

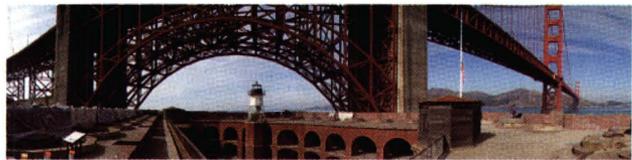
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See GA Extra, Page 18

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STEPHEN JOHNSON

This image was captured at San Francisco's Fort Point with the panoramic camera prototype. It shows 170 degrees of the full 370-degree image.

Camera prototype captures big picture

By Kelly Ryer

Digital photography has come full circle. A new digital panoramic camera, now in the early stages of development, can capture images at incredible sizes and resolutions.

Based on a modified Dicomed Digital Camera, the prototype device uses a software-controlled turntable to rotate the camera as it captures a scene in three passes, producing panoramas of as much

as 370 degrees (a full rotation plus 10 degrees of overlap). The devices attach to a PowerBook 540c for use in the field.

"We're making photographic history here," said photographer Stephen Johnson of Pacifica, Calif., one of the camera's developers. "Traditional panoramic pictures are taken with a static wide-angle lens, which gives you distortion and darkness on the

See Camera, Page 86

Camera

From Page 1

edges of the image. With this camera, each part of the image is captured through the center of the optic. We couldn't get these images any other way."

Early tests generated elephantine images of 52,000 by 6,000 pixels in 10 minutes, weighing in at a whopping 877 Mbytes. That much data can be a liability when it comes to image editing, however. For example, Adobe Photoshop has a limit of 30,000 by 30,000 pixels. The inventors are working on a method for the camera to output image segments in more manageable chunks.

In addition to Johnson, the other inventors are Michael Collette, owner of the dig-

ital imaging company Better Light in Redwood City, Calif., and Howard Barney, principal of Bayhouse Corp. in Portland, Ore. Collette, the principal designer of the Dicomed Digital Camera, modified the device and wrote new firmware for it, while Barney, a founder of the Bay Area scanner company Barneyscan Corp., built the specialized panoramic camera rig.

The trio said it plans to bring the camera to market but declined to state when. It most likely would appear as an add-on to Minneapolis-based Dicomed Inc.'s \$22,500 digital camera, priced in the neighborhood of \$5,000 for the panoramic turntable, adapter, software and firmware.

Digital cameras are well-suited for panoramic photography because they can capture images at very high resolutions, observers said. A film camera would need to make 54-inch-long exposures using 5-inch-wide film to produce images similar to those captured by the prototype.

John Larish, principal of Jonrel Imaging Consultants of Rochester, N.Y., and author of several books on digital photography, said: "The trick will be finding applications for this camera. I can see [panoramic images] being very effective for games."

Another potential use for the device might be in conjunction with Apple's QuickTime VR technology, which currently stitches together panoramas from multiple images taken with a tripod-mounted 35mm camera.

"We're looking forward to experimenting with QuickTime VR and lower-res versions of the files," Johnson said. "Instead of the 18 to 24 individual negatives you need to process and stitch together right now, our panoramas will be one seamless image and a much more beautiful implementation of QTVR." □