Smart tech helps them see

Shoes that tell you when to make a turn, a cane that senses all obstacles, technology is starting to make life simpler for the visually challenged

Parakram Rautela | TNN

I
t started as a lark. Kristian Lawrence and Anirudh Sharma — MIT graduates who run a company called Ducere Technologies out of Secunderabadd which makes wearable technologies — thought it would be fun to hook shoes up to the Google Maps app. That way you could programme a destination into your smartphone, slip the phone into your pocket and let the shoes guide you on your way. When the left shoe vibrates, turn left, and vice versa.

It was only later that it struck the two that the shoes might help the visually impaired. Le Chal (take me there), as the shoes are called, were formally launched in Mumbai early last month. Ducere started taking orders on March 7 and so far, says Lawrence, they have got orders for 2,000 pairs from around the world.

Alongside, a number of other very exciting technologies for the visually impaired are being birthed right here in India. Last Monday IIT Delhi’s Assistech Lab launched its Smart Cane, a device that clasps on to the top end of the traditional white cane. Unlike the old cane, this one also alerts you to obstacles that lie above the knee.

"The old cane only told you what lay along the ground," says Rohan Paul, an IIT alumnus himself and a key contributor to the development of the Smart Cane. "This is why the visually impaired were always bumping into protruding ACs, parked trucks, desert coolers placed on stands, and low-hanging tree branches." Using a public toilet was tough too. The only way to check if a urinal was free was to use your cane as a probe, and that usually caused serious offence.

The Smart Cane begins to vibrate at a distance of three metres from an obstacle with the vibrations getting more persistent as the user gets closer to the object. The vibrations peter out as the user moves away.

An in-house study conducted by IIT found that the collision rate on an obstacle course with chest-height obstacles (railings, suspended plastic pipes) came down from 52.4% to 6.7% when users moved from the old white cane to the Smart Cane, which has been developed in conjunction with the NGO Saksham, which offers technology-based solutions to the visually impaired, and Phoenix Medical Systems.

In May this year, NID Bangalore graduate and human machine interface designer Sumit Dagar plans to launch his smartphone app for the visually impaired. Simplex will be available on Android and will allow the visually impaired to use almost all of a smartphone’s functions. Today a user gets little help dialing a number or typing out a message. "The keypad phones are on their way out," says Dagar. "And even the visually impaired will have to move to smartphones.

Dagar is working on such a device for the visually impaired. The screen area of the smartphone will be covered with Braille cells, or little groupings of pins that move up and down to form letters and numbers. But, for the moment, that project is stuck because "it is difficult to fit so many moving parts into so small an area."

According to the 2011 Census, India has 12 million blind people. And according to Dipendra Manocha, who runs Saksham, the solutions that are available have so far reached only about 4 to 5 lakh people.

But the trouble with technology is that it can be expensive. The Smart Cane will sell for Rs 3,000, including training charges, while the old cane costs Rs 350. Le Chal will retail at Rs 6,000, and Dagar’s app at Rs 1,000.

So, is the extra cost worth it?

Yes, says Manocha, who is visually impaired. "Even after I graduated from Delhi University," he says, "I couldn’t use a computer — I would sit there getting so frustrated — until computers began to accept voice commands." Bharti Kaira, 24, who’s doing her Master’s in English from Delhi University and was one of the users involved in the Smart Cane trials, agrees. After she once bumped into a parked truck, she recalls her mortification at being told by bystanders: "What are you doing here? You should be sitting at home."

And there is the fact that the developers of the technologies are doing what they can to keep costs low. Paul says they were determined not to price the Smart Cane over Rs 3,000. "And we stuck to it, despite inflation." Plus, they’ve partnered with 20 NGOs in 10 states to distribute the device. The NGOs and Saksham have been asked to collect funds so that they — and not the visually impaired — pay the bulk of the cost. This means that when the canes are finally handed out, they will cost the user only Rs 400.

As for Le Chal, Lawrence says that each time a sighted person buys a pair of his shoes, money from that sale will be used to cross-subsidise the product for a visually impaired person. His aim is to sell the shoes to the visually impaired for about Rs 60 ($1) a pair. But will the sighted person buy his shoes? "Why not?" says Lawrence. "They look good. And not having to look at your smartphone is liberating. Imagine you’re on a motorcycle. You tell your phone where you want to go, slip it into your pocket and then every time you have to turn left, your left shoe vibrates."