### Bowdens 416-750-2220

NATIONAL

The Recorder and Times Brockville, ON Dailies Circulation: 13,800

© Copyright 2002 by Sun Media All Rights Reserved

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

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

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

eed information into a special

For example, if the glove is worn on the left hand, an obstruction ying straight ahead would trigger If the obstacle is just to the right the buzzer on the middle finger

of centre, the buzzer on the I finger would vibrate. The stimulus on their fifty

used to direct the user and obstructions in their path, terrain information through,'a Zelek, who is also investigatin sible new methods of con

information about the envi ment is unique because of his u dual cameras, which perceive d set of the buzzers, controlled a Zelek's technique of acc like a pair of 3-D glasses.

mation-gathering usually eff sonar or ultrasound waves; Traditional techniques of room; similar to a bat's meti

# Prof. Working on seeing-eye glogering (CP) Researchers at Traditional navioaries.

the University of Guelph are developing a camera-assisted navigation

extension of the walking cane, said Prof. John Zelek. The system provides visually system for the visually impaired.

The technology is "the logical

Two mini video cameras wired to portable computer - all of which mpaired people with tactile feedback about their immediate envi can be worn on the user's body ronment.

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

#### Bowdens 416-750-2220

NATIONAL

The Whitehorse Star Whitehorse, YT Dailies (28

Circulation: 3,650
19 Jun 02 253018

©Unlicensed Reproduction, Sale and Republication Prohibited

#### Prof. working on seeing-eye glove for visually impaired

GUELPH, Ont. (CP) — 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's similar to a bat's method of navigation.

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 of the case of sonar, busy environments of the sonary busy environments."

"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.

#### Bowdens 416-750-2220

NATIONAL

The Daily Graphic Portage la Prairie, MB Dailies (320 Circulation: 4,400

22 Jun 02 441316

© Copyright 2002 by Sun Media All Rights Reserved

#### **Guelph professor hopes to makes** things clearer for visually impaired

Hopes seeing-eye glove will be an eye opener

The Canadian Press

GUELPH, Ont. — Researchers at the
University of Guelph are developing a cambra-assisted navigation system for the visual.

The stimulus on their fingers is used the second of the visual.

era-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

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 wear-er, warning of obstacles and terrain fluctua-tions ahead.

"Traditional navigation systems provide auditory feedback and they usually have a steep flearning turve 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 o his use of dual cameras, which perceive depth like a pair of 3-D glasses.

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

But these methods of sensing can be easily foiled by complex surroundings, such as room full of people, where movement creater multiple signals and provides little usefu 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 con

sume 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' intrude on the user's daily activities.'

#### Bowdens 416-750-2220

NATIONAL

(295) Circulation: 2,000 The Kimberley Daily Bulletin

Jun 02

Copyright 2002 by Rights Reserved am Publications (Hollinge

## Iniversity of Guelph prof.

gloye for visually impaired working on seeing-eye

Guelph are developing a camera.

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. back about their immediate enviimpaired people with tactile feed The system provides visually

ronment.

Two mini video cameras wiręd

body — feed information into a special glove worn by the user. which can be worn on the user's to a portable computer - all bi

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

room, similar to a bat's method of

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

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

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

the buzzer on the middle finger lying straight ahead would trigger on the left hand, an obstruction If the obstacle is just to the right For example, if the glove is worn

used to direct the user around obstructions in their path," said subset of the buzzers. possible new methods of convey. Zelek, who is also investigating ing terrain information through a Zelek's technique of acquiring

mation-gathering usually employ sonar or ultrasound waves, which are bounced around objects in the depth like a pair of 3-D glasses. ment is unique because of his use of dual cameras, which perceive information about the environraditional techniques of infor-

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

ronments cause multiple signals to get back to the user, which can get confusing," Zelek said.

As well, sonar and ultrasound 'In the case of sonar, busy envi-

systems consume a lot of energy and need to be recharged every

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

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