



TECHFOCUS

One laptop per child

Revolutionary teaching technology at our doorstep

AHMED ASHIFUL HAQUE

WE have known about the One Laptop per Child (OLPC) of the MIT (Massachusetts Institute of Technology) Media Labs and their revolutionary \$100 laptops for a while now. Since it was announced in January last year the education project, aimed at creating an inexpensive laptop computer to provide every child in the world access to knowledge and modern form of education, was received with both enthusiasm and wild criticism.

Charity organisations loved the concept, governments across the world lauded MIT Media Labs and the people worldwide were thrilled about the idea of a perfectly useable cheap laptop. On the other hand, industry big shots like Steve Jobs and Bill Gates have reacted to it unkindly, even publicly dismissing the plan calling it 'a science project'. As Douglas McGray of Wired magazine puts it, "Depending on whom you asked, it was either soon-to-be-legendary vapourware or a shortcut to modern education for tens of millions of poor kids around the world."

According to the OLPC's website, "Laptops are both a window and a tool: a window into the world

and a tool with which to think. They are a wonderful way for all children to learn learning through independent interaction and exploration."

The One Laptop per Child laptop is in the final stages of design. Just this month, a working prototype featuring its dual-mode display was produced. Earlier in May, the first working prototypes of the laptop were demonstrated. The One Laptop per Child program hopes to deploy 5 million to 7 million machines in Thailand, Nigeria, Brazil and Argentina in 2007.

The machine's specs are simple. It features a dual-mode display with backlit colour and front-lit black and white. Stripped of features and 'bloated software' that typically slow down laptops, the Linux-based laptops comes with a 500mhz processor, four USB ports, and 500 megabytes of flash memory instead of a hard drive. Wireless broadband will allow the computers to work as a mesh network and create an ad hoc, local area network. Though original designs featured a hand crank, testing proved that it was a poor power source. It operates on less than 2 watts of power.

The laptop runs on open-source Linux software, which is free and can be modified by users to suit their needs.

The device could tap into Wi-Fi wireless networks for internet access, and would use so-called mesh networks to link to one another and share a single internet connection. Each laptop would act as router relaying information to and from other computers. For durability, the laptop would be enclosed in rubber to withstand spills and drops.

More than 500 children in Thailand are expected to receive the machines in October and November for quality testing and debugging. Thailand's government is expected to buy 1 million in the first year. Prime Minister Thaksin Shinawatra announced in a nationwide radio broadcast that 'if this project is completed' it would reach all Thai elementary students. He said each student would get a free computer 'instead of books, because books would be read on those computers'.

The laptops will be distributed free by governments starting next year, first in Nigeria and Brazil, and then in Argentina, Thailand and perhaps Egypt. Ultimately, Walter Bender, One Laptop per Child's president, said the idea is to reach India and China, home to one-third of the world's children.

Educators said the \$100 laptops also should be made widely available in the United States because many poor families still cannot afford to have laptops or desktops with internet access. "It is inevitable that kids are going to have access to modern communications and to laptops eventually," says Bender. "We just want to make it happen faster, so that we don't lose another generation of kids in the developing world."

In fact, the \$100 laptops would be very suitable for



Bangladeshi children. According to a recent speech given by Dr Muhammad Yunus, "Bangladesh has a very young population. Half of the population is under the age of 18. If we pay serious attention to them, we can build a techno-savvy next generation. A few countries are already singing up with MIT Media Lab to provide \$100 laptops to each school student, just like books. A laptop to a child gives a message. The message is: discover yourself, discover the world, and create your own world. There is no reason why we cannot sign up with MIT Media Lab and give laptops to our students. Let us not miss this world-changing opportunity."

The One Laptop per Child also deals with the criticism, "What poor people need is food and shelter, not laptops." According to the One Laptop per Child's website, "This comment, however, is ignorant of conditions in improvised nations around the world. While it is true there are many people in the world who definitely need food and shelter, there are multitudes of people who live in rural or suburbs and have plenty to eat and reasonable accommodations. What these people do not have is a decent shot at good education."

The OLPC is working with a number of partners on the \$100 laptops. Quanta Computer Inc in Taiwan is the original designer of

the laptop, and Red Hat is the group's partner in software development. The OLPC also relies on donations from sponsor organisations, each donating \$2 million. These sponsors include Google, AMD, Red Hat, Brightstar Corporation, News Corporation, Nortel Networks, and Canonical Ltd.

Technology giants have taken note of this project and are racing to create their version of the low-cost laptops. Intel is showing off a \$400 education laptop, and Bill Gates has proposed plugging cell phones into televisions as a way to bring computers to the developing world. "A lot of these companies can use this competition. They have dominated the market for far too long," said New York educator Jean DeGioia.

In fact, this trend might just lead to laptops being cheaper than ever. According to Prof Nicholas Negroponte, for too long, technology companies have overloaded their computers with software and features to keep prices high.

"Every single problem you can think of -- poverty, peace, environment -- is solved with education," said Negroponte. "So when we make this available, it is an education project, not a laptop project. The digital divide is a learning divide -- digital is the means through which children learn learning. This is, we believe, the way to do it," he added.

TRS-80

TRS-80 was Tandy Corporation's desktop microcomputer model line, and sold through Tandy's RadioShack stores, in the late-1970s and 1980s. Hobbyists, home users, and small-businesses were the intended consumers. Announced at a press conference in August 3, 1977, the Tandy TRS-80 Model I was Tandy's entry into the home computer market, meant to compete head on against the Commodore PET 2001 and the Apple II. The Model I combined the motherboard and keyboard into one unit, in what was to be a common case-design trend throughout the 8 and 16 bit microcomputer eras, although it had a separate power supply unit. It used a Zilog Z80 processor clocked at 1.77 MHz. The basic model originally shipped with 4K of RAM, and later 16K.



TECHREVIEW

Local writer's work complements ACMICPC

RIDWAN A KABIR

WITH the evolution and development of the information and communication technology (ICT) throughout the world focusing more on the making of a 'World IT Village', programming contests are becoming an imperative part of nurturing the budding ICT talents. The 'Art of Programming Contest', a new book on the tricks and treats of international programming contests, has arrived to give these incoming contestants a push.

Published from the GyanKosh Publications, Ahmed Shamsul Arefin's book takes an ideal apprentice into the world of programming contests while very few international books are available in the market with such of a training manual.

"For the last few years, while maintaining my programming contest training website (<http://www.acmsolver.org>) by meeting demands from the lot who took part in the Association for Computer Machinery's (ACM) International Collegiate Programming Contest (ICPC), I felt the urge that there should be some guidelines for the beginners to enter the world of programming. Hence I started collecting tutorials and put them on my site, in addition to my self-designed problems, categorised them and allowed online entry to these materials free of charge," said Arefin.

The book has had its initial publication in pdf format in the Valladolid Online Judge (VOJ) (<http://www.acm.uva.es/p/>) under the University of Valladolid, Spain (UVS), a site that serves as one of the world's most popular trainer sites for any programming contestant, providing more than 1,700 problems as per the mode the ACMICPC contests would set.

"As I reviewed the book's contents to write a foreword note for it, I found this manuscript as a complement to our site for the Voj as the writer has added a classified section honouring the problem-sets from our site by categorising the problems under sections for the beginners, saving their time," stated Prof Miguel A Revilla, ACMICPC international steering committee member and problem activist, UVS.

"This book is designed to

serve as a textbook for an algorithm course focusing on programming as well as a programming course focusing on algorithms that will help train students to participate in competitions like the ACMICPC," said Dr M Lutfar Rahman, professor, department of computer science and engineering, University of Dhaka.

"While I studied at Chittagong University of Engineering Technology as a computer engineering student, I felt how amazingly useful it would have been if there were a book for the beginners. I was always curious to find a way out of this, for me and for the upcoming new talents," said Arefin, who has a local copyright on the book. He said his book should meet an even distribution throughout the country.

Standard Template Library (STL), PC2 contest administration and team-guide. It also lists some important sites and books for an ACMICPC contestant.

Arefin, a student of Master of Science in Information and Communication Technology from Bangladesh University of Engineering Technology and also a lecturer at Daffodil International University (DIU), participated in the 2001 ACM regional contest in Dhaka. His team ranked 10th in the contest.

He became one of the contest organisers at VOJ by arranging 'Rockford Program



to help any prospective programmer make that head start needed.

The book covers important topics related to the development of programming skills such as fundamental concepts of the contest, game plan, essential data structures, input/output techniques, brute force method, mathematical logics, sorting, searching, greedy algorithms, dynamic programming, graphs, computational geometry, Voj problem category, selected ACM programming problems, common codes and routines for programming,

ming Contest 2001" and several other local contests at other academia such as Cuet and DIT. His site on programming training has been linked with ACM UVS, Ural State University (Russia), and Polish Online Judge Sphere.

Besides, he has been working on open source software development, web development, and 3D game development based on DirectX Technology.

PHOTO TECH



ENTERTAINABLE

Technicians play a game on Dutch electronics giant Philips' "Entertainable" gaming platform, on display at Berlin's IFA Consumer Electronics trade fair on August 30. According to Philips, the multi-purpose platform enables a new class of gaming that combines the excitement of electronic games with the fun and social interaction of board games. The fair, the largest of its kind, with 1,202 exhibitors from 40 countries, opens from September 01 to 06.

PHOTO: AFP

TECHNEWS

Kingston delivers style and functionality with Mini Fun

STARTECH DESK

KINGSTON Technology Company, Inc. recently introduced the Kingston DataTraveler Mini Fun, the latest addition to Kingston's family of DataTraveler USB Flash drives that boasts the industry's smallest footprint for ultimate portability, says a press release.

Measuring just 1.5 by .75 inches, the drive is approximately the length and width of two US first-class postage stamps laid end to end. The Mini Fun is available in a variety of colors and in capacities up to 1GB.

"The growing popularity of USB Flash drives has made them a must-have item among students and professionals alike," said Scott Chen, vice president, APAC Business Development, Kingston. "Now users can attach the Kingston DataTraveler Mini Fun to a keychain or mobile phone and have it available at any time to store and retrieve documents, photos, music, school assignments, reports or any other work in progress."

Kingston's DataTraveler Mini Fun drives come preloaded with Big Fish Games' Atlantis and Magic Vines gaming software. Atlantis is a game that takes the user on a trip to the 19th century, where as the head of a team of explorers on a classified mission, they must unlock the secrets of the long-lost city throughout 81 challenging levels. Magic Vines is a puzzle game, where users must travel the jungles and plains of the world, exploring each location by solving a series of increasingly difficult puzzle boards. Atlantis and Magic Vines are available in seven languages: English, French, Spanish, German, Korean, Japanese and Simplified Chinese. Each drive includes a "Quick Start Guide" that will instruct the user on how to install and launch the games on their computer.

"We are delighted Kingston has chosen to include Atlantis and Magic Vines software on the new Mini Fun USB drives," said Greg Enell, vice president, business development, Big Fish Games. "The drives enhance the gaming experience by enabling players to

travel with their games and access them from virtually any computer, anywhere."

System requirements for Atlantis include a Pentium II 400 MHz or faster processor, 128 MB of RAM, and a video card capable of 800x600 3D acceleration. Magic Vines requires a Microsoft Windows 98 or higher operating system, Pentium II 400 MHz or faster processor, and 64 MB of RAM.

The DataTraveler Mini Fun is backed by a five-year warranty and Kingston's legendary service and support.

