Science & Technology

BigShots, Small Shutterbugs

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Shree Nayer

It’s a digital camera, just like the ones grown-ups use, complete with a flash and standard and panoramic lenses. Only it’s cooler: A transparent back panel reveals the camera’s inner workings and a hand crank can provide power when you don’t have batteries.

The BigShot camera, designed by computer science professor Shree Nayar, is intended to teach youngsters about science while they express themselves creatively. It comes as a kit, allowing children as young as eight to assemble the device. Each step in the assembly teaches a basic concept of physics: why light bends when it passes through a transparent object, how mechanical energy is converted into electrical energy, how a gear train works.

“The idea was to create something that could be used as a platform for education across many societies,” says Nayar, the T. C. Chang Professor of Computer Science and the chair of that department at Columbia’s Fu Foundation School of Engineering and Applied Science (SEAS). The project is an extension of his work as director of the school’s Computer Vision Lab, where he develops highly sensitive cameras.

Nayar hopes to roll out the BigShot camera internationally, with a large number being donated to schools in underprivileged areas of the United States and other countries. The camera now is in prototype form and Nayar soon will be looking for a partner — either a company or nonprofit — to help put BigShot into production.

In the meantime, Nayar and engineering students have been testing out BigShot with children in India, Vietnam, and New York. “I am addicted to the pictures; I can’t get enough of them,” says Nayar, who along with graduate students, has created a Web site, bigshotcamera.org, to showcase the photography of youngsters. “The fact that some of the kids were using a camera for the first time,” Nayar says, “and they were able to frame what they thought was important and capture that moment so beautifully, was really remarkable.”

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