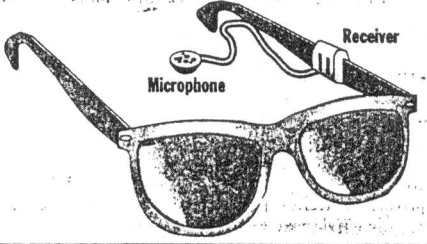
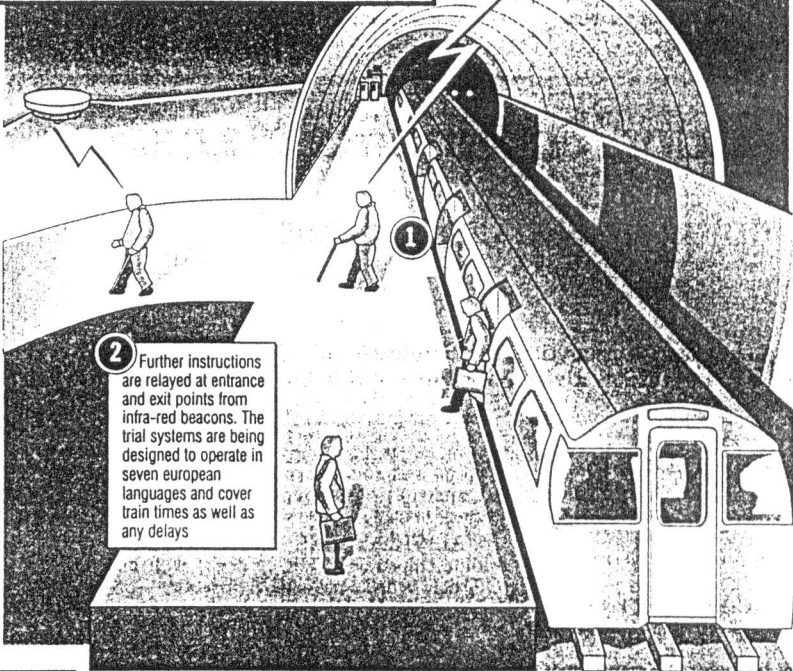


INFRA-RED BEACONS GUIDE BLIND TRAVELLERS

Glasses can act as receiver for signals



1 When the train arrives and blind passengers step onto the platform an infra-red device located on the tube ceiling transmits a signal to the receiver located on the person's glasses. This in turn relays a recorded message by earpiece to the traveller giving the direction to follow



2 Further instructions are relayed at entrance and exit points from infra-red beacons. The trial systems are being designed to operate in seven European languages and cover train times as well as any delays

Beaming the blind on to the right Tube train

THE London Underground is beginning trials of an infra-red guidance system that will automatically lead blind people to exits and interchanges in stations, writes Christopher Lloyd.

A three-year project called Orientation by Personal Electronic Navigation (Open) will mean that infra-red beacons or transmitters are installed at London Underground platforms and passageways.

As a blind person steps off a train, the infra-red beams, which contain encrypted data, will be detected by special sensors. These could be integrated into spectacles worn by blind people or built into the white sticks they use to help find their way around.

These sensors, which will have to be approved by blind users, turn the data into speech, which is relayed through a standard earpiece giving the blind person verbal instructions on which way to go.

Dr Ronald Stephens, Open's project manager, says in a typical scenario the beams would tell a blind person not only in which direction an exit is located but also which way to go to change lines.

"The idea is to make it as easy for blind people to navigate the Underground as for sighted



people who use information boards and maps," says Stephens. "As soon as a crossway or exit is reached, another beam comes into the line of sight of the sensors and a new set of instructions can be given."

Stephens is masterminding the project from Portsmouth University's Institute of Rehabilitation Technology, which is co-ordinating a number of international partners.

Others involved include Possum Controls, a British company, and Seal, an Italian firm (both are specialists in high-technology equipment for the blind), London Underground, the Brussels and Paris underground railway authorities and charities such as the Royal National Institute for the Blind.

Two test stations have already been selected for the pilot project in London — South Kensington and Heathrow Terminals 1, 2, 3 (both on the Piccadilly Line). Test stations in the Brussels and Paris metros have yet to be chosen.

Stephens, who has received nearly £1.3m from the European Commission's Tide programme (Technology Initiative

for Disabled and Elderly People) for the three-year project, says his teams are now negotiating with BAA, the company that runs Britain's main airports, so that the system can be extended beyond the Underground to airports.

"This is why we have chosen Heathrow as one of our test stations," he said. "Ideally, it would mean that a blind or partially sighted person could get on a train in the middle of London and be guided by infra-red beams right to the departure gate of his or her flight at Heathrow."

The trial systems are also being designed to operate in seven European languages and will include information on train times as well as cancellations and delays.

The total cost of the trial systems is expected to be about £2m, with the additional funding coming from organisations such as London Underground and the Brussels and Paris metros.

A full working prototype is expected in the two London test stations within 18 months. However, it will be three years before full-scale implementation begins, providing trials are successful and enough money is made available.