

\$100 Laptop

Two OSU undergrads plug into global computer project

The hottest computer around just arrived in Corvallis.

The laptop looks like something made by Playskool found at Toys R Us but has cutting edge technologies designed by the open source community.

What 20-year-old college student wouldn't want one? Problem is, although millions will be made, you won't find them at Best Buy or Circuit City.

OSU sophomores Michael Burns and Justin Gallardo have one. That's because they, along with the team at the OSU Open Source Lab, helped design software on the so-called "\$100 laptop."

MIT and OSU are the only universities in the nation formally working on the One Laptop Per Child (OLPC) project developed by Nicholas Negroponte, co-founder of the MIT Media Lab.

The goal is to get OLPC "XO laptops" into the hands of the world's poorest children. The little laptops talk to each other via wireless networks, have cameras and microphones so kids can make movies, and connect to the Internet. They do word processing and e-mail, self-generate power, and are environmentally friendly.

How did students at OSU get involved with such an important project?

Burns saw a story on the One Laptop Per Child project on CNN. He joined mailing lists and began asking technical questions. A networking engineer from Cisco Systems Inc. sent him an email saying his questions were good, and a dialog began.

"It's interesting because it's laptop-to-laptop communications in this mesh that kind of builds itself up automatically," Burns explained. "You don't need routers and networking cables and telecommunications infrastructure. The laptops just need to be within half a mile of each other, and they can do the rest through wireless antennas and some cool geek bits they've coded up. That really excited me, because I have a background in networking."

Everything related to the XO laptop is "open source." That means its technologies are freely shared. Although companies like Apple and Microsoft offered to let the XO laptop run their operating systems and software, the nonprofit OLPC declined because things like Microsoft Word contain copyrighted and protected components. Burns and Gallardo tackled the problem of adapting an open source word processing program called Abiword to the laptop.

"We got an email from one of the devel-

opers. He said, 'I know you want to get involved, here's my phone number.' I'm a sophomore in computer science, and here's this engineer on this big project over in Boston who wanted me to call," Burns said. "My heart stopped for a minute or two."

Burns immediately called, and told the engineer he wanted to work on the project. The engineer explained there was no word processor or text editor on the laptop, but demonstrations to important dignitaries were scheduled.

"We went to lunch," Burns said. "Justin and I thought about it. In four or five months, we could get this software written. We head back into the office and I check my email, and the engineer said he wanted it by Wednesday of the following week. This was Friday!"

"So, with a lot of Red Bull, and very little sleep, Justin caught himself up on how to write the software. And we did it. It was Sunday, about 10 o'clock at night, and we were just exhausted. But it worked for them, which is a pretty amazing feeling."

After working with an engineer from Cisco on networking and one from Boston on the word-processing software, members of the OSU Open Source Lab started a new project. A team of five undergraduate students, Burns, Gallardo, Brad Morgan, Josh Schonstal, and Sarah Cooley, are working with Real Networks, Inc. on a media player for the laptop. Burns said Real (of Real Player fame) recently gave the OSU Open Source Lab a \$500,000 grant to work on the project.

The laptops Burns and Gallardo received March 2 are the third prototype. The computers will go into full

production in August. Millions will be made by Quanta in Taiwan. That company makes laptops for Apple, Dell, and Hewlett-Packard.

Burns said the XO laptop is nicknamed the "Green Machine" because of its color and because it's environmentally friendly: The computer's battery runs 12 hours on a full charge and is made of nickel metal hydride (NiMH), considered nonhazardous waste. The laptop will have a string kids pull to charge the battery. It works like the string some stuffed animals have that, when pulled, slowly reels in and makes the toy "talk." Instead of making the computer "talk," the motion of the string reeling in powers a generator, charging the battery. The laptop also runs on conventional electricity.

The "\$100 laptop" actually costs about \$140. In part, that's because the price of nickel used to make the battery rose on commodity markets last

fall. "It's now the 100 Euro laptop," Burns joked. The price is expected to fall after full production begins, perhaps dropping

to under \$100 within two years.

It has no hard disk drive. Instead, it uses 512 MB of flash drive memory, like an iPod Nano. This makes it lightweight and cool running.

The laptops will offer technologies to poor children in developing nations. They contain "collaborative software," so students can work on projects together, real time, through wireless networks. From kindergarten through high school, all work students do will be stored on a server at their school.

Along with the OSU students, others at the OSL on the project include Peter Krenesky, OLPC Media Player lead developer, North Krimly, OSL development head manager, and Corey Shields, infrastructure manager.

Burns also mentioned OSU's Dr. Timothy Budd, who taught a popular course, CS419 Open Source Development, during the winter term. A similar course is offered at MIT.

Budd arranged for Burns and Gallardo to meet with engineers at Intel in Hillsboro and to present last weekend on the XO laptop at the Oregon Computer Science Teachers Association 2007 Spring Conference at Willamette University.

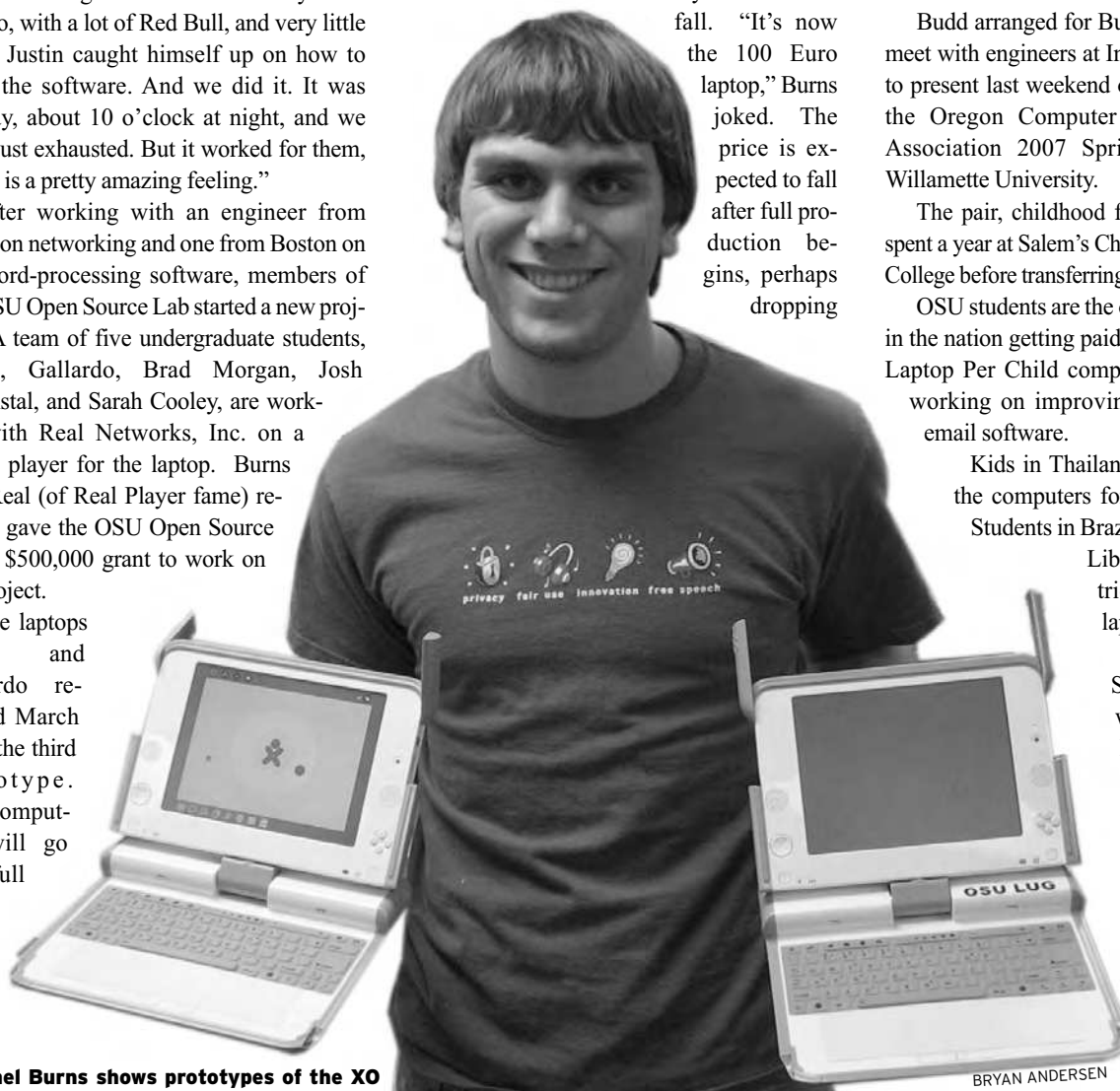
The pair, childhood friends from Keizer, spent a year at Salem's Chemeketa Community College before transferring to OSU.

OSU students are the only undergraduates in the nation getting paid to work on the One Laptop Per Child computer. They are also working on improving the XO laptop's email software.

Kids in Thailand have been testing the computers for about half a year.

Students in Brazil, Argentina, Chile, Libya and other countries will be getting laptops soon.

The OSU Open Source Lab works with the One Laptop Per Child Foundation in another important capacity. It will soon host and maintain a cluster of development boards for OLPC. **EW**



Michael Burns shows prototypes of the XO

BRYAN ANDERSEN

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