



## India to Compute on the Cheap

By [Swaroopo Iyengar](#)

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BANGALORE, India -- In spite of the country producing some great tech talent, the vast majority of India's nearly 1 billion people haven't benefited from the IT revolution at all.

Why? Well, very few people here can afford to buy a computer, which is why the world's second most populous country has only 2 million PCs.

But this might be due for a change very soon. A Bangalore-based group of seven professors and engineers have developed what they call a "Simputer" -- short for "simple inexpensive mobile computer."

And it will cost only \$200.

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The Simputer looks and feels like a bulkier Palm. It uses three AAA batteries and an Intel strong-arm chip. It has 32MB of RAM and 16MB of Flash memory and runs on the free Linux operating system. It also features a gif-image touch screen, e-mail and Net access when connected to a working telephone line. And most importantly, it has a smartcard reader that enables the machine to be used on a shared basis.

"Even Rs10,000 (\$200) might be too expensive for an Indian family," said Swami Manohar, associate professor at the Indian Institute of Science, and one of the creators of the Simputer. "Single ownership is a developed-country term. In a developing country like India, everything is shared."

Getting rural areas networked and connected has been a goal since before the project began two years ago. Manohar is hoping the Indian government will buy and distribute these machines at the village and district levels so that each small community has at least five Simputers.

Then, each villager will only have to buy a smartcard, which costs anything between Rs50 to Rs100 (\$1 to \$2). He will be able to store all his information on the card and rent the machine for 20 cents an hour. Once he inserts his card, the Simputer will give him access to private information such as his checking account balance.

"If initiatives like e-governance do take off in India, the Simputer will make some revolutionary changes," Manohar said. "There are a ton of schemes coming out of New Delhi for our villages that do not ever reach the intended party; but if villagers begin to understand and be informed of their rights, it will alter their lives radically."

But most of rural India is illiterate and will not be able to read the Simputer screen. Recognizing this,

the developers have come up with the Information Markup Language or what Manohar calls the "Illiterate Markup Language." This enables the Simputer to understand several Indian languages by using a stored library of sounds. It then converts the text to speech, and reads out the information to the user.

"As long as you can see the image displayed and hear what the Simputer is saying there is absolutely no training required," Manohar said. "We have tried to make it intuitive and not mystifying to the rural end-user."

Both the software and the hardware used in the machine is available for download on the Simputer [website](#).

"We are actually giving away the technology," said Shashank Garg, co-creator and VP at Encore Software. "One of the reasons the device is coming out at such a low price is because we have not added intellectual property costs of the several engineers who have been working on it for the past two years."

Garg values R&D costs to be close to \$1 million.

"By putting it on the Web we are hoping people from different parts of the country will look at it and modify the software to include their own language," Manohar said.

Beta testing for the device will start sometime in August.

"The cost will stay at \$200 only if it is mass-produced," Manohar said. "Maybe 100,000 to 200,000 pieces." A few Indian companies have expressed an interest in the device, but discussions are at a very preliminary stage.

"The Simputer has to be used with a specific purpose," Manohar said. "Like a farmer will use it to see which markets will buy his produce at the highest price on a particular day. We want the device to continue to be useful over several years, like those 25-year-old radios that homes in India have. They still work."

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