CAMBRIDGE, Mass.--A low-cost computer for the masses moved one step closer to reality on Wednesday.

Nicholas Negroponte, the co-founder of the Media Lab at the Massachusetts Institute of Technology, detailed specifications for a $100 windup-powered laptop targeted at children in developing nations.

Negroponte, who laid out his original proposal at the World Economic Forum in Davos, Switzerland, in January, said MIT and his nonprofit group, called One Laptop Per Child (OLPC), is in discussions with five countries--Brazil, China, Thailand, Egypt and South Africa--to distribute up to 15 million test systems to children. In addition, Massachusetts is working with MIT on a plan to distribute the laptops to schoolchildren, Negroponte said.

"This is the most important thing I have ever done in my life," Negroponte said on Wednesday during a presentation at Technology Review's Emerging Technologies Conference at MIT.

"Reception has been incredible. The idea is simple. It's an education project, not a laptop project. If we can make education better--particularly primary and secondary schools--it will be a better world."

He said a goal of the project is to make the low-cost PC idea a grassroots movement that will spread in popularity, like the Linux operating system or the Wikipedia free online encyclopedia. "This is open-source education. It's a big issue." Negroponte said the idea is that governments will pay roughly $100 for the laptops and will distribute them free to students.

The proposed design of the machines calls for a 500MHz processor, 1GB of memory and an innovative dual-mode display that can be used in full-color mode, or in a black-and-white sunlight-readable mode. The display makes the laptop "both an electronic book and a laptop," he said.
One display design being considered is a flat, flexible printed display developed at MIT's Media Lab. Negroponte said the technology can be used to produce displays that cost roughly 10 cents per square inch. "The target is $12 for a 12-inch display with near-zero power consumption," he said.

Power for the new systems will be provided through either conventional electric current, batteries or by a windup crank attached to the side of the notebooks, since many countries targeted by the plan do not have power in remote areas, Negroponte said.

The machines, which will run a version of the Linux operating system, will also include other applications, some developed by MIT researchers, as well as country-specific software. "Software has gotten too fat and unreliable, so we started with Linux," he said.

For connectivity, the systems will be Wi-Fi and cell phone-enabled, and will include four USB ports, along with built-in "mesh networking," a peer-to-peer concept that allows machines to share a single Internet connection.

"In emerging nations, the issue is not connectivity," Negroponte said. "That was the issue, but there are many people working on it, (thanks to) global competitiveness. But for education, the roadblock is the laptop."

Five companies are working with MIT to develop an initial 5 million to 15 million test units within the year: Google, Advanced Micro Devices, News Corp., Red Hat and BrightStar, Negroponte said. He said the current plan is to produce 100 million to 150 million units by 2007.

Negroponte admits that his goals are ambitious. Currently, the world production of laptops is just under 50 million, he said. While the initial goal of the project is to work with governments, Negroponte said MIT is considering licensing the design or giving it to a third-party company to build commercial versions of the PC. "Those might be available for $200, and $20 or $30 will come back to us to make the kids' laptops. We're still working on that," he said.

Others have launched low-cost PC ideas in the past, though MIT's project may be the most ambitious. Last year, Advanced Micro Devices announced plans for its Personal Internet Connector--a prototype with a price tag of at least $185, with no display. And an Indian company called Novatium said it plans to offer a stripped-down home computer for about $70 or $75. In addition, Microsoft's antipiracy-minded Steve Ballmer last year called for a move toward the $100 PC for developing nations.

Questions
1. Summarize the technology, providing important details regarding, hardware, software, power, and networking capabilities.

2. Where do you see application for this innovation?

3. List the advantages of this product.

4. List the disadvantages of this product.

- For questions 3 and 4, please include cultural, economic, or any aspect that you consider important.
- You might check the web for the latest information on this project.
- Last year a senior from Senegal was working with me to introduce laptops to his grade school in Dakar. OLPC and Intel would not even respond to his request – they only want to deal with large orders from governments, not a pilot project.