

Satellite navigation and talking signs for the visually impaired



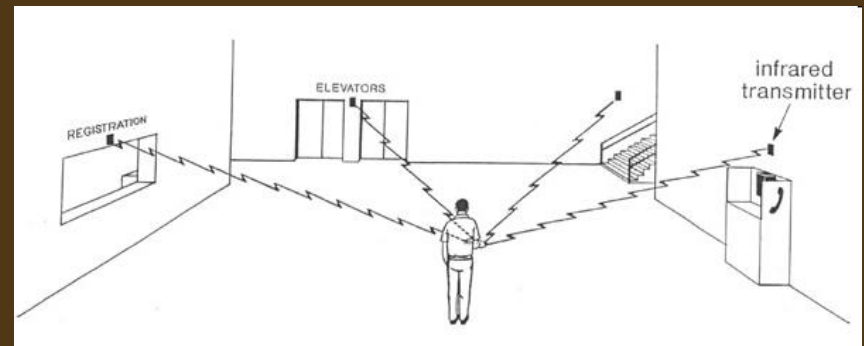
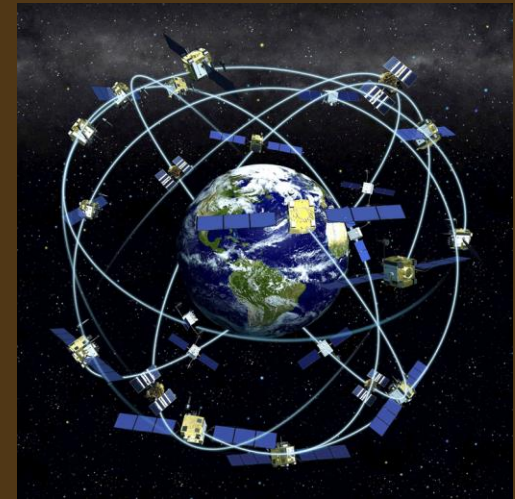
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BVVB session

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- Brief introduction/overview
- **Satellite navigation:** known as GPS
 - Way finding by means of orbiting satellites around the earth
- **Talking signs:** signs with (synthetic) speech output
 - Guiding inside and outside buildings by means of user triggered talking signal boards or devices



- Usability features, **not** related to blindness and low vision
 - Accuracy of at least 2 meter
 - Avoidance of a touch screen for controlling
 - Sufficiently large and/or tactile buttons and switches
- Accessibility features, related to blindness and low vision
 - Speech output during user-control
 - Choice of larger screen fonts
 - Choice of different screen colours (higher contrast)

- Characteristics of persons using a GPS
 - Having basic mobility skills
 - Feeling for high-tech equipment
 - Acceptance of low accuracy (5 to 10 meter)
- Typical user profile (visually impaired), additional to the above
 - Frequent (almost daily) need for outdoor mobility
 - Job demand for independent mobility (salesman, representative)

- Dedicated systems for the target group
- Smartphone based: (almost) free software
- Smartphone based: priced software
- Systems to take in consideration

- **Trekker Breeze**

- Simplified version of Trekker Solo
- Only for walking known routes
- No route planner built in
- Accuracy: about 20 meter
- Adding waypoints possible
- Price: € 630 - 842



- **Trekker talking GPS**

- **Production stopped !**

- Based on a pda
- PDA's are leaving the market



- **Loadstone GPS**

- Talking GPS-software for Symbian smartphones (Nokia)
- No Dutch version, English only
- User must provide content
- Card info from OpenStreetMap
- Free software
- Smartphone necessary
- www.loadstone-gps.com



- **iPhone apps**

- Roadee, € 2,38
- Kapten for iPhone, € 3,99
- Sendero GPS LookAround, \$ 3,70



- **WalkyTalky**

- Talking GPS-software for Android smartphones
- No Dutch version, English only
- Speaks street names and directions
- Free software



- **Mobile GEO**

- Speaking GPS-software for Windows Mobile smartphones
- Designed for the blind
- Smartphone necessary
- Price: € 500



- **iPhone apps**

- TomTom, € 50
- Ndrive, € 15
- ...



- **Kapten Plus**

- Portable speaking GPS, successor of the 1st Kapten
- Voice controlled, no screen
- No Dutch version, available in French, English, German, Spanish and Italian
- Now with some features for blind and low vision persons
- Real time voice description of what's around, 'where am I' function
- Talking user guide (mp3)
- Mini speaker-kit
- FM-radio and mp3 player
- Price: t.b.a. (Kapten, € 240)



- Combination GPS and white cane
 - GPS for routeplan, walking from A to B
 - White cane as reliable obstacle detection and recognition item
- Combination GPS and guide dog
 - Partially overlap; GPS for new routes, guide dog for known routes, obstacle avoidance and security
 - Concentration required !
- Combination GPS, white cane and guide dog
 - Choose white cane or guide dog for obstacle detection and recognition
 - Three together demand to much concentration to be safe

- Added value of an accessible GPS configuration
 - Discovering / exploring known routes
 - Improved freedom of outdoor mobility, more independent travel
 - Prepare, explore and memorise routes before going outdoor
 - Define and recognise personal points of interest along the routes

- What
 - Little talking boxes with human or synthetic voice
 - Activated by user with remote control
- Where
 - Indoor and outdoor
 - Airports, railway stations, large companies, city centres, big hotels, bancs, parks, museums, ...
- Who
 - Low vision and blind persons who travel
 - Persons with reading limitations



- **Navigueo** (EO-EDPS, France) => available in Belgium
- **Step-Hear** (Step Hear, Israël) => available in Belgium
- **FOLLOW-VOICE** (Esium, France) => available in Belgium
- **RIAS** (Remote Infrared Audible Signage System) (Talking Signs, USA)
- **REACT** (RNIB, UK)
- **PAVIP** (Personal Assistant for Visually Impaired People) (Bones, CH)

- Persons with vision and reading limitations:
 - Are able to orientate indoor (what is where)
 - Can find entrance doors more easily (i.e. combination with GPS)
 - Are guided in the right direction by the sound of the voice
 - Can travel more confident and safer
 - ...

- Considerations before implementing
 - Lack of standards between different systems
 - Policy is necessary
- Total price difficult to give because
 - Need for advised planning
 - Installation cost
 - Update and maintenance cost

Thank you for your attention



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Questions

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- Infovisie Magazine jg. 24, nr. 3, september 2010: www.infovisie.be
- Navigueo: www.eo-edps.fr (manufacturer) and www.erocos.be for Belgium
- Step-Hear: www.step-hear.com (manufacturer) and www.optelec.be for Belgium
- FOLLOW-VOICE: www.esium.fr (manufacturer) and www.viakan.be for Belgium
- RIAS: www.talkingsigns.com
- REACT: www.rnib.org
- PAVIP: www.bones.ch
- Sendero GPS LookAround: <http://senderogroup.com/support/supportiphone.htm>
- WalkyTalky: www.androlib.com/android.application.com-googlecode-eyesfree-walkytalky-qqxAx.aspx
- Kapten Plus: www.kapsys.com