Bones

PAVIP

CSUN
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PAVIP Accessible Public Transportations. Carried by:

SBV	Swiss Federal Institute For The Blind (SFB)
VBSG	Public Transportation Authorities of the City of St. Gallen
EDI	Swiss Federal Office of Home Affairs
SZB	Swiss National Association of and for the Blind (SNAB)
Bones AG	Engineering office for blind and visually impaired
Gorba AG	Information systems for public transportation and passengers

What is it about?

Target: Give all information relevant to a trip to the user. Also, it is driven by the paragraph of equal treament for the (visually) impaired people. E.g., Switzerland must provide all relevant informations of a journey to visually impaired passengers until 2014.

Approach: Do so by transforming all steps of the sighted person to the visually impaired person. It needs an electronic aid to do so.

Status: Implemented, up and running, in first city of Switzerland.

Let‘s do a life example, here in the room...

Step 1: Check out environment

Cars in the environment of 200 to 300 yards are being announced automatically. Comparable to the sighted that looks around, you are being told what's happening. The information comes straight from the cars.

Step 2: Commit for a car

Browse the list of cars and eventually select a car. Immediately, the driver of the car gets a message on his board computer about a visually impaired person waiting outside. Also, you get an active feedback that a link between you and the car has been established.

Step 3: Get travel information

During the journey in the car, all upcoming stops are announced in your personal electronic aid. In addition, you can browse through the whole list of stops from the current one up to the end, or to the beginning.

Step 4: Place exit wish

Don‘t look for that stop button to declare your exit, but place it wirelessly from your aid. Again, the driver gets an immediate message and can assist.

Further extensions

- Beacons for electronical displays at stops. They can transmit all kind of dynamic information.

- RFID tags for extra information. They can be placed behind the timetable to give information about the environment of the lines approaching. However, they carry static information only.

Components of PAVIP

Vehicle: The PAVIP Box

- Autonomous unit without special installation, without operation by driver
- It draws all needed information from the control unit in the vehicle itself, through standardized interfaces (VDV300, IBIS, Ethernet, etc.).

User devices:

Milestone 312

- Pro: Standard unit in the area of visually impaired (also a note taker, book player, FM radio, etc.). About 25‘000 units in the field. Accessible for most visually impaired
- Con: User needs the device.

Extension module for iPhone

- Pro: Inclusion of timetable possible, as well as location based services via GPS
- Con: Limited accessibility by the visually impaired, user needs the device.

Interaction from the vehicle stop

- Pro: No need for dedicated end user device
- Con: Misses functionalities from inside the car, e.g., name of next stop or placing of exit wish.

The individual aid: Milestone 312 (or 212)

- Milestone is an established tool for the visually impaired. With several ten thousands in use, it set a standard of processing information for the visually impaired. For example, it is an Agenda, a Daisy Player, a Voice Recorder, also an FM Radio or a barcode scanner.
- It has the incredibly handy size of a credit card, with a thickness of half an inch. It weights 1.8 ounces (50 gramms) and has an incredibly long book play time of 15 hours.
- And, it looks good...

Other considered solutions

1) Use a transmitter, get audible feedback from the car

+ Simple, cheap

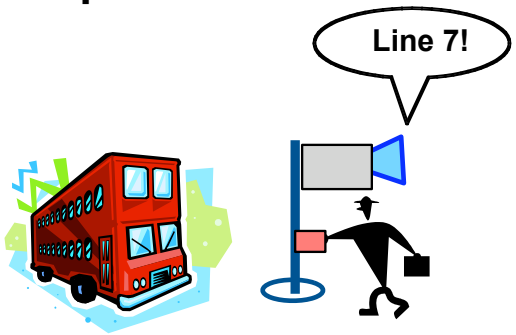
- Quite limited

- Noise

2) Place a button at the stop, get feedback what's happening

+ No further tool needed than your thumb

- Information not precise

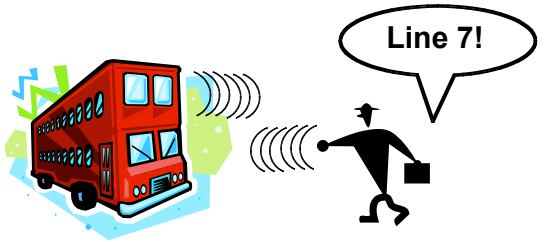


3) System PAVIP with patented bi-directional information

+ Discrete

+ Reliable

- Needs a tool



Why not a pure Smartphone solution?

Because of the time needed to setup a link to the car. The concept of transforming the visual information comes in here; we see the information immediate, so we transformed it accordingly.

The system therefore is an extension to other areas, which smartphones or PDAs don‘t access. You may plan a trip with an iPhone, or get so called real-time information, but one won‘t be accurate at the very end, when it comes to entry into the right car, since the internet cloud always has delays of some critical seconds.

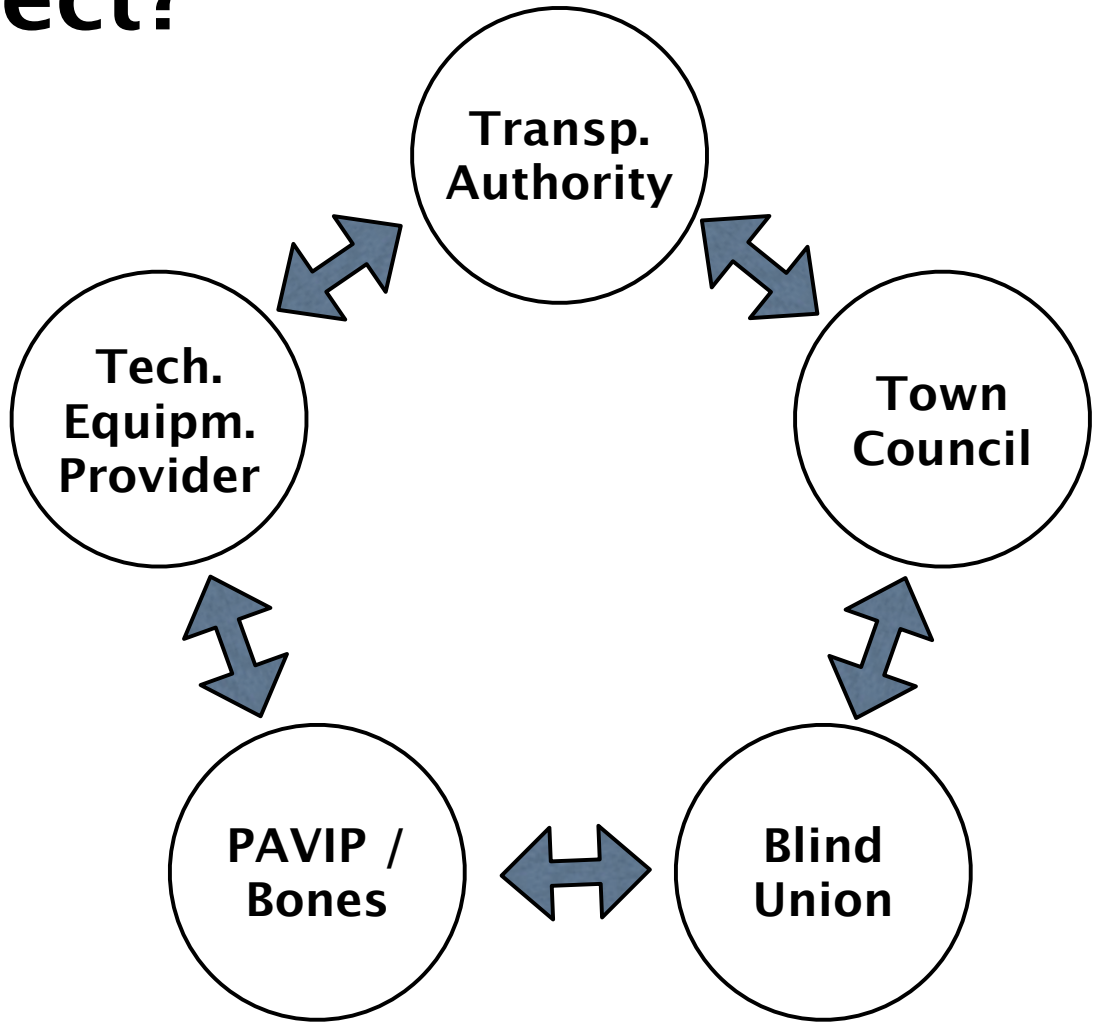
However, it is a good idea to place the little transceiver to interact with the car as an Add-On to the iPhone.

Other considerations

=> Does this work in an electrically dirty environment?

Only with self-healing radio protocolls! The information given must be very robust.

Who is needed to set up a project?



End of the presentation – Thank you!