The Daily News
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Dailies
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20 Jun 02
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Professor working on seeing-eye glove

Camera-aided system will help visually impaired

BY THE CANADIAN PRESS

GUELPH, ONT.

Researchers at the University of Guelph are developing a camera-assisted navigation system for the visually impaired.

The technology is "the logical extension of the walking cane," said Prof. John Zelek.

The system provides visually impaired people with tactile feedback about their immediate environment.

Two mini video cameras wired to a portable computer — all of which can be worn on the user's body — feed information into a special glove worn by the user.

The glove has vibrating motors sewn into each finger; they send impulses to the wearer, warning of obstacles and terrain fluctuations ahead.

"Traditional navigation systems provide auditory feedback, and they usually have a steep learning curve and overburden the auditory channel," said Zelek. "We wanted our system to be intuitive for the user."

Images from the cameras are processed in the computer and translated into information about the location of obstacles within the camera's range, up to about nine metres.

Then, the buzzer on the finger corresponding to the direction of that obstacle is activated.

For example, if the glove is worn on the left hand, an obstruction lying straight ahead would trigger the buzzer on the middle finger.

If the obstacle is just to the right of centre, the buzzer on the index finger would vibrate.

"The stimulus on their fingers is used to direct the user around obstructions in their path," said Zelek, who is also investigating possible new methods of conveying terrain information through a subset of the buzzers.

Zelek's technique of acquiring information about the environment is unique because of his use of dual cameras, which perceive depth like a pair of 3-D glasses.

Traditional techniques of information-gathering usually employ sonar or ultrasound waves, which are bounced around objects in the room, similar to a bat's method of navigation.

Bowde
416-750-2220
NATIONAL
The Sun Times
Owen Sound, ON
Dailies
Circulation: 18,200 (343)
20 Jun 02 165377

m42086

Seeing glove will assist visually impaired

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THE CANADIAN PRESS

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Bowden
416-750-2220
NATIONAL

The Nugget
North Bay, ON
Dailies
Circulation: 18,300 (74)
20 Jun 02 211857

Seeing-eye glove to aid visually impaired

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Images translated

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Bowdens
416-750-2220
NATIONAL

The Daily News
Kamloops, BC
Dailies (293)
Circulation: 18,500

19 Jun 02 260281

University professor works on special glove for visually impaired

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Bowdens
416-750-2220
NATIONAL
Brandon Sun
Brandon, MB
Dailies (317)
Circulation: 15,312
19 Jun 02 256799

Guelph prof. working on seeing eye glove for visually impaired

42086

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— *Canadian Press*

Bowdens
416-750-2220
NATIONAL
The Daily Observer
Pembroke, ON
Dailies
Circulation: 6,600 (344)
20 Jun 02 165426

A seeing-eye glove for visually impaired

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But these methods of sensing can be easily foiled by complex surroundings, such as a room full of people, where movement creates multiple signals and provides little useful information about obstacles.

"In the case of sonar, busy environments cause multiple signals to get back to the user, which can get confusing," Zelek said.

As well, sonar and ultrasound systems consume a lot of energy and need to be recharged every few hours.

Zelek and his research team decided their navigation system had to be wearable, comfortable and affordable.

"If it isn't comfortable, no one is going to want to use it," he said. "The system can't intrude on the user's daily activities."

(Guelph Mercury)

Bowdens
416-750-2220
NATIONAL

Observer
Sarnia. ON
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Circulation: 23.000

20 Jun 02 166290

Seeing-eye glove in the works

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Bowdens
416-750-2220
NATIONAL
The Ottawa Citizen
Ottawa, ON
Dailies (83)
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23 Jun 02 160205

Researchers test seeing-eye glove to guide the visually impaired

N.42086

Computer, mini video camera sewn into a jacket translate images, send vibrating signals to fingertips

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"In the case of sonar, busy environments cause multiple signals to get back to the user, which can get confusing," Mr. Zelek said.

As well, sonar and ultrasound systems consume a lot of energy and need to be recharged every few hours.

Mr. Zelek and his research team decided their navigation system had to be wearable, comfortable and affordable.

"If it isn't comfortable, no one is going to want to use it," he said. "The system can't intrude on the user's daily activities."

The stereo-vision prototype is built from inexpensive, off-the-shelf components. New technology — mini-cameras, in particular — will allow the navigation system to be very discreet.

Advanced technology allows the computer to be small, about the size of a deck of cards, and consume very little power. The cameras can be mounted on shirt buttons, and the whole unit can be sewn into a jacket.

"The trial stage will determine how useful this system is," Mr. Zelek said. "In the end, it's the user who decides whether or not this system will work."

The Waterloo, Ont., office of the Canadian National Institute for the Blind has a group of people who are eager to try out the prototype device.

The Guelph Mercury

Red Deer Advocate
Red Deer, AB
Dailies (313)
Circulation: 18,796
20 Jun 02 166010

Researchers working on 'seeing-eye' glove

M 4208.

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