



# Little Big Shots

**Shree Nayar** is well known in computer vision circles as the inventor of the Omnicam, a camera that captures a 360 degree image, but he is becoming even better known nationally and internationally with grade schoolers.

As the creator of BigShot Camera, a build-it-yourself digital camera kit for children, Nayar is hoping to stimulate children's curiosity and, at the same time, hook them on the wonders of science and technology

"I've believed for a long time that the camera, as a piece of technology, has a very special place in society," says Nayar, the T.C. Chang Professor of Computer Science. "It allows us to express ourselves and to communicate with each other in a very powerful way. In the hands of children, it becomes a way to learn about other cultures and communities."

Four years ago, Nayar had the idea to create a workable digital camera with snap-together parts that could be put together by youngsters who would then take photos and share them with each other, across the globe, via the Internet. Each camera component teaches the builder about science basics—how mechanical energy of the crank is converted into electrical energy to power the battery, how gears work, how light bends as it pass through a lens.

"This process of building the camera exposes them to mechanics, to electromagnetism, to power generation and storage," he says. "Before a piece is snapped together, they learn how it works—it is really a bait for learning."

BigShot also has big capabilities. It has a flash and three lenses, standard, stereoscopic (3-D), and panoram-

ic, and comes in an array of vibrant candy colors. Children in New York City, Bangalore, India, and Vung Tau, Vietnam, have been field-testing the cameras since this summer. During the school year, Nayar holds workshops on Saturdays at Columbia Engineering, bringing in 10 to 12 different neighborhood children for each session. Each has an opportunity to learn about technology as they build the camera, to learn about the fundamentals of photography, and then to go outside and take pictures.

"This is an opportunity to use the camera to educate children," says Nayar. "It is much more engaging than being taught using a blackboard. We go from science to engineering to art, and ultimately, to communicating with kids from different cultures and communities."

While the long-term goal is to create a Flickr for kids to upload and share and comment on photos, says Nayar, they can upload their pictures now on the project's Web site: [bigshotcamera.org](http://bigshotcamera.org).

"The photos are remarkable," says Nayar. "The kids learn how things start as designs on paper and then become real things."

Nayar, whose current work is funded by Google, is looking for a partner to underwrite the manufacture of the BigShot kit. Once that happens, the world will be full of little Big Shots.

*T.C. Chang Professor of Computer Science Shree Nayar, the creator of the BigShot Camera, lower left, is shown amid the candy-colored cameras now in prototype and being used by children in New York, Bengaluru, India, Vung Tau, Vietnam, and Tokyo, Japan, to take photos such as those illustrated here.*

