Keeping the disabled informed

Many disabled people live in poor, rural areas and informal settlements, and are unable to access employment and education opportunities because of their distance from urban centres and the high cost of travel. The portal will provide them with access to online training (with a heavy emphasis on ICT skills) and help them to find employment.

NAP will also allow disabled people to share experiences with each other using email, voice or web cams, and to find online information about facilities, transport, aids such as wheelchairs and other day-to-day services. This will be particularly helpful for those living outside the metropolitan areas.

Portal services will be available from locations where an Internet connection is available. The plan is to establish service points in public facilities, such as clinics, community centres and schools to provide the poor with access to the portal. Helpers will be on hand at service centres to assist people who are not computer literate to learn to how to use the portal.

The NAP project will also eventually benefit other people and organisations that care for or work with disabled people. Charities, government social workers and NGOs will be able to access a wealth of statistics and information that will help them to provide their services to the disabled more efficiently and to reach people in informal developments and remote rural areas.

Furthermore, employers will be able to research South African legislation impacting on the disabled in the workplace as well as find out how to create a work environment that is suitable for disabled people. Says Patel: "NAP is an example of the Meraka Institute's innovation activities aimed at improving quality of life through research and development in ICT. The initiative is aligned with Nepad's strategy and with the goals of the Africa Decade of Persons with Disabilities (1999 to 2009) to empower persons with disabilities."

"The project started off by investigating the challenges that disabled persons face and how technology could be applied to help them," says Laurens Cloete, innovation manager at the Meraka Institute. "It provides an example of how research aimed at addressing developmental challenges can provide exciting opportunities for young scientists and engineers The project team includes a number of researchers and developers who have used technology in their personal lives to overcome the challenges presented by their disabilities.

Laurens Cloete, innovation manager, Meraka Institute.

"The project started off by investigating the challenges that disabled persons face and how technology could be applied to help them." – Laurens Cloete innovation manager, Meraka Institute.

The next steps

The first phase of the project, the development of a prototype, is complete and was developed with funding from the Eskom Development Foundation. The prototype demonstrates how input and output devices tailored to the needs of the disabled, coupled with the use of accessibility standards on the Internet, helps the disabled by providing them with tools for easier communication and access to information.

NAP has also produced a flexible application that allows for the generation of speech in local languages. The project team has created a video that demonstrates the technologies and applications it has developed so far, which is used to mobilise support from a range of stakeholders.

The next step is to develop a working system that will be piloted in Limpopo to prove that it is viable in remote rural areas with poor telecoms and electrical infrastructure.

Service centres will be built in Limpopo during this phase of the project to provide the community with access to computers that are connected to the Internet. Wireless technology will be rolled out to provide connectivity in areas where no fixed-line infrastructure is available. The national rollout of NAP is expected to take up to five years.

The project will use existing technology as far as possible and create new technologies only when it is necessary. Where possible, the portal will make use of open source technologies because they are affordable and can be easily tailored to local requirements, such as language, with relative ease, says Patel. The server side of the project will make extensive use of open source software such as Linux, PostgreSQL, JBoss and MyFaces.

Meeting the challenges

Accessing technologies such as assistive input and output devices that make it easier for disabled people to use computers is proving more challenging. Examples of these technologies include text-to-speech, speech recognition and Braille output for the blind as well as text-to-sign language and sign language recognition for the deaf. Devices that can capture physical movements, for example, the nod of a head, allow people, such as quadriplegics, to use PCs. Most of these assistive technologies are expensive imports and are also difficult to tailor to South African needs, says Patel.

To meet this challenge, the Meraka Institute will research developing localised assistive devices, applications and technologies that meet the needs of people with disabilities in SA and the African continent. The fruits of these R&D efforts will be incorporated in the system once they have reached sufficient maturity, Patel says. Again, open source technologies will be used where possible, and NAP developments will be released as open source.

To support the goals of the project and ensure its sustainability, Meraka is performing research into human factors and cultural issues that affect the use of ICT in Africa; conducting studies that will provide better information on how many disabled people there are in SA, where they live and the nature of their disabilities; and carrying out research into the business models that will promote empowerment of disabled people, says Patel.