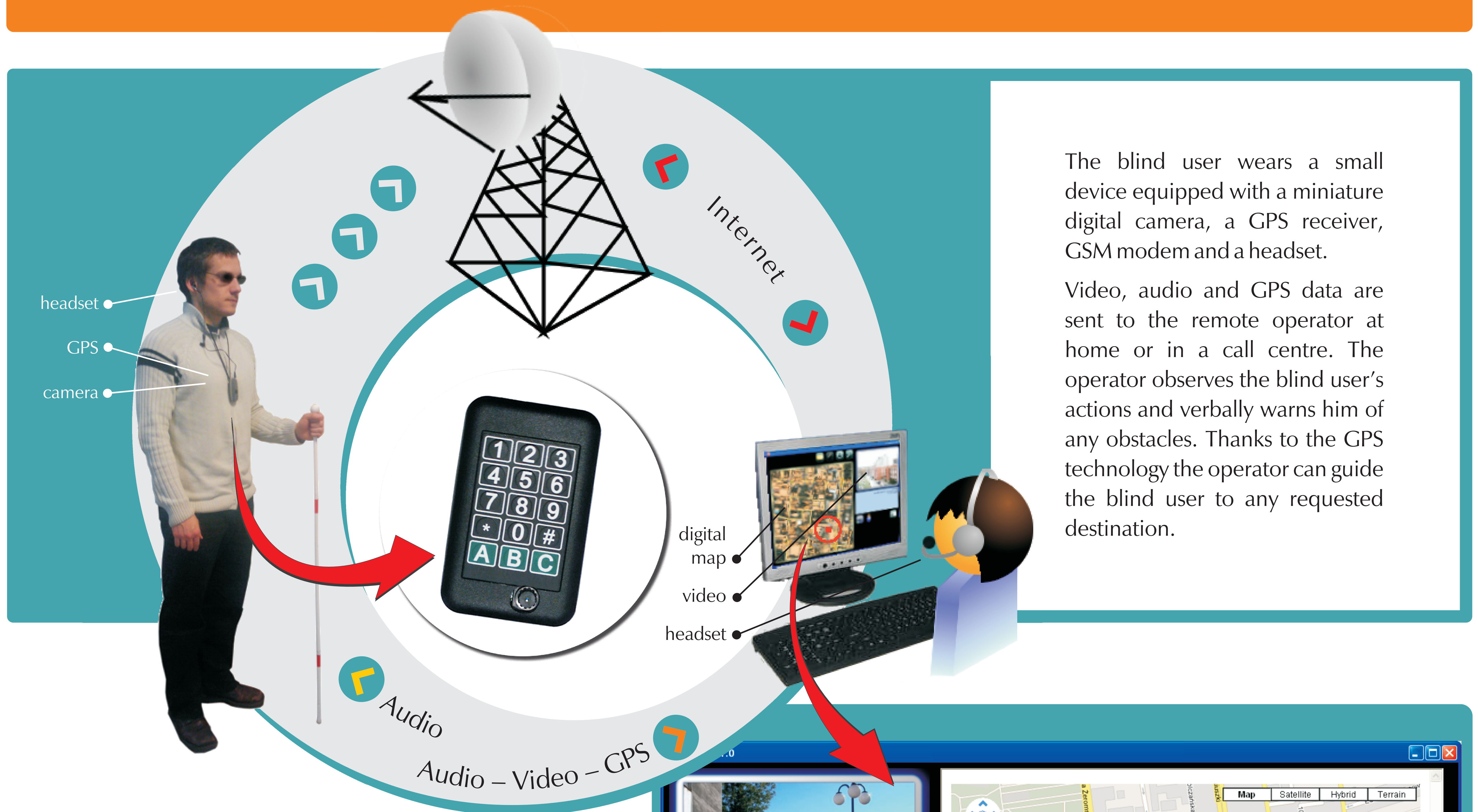# Technical University of Lodz
Institute of Electronics

Remote assistance system for the visually impaired

The blind user wears a small device equipped with a miniature digital camera, a GPS receiver, GSM modem and a headset.

Video, audio and GPS data are sent to the remote operator at home or in a call centre. The operator observes the blind user's actions and verbally warns him of any obstacles. Thanks to the GPS technology the operator can guide the blind user to any requested destination.

headset
GPS
camera

Internet

Audio

Audio – Video – GPS

digital map
video
headset

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Graphical interface of the remote operator's terminal

System description

The proposed prototype system is based on the idea of relaying video from a camera worn by a blind user to a sighted operator located elsewhere at a computer (or using an appropriate mobile device). The remote operator guides the blind user to requested locations and warns him of any dangers. Thanks to GPS readouts the operator can track the blind user's location on a digital map. Additional functionality of the system is the possibility of capturing large resolution images so that the remote assistant can read text and signs for the visually impaired user.
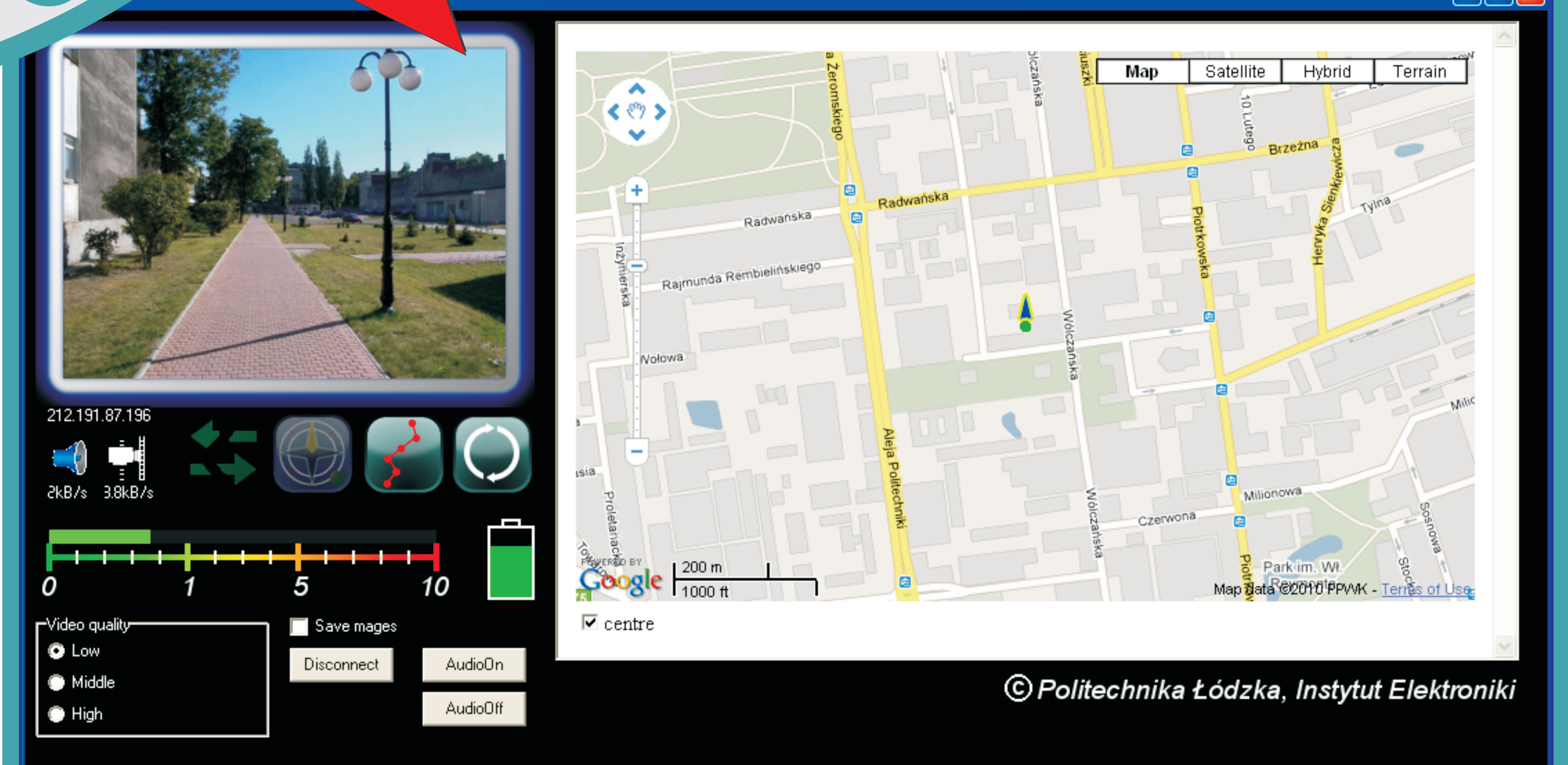
The system consists of two terminals:

- Blind user's terminal: relays the video and GPS data to the operator, enables two-way voice communication,
- Operator's terminal: displays the video from the blind user's camera and his location on a digital map, relays verbal instructions to the guided user.

The current prototype undergoes field trials with participation of blind volunteers.

Applications

- Remote assistance of blind and visually impaired persons
- Possibility of opening a call center specialized in aiding the blind or the elderly
- Navigating persons in unknown terrain: tourists, public servants

Contact

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