auto correction of images, image filters and effects applied as the picture/video is taken or applied as a post process, addition of drawing or commenting.
- Image visualisation and presentation - approaches for arranging, presenting and merging groups of photos or videos that go beyond the native device gallery app. The could use geographical, time-based or any other organisation approaches
- Editing tools - for example on camera editing for RAW image data
- Imaging sharing and storing innovations - through social media, MMS, remote storage like DropBox or SkyDrive, NFC. Making it easy to "plug-in" to new services.
- Cost effective data transfer - including ideas like better compression, sharing only when using low cost carriers like WLAN
- Monetization aspects - making money through imaging apps, selling mobile photos, using advertising effectively for imaging apps. Embedding advertisements in images.
- Camera or image based games and augmented reality

The list is endless - we'll consider any idea which uses Qt on Symbian and has an imaging focus.

Competition entries

All entries are listed below.

- QHdrCamera component for High Dynamic Range Imaging (galazzo)
 - How to add multithread support to your Qt application (galazzo)
 - QAugmentedReality - Local based augmented reality component (galazzo)
 - Multi-Threaded Image Processing using Qt Camera (meh.at)
 - Access camera viewfinder data (riussi)
 - Real-time edge detection in camera viewport (daliusd)
 - MeeGo Camera VideoSurface manipulation (daliusd)
 - Augmented Reality Applications with NyARToolkit and Qt3D (fred.duarte)
 - Making a facing direction aware camera in Qt (veektor)
 - Detecting motion of a coloured object from camera viewfinder (kunal_the_one)
 - Capturing image using QML Camera and uploading to Facebook (kunal_the_one)
 - Image editing techniques and algorithms using Qt (Sheenmue)
 - Photomosaic App with Qt (martaskolda)
 - QML horizon component for camera apps (lildeimos)
 - CamFeatures: QML component to get camera capabilities (lildeimos)
 - QmlPaint - how to make paint application with QML (jupaavola)
 - Get EXIF GPS data to use it in QML (jupaavola)
 - Tutorial: Step-by-step to create a timer-based camera (Slocan)
 - Photo effects with Qt (fmunozs)
 - Get thumbnail embedded in a JPG image using Qt (tuohirv)
 - Multifunctional Image Tool: A base for image interaction (favoritas37)
 - Secondary camera in QML (xmlich02)
 - Camera Key Event Disposal in Qt on Symbian (r60600)
 - Real-estate sales camera app (senu188)
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The fine print

The main sponsor of the Wiki Contribution competition is Nokia Corporation, Finland ("main sponsor"). The competition is a competition of skill. No purchase or admission fee is necessary to participate. By participating in the Wiki Contribution competition the participant indicates his/her/its acceptance to these rules and agrees to be bound by them as well as any rules and regulations of Nokia Developer and the Developer's Wiki. You acknowledge and agree that no form of cheating will be tolerated. Any persons found cheating, as determined in the sole and absolute discretion of the main sponsor, will immediately be disqualified from the contest. To the maximum extent permitted by applicable law, the main sponsor reserves the right at its sole discretion to amend, withdraw or revise these rules and the prizes at any time without notice and in such event the main sponsor shall not have any liability whatsoever.

This Wiki Contribution competition shall not constitute a commitment or create a joint venture, partnership, agency or other business relationship between the participants and the main sponsor of this competition. This Wiki Contribution competition shall not either be understood to grant to any participant whether expressly or by implication any ownership, rights or license to any intellectual property rights of the main sponsor and vice versa. To the maximum extent permitted by law, Nokia shall not be liable for any damages arising out of the participant's participation to the Wiki Contribution competition. The laws of Finland shall be applicable to any disputes arising out of the Wiki Contribution competition. Unless otherwise provided for in applicable mandatory legislation, such disputes will be finally settled in the public court of Helsinki.

Nokia Developer employees and contractors are not eligible for this contest. Other Nokia employees are eligible with the following limitations:

- You should not be directly involved in the development of Camera or imaging technologies in either Qt or Symbian C++
- You should use only the published tools and resources (Qt SDK) - "eat your own dog food"
- Submissions from the Nokia employees will be judged and prized separately from 3rd party developers.

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