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# For each poor child in world: a laptop The Boston Globe

## MIT Media Lab to unveil \$100 hand-crank device to lift developing nations

By Hiawatha Bray, Globe Staff | September 28, 2005

Nicholas Negroponte, cofounder of the Media Lab at the Massachusetts Institute of Technology, will show off a model of a \$100 hand-crank laptop today that he designed as an educational device for children in remote areas.

But a cheap computer that does not rely on batteries or electricity could also serve as a life-saving communications tool following a natural disaster. Just as New Orleans city officials used an Internet telephone system to call for aid during Hurricane Katrina, emergency workers might come to rely on wind-up laptops equipped with wireless Internet access.

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"We have been asked directly about this," said Negroponte, who will show a model of the device today at an MIT technology conference. "Remember that the military used wind-up radios for years."

While the idea may sound promising for post-disaster communications, it still has serious drawbacks. A wireless laptop, however inexpensive, would be of no use unless it was within range of a functioning Internet base station. Such stations might well be destroyed in a hurricane, earthquake, or terrorist attack, rendering the laptop useless.

In any case, the plan is to pass them out by the millions to boost school performance in developing countries, and in Massachusetts. The concept has already been embraced by government officials in Brazil, Thailand, and Egypt. Massachusetts Governor Mitt Romney has jumped onto the bandwagon, with a plan to issue the laptops to the state's schoolchildren.

Negroponte plans to have working prototypes of his machine by early next year, with mass production to begin by the final quarter of 2006. There are no plans to make the laptops available to general consumers.

The idea was born in 1999, when Negroponte and his wife set up two schools in Cambodia and equipped all of the students with laptops. He was so impressed with the results that he now wants to create a laptop cheap enough to provide one to every poor child in the world.

"The computer provides the only way to give students a real foundation in 21st-century skills," Negroponte said.

In January, Negroponte joined Media Lab colleagues Joe Jacobson and Seymour Papert to create One Laptop Per Child, a nonprofit organization to design and distribute the ultra-cheap computers. The group is working with chipmaker [Advanced Micro Devices Inc.](#) of Sunnyvale, Calif., and Jacobson's own company, E Ink Corp. of Cambridge, which makes "electronic ink" display screens. These displays consume a fraction of the power used by today's laptop screens, and could be made for as little as \$30 each, far cheaper than current laptop screens.

The One Laptop Per Child computer can also keep costs down by using flash memory chips in place of a mechanical hard drive, and a low-powered processor to deliver enough performance for basic computing tasks and Internet access. The laptop will connect to the online world with a wireless connection. It will also include "mesh networking" technology that lets each laptop communicate automatically with any other machine in range. If just one laptop has direct access to the Net, others can easily connect to it and share a single online connection. The entire package, although it can be powered by standard electric current, runs on a plentiful power source -- human muscles turning a crank mounted on the side of the computer.

"Our interest is really in Third World development," Papert said. "I believe that it's essential to solving the problems of poverty, violence, and environment, to have better education."

Papert said that Thailand's prime minister, Thaksin Shinawatra, Brazil's president, Luis Inacio Lula da Silva, and Egypt's ministry of education have all expressed interest in the plan.

But Romney believes many Massachusetts students could also benefit from the laptops. He said he was already considering a plan to buy laptops for each of the state's middle and high school students at \$500 apiece. But then Secretary of Administration and Finance Eric Kriss told him about MIT's \$100 laptop plan. After meeting in July with Media Lab officials, Romney concluded that the lower price tag of their proposed computer could enable the state to roll out the program more quickly.

Last week, as part of an education reform plan, Romney proposed to spend \$54 million to buy one of Negroponte's laptops for every student. The first three grades would get computers during fiscal year 2007, while students in the other three grades would get them the following year. The computers would be gifts, so that students could keep them after graduating.

Romney admitted that the case for student laptops remains inconclusive. But he added that "the evidence so far is positive."

For Negroponte, Massachusetts' decision to adopt his laptops is a valuable endorsement of the One Laptop Per Child campaign.

"I am always asked in my travels through the developing world: 'If this is such a good idea, why isn't America doing it?' " Negroponte said. "Well, now they are."

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