

Knowledge egg

Move over buttons, windows and mouse, a new breed of interactive devices has arrived

The bearded figure with a rudraksha chain round his neck urged the villager to lean closer to the wheel of the rickshaw. The boys who gathered around egged him on. As the villager ran a tentative finger over one of the spokes, a brief, melodic sound of the sitar was heard. Amused, he took a swipe at another spoke and there was a tabla beat. The audience at the presentation of "The Crossing—Living, Dying and Transformation in Banaras", by the yogic Ranjit Makkuni, had just been introduced to the delights of technology. It was also a moment of truth for Makkuni after 17 years of research at the Palo Alto Research Centre (PARC) of Xerox Corporation in the USA.

He quickly drew the crowd to another device; a cycle rickshaw fitted with a monitor and painted over with Indian motifs. Pedal the vehicle, and it starts you on a virtual tour of the busy streets of Banaras. As the rickshaw enters a crowded intersection, you almost reach out for the bells to ward off pedestrians. If you have a destination in mind, all you have to do is to check out the directions from the sanyasins sitting at street-corners!

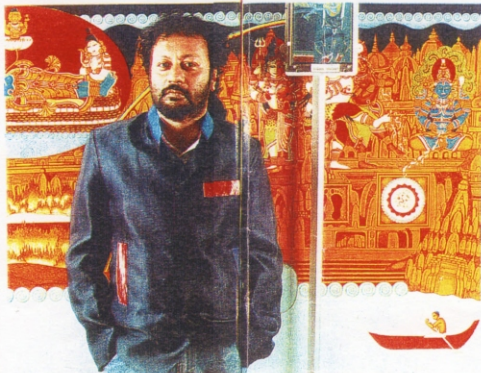
Makkuni meanwhile hands over a big knowledge egg, the *mouj masti*, and awaits the response. It is spontaneous; the shape of the egg itself amuses the children. The device, a smart, high-touch user interface, is

embossed with scenes from mythology. It acts according to the user's wishes beaming images produced by physical interface and transmitting them through infrared technology to a hidden computer nearby. Press a button and you are transported on a virtual journey through the innards of Banaras; tilt it and you move into a left alley or a cul-de-sac. Every action produces a reaction—the computer translating the user's touch, browsing through a hypermedia database and responding through the interface. "It was an experiment to alter the traditional books," says Makkuni. "The *mouj masti* showed us that children learned faster and far more attentively."

With the telerobotic equipment you can manipulate remote cameras and robotic arms by using a hand-held box and, through this, the user can participate in ceremonies like making offerings in the Ganges and in experiences on the street.

Makkuni seeks to bridge technology and art, advancement and tradition. "I have always been inspired by God. In fact, during my long stints in research and development with The Crossing, it was Lord Shiva who energised me," he says. Unmarried but wedded to the

Handle with care:
The high-touch user interface 'knowledge egg' embossed with mythological motives



cause, Makkuni, 42, is seeking salvation in the holy city of Banaras by delivering *mkshas* to millions of the 'uninitiated' through a new breed of devices quite different from the buttons, windows and mouse. He has blended technology with philosophy to inspire learning.

"The Crossing" has three references—*tirtha* (pilgrimage), technology and design, shadowed by the powerful posture of Lord Shiva. "In *tirtha*, one is in journey mode, crossing a stream, a cosmic point. In technology crossing, one matures or moves away from traditional technologies like keyboard and mouse to gestures and touch. In the third, design crossing, we overcome the traditional limitations and ideas in computing and display means to come out with new, identifiable designs," explains Makkuni.

But why Lord Shiva and Banaras? The technologist, who is also a musician, passionate sitar player and disciple of Ustad Ali Akbar Khan, explains his philosophy. "Pilgrimage is time for

periphery. The exhibit will incorporate both virtual access and spatial design," he sums up.

To depict architectonic space, backdrops, lighting systems, aroma and wind effects, there was a need for broadening the basic display notion. He came up with wearable forms of communications to overcome such constraints. "To provide kinesthetic-based interactions with The Crossing content, involving the whole body, the project is looking at a range of high-touch interfaces such as computer-based clothing and craft objects through which one can access the content," he says. These act as portals as well as memory aids. The living documents shift the presentation medium from screen-based to rendering digital presentations in 3-D, physical space, engaging the body's natural ability for peripheral awareness.

The Crossing is expected to help students, IT experts, scientists, technologists, the art and culture community and millions of pilgrims who are keen to learn rich Indian traditions through Banaras. "We go down to Indian villages to spread the message of The Crossing, taking the learning space to communities," says Makkuni.

He is seeking state government and Central agencies' participation in his projects. "I would be grateful if they can provide me some learning space through greater participation and access. I am sure the project will pay ample dividends by educating the masses in the remote, rural areas," he says.

His next project is a virtual documentation of Rajasthani culture and other sacred places. He singles out examples like Theyyam in Kerala and Rameswaram in Tamil Nadu as ideal and dynamic

Virtual ride: A monitor mounted on a cycle rickshaw ready to take you on a virtual interface through the streets of Banaras

visual learning material.

Makkuni, a B.Arch from IIT Kharagpur with a Master's in Design Theory and Computer Aided Design from University of California, challenges the customary notion of multimedia presentation—the display of objects on a rectangular screen. He had earlier collaborated with top scholars at the Indira Gandhi Centre for Arts to develop Gita Govinda Multimedia Experience. This was ten years after his much acclaimed efforts in bringing out an electronic sketchbook on Tibetan Thangka paintings in 1989.

Spreading the message of e-learning in India is no mean task. "We are looking forward to a scenario when a child in a distant village can do a graphic using our device. It would mean challenging all traditional beliefs, methods and systems to redesign the learning source and space. I am also looking forward to the day when India designs its own computer, in its inimitable style," says Makkuni. It could be in the shape of a Shiva ling, symbol of both knowledge and power. Or, like the eternal Maya, there would not be any shape or form to it.

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