

# **Navigation for visually impaired**

# Requirements

- right direction
- obstacle avoidance
- safe crossing of the road
- reaching a destination
- right bus/train
- when to get off of the bus/train

# Trekker Breeze

- Humanware
- Built-in GPS
- Announces intersections and streets



# BrailleNote GPS

- QWERTY/Braille
- 18/32 cell braille display
- USB, SD, Ethernet
- thumb buttons
- LookAround

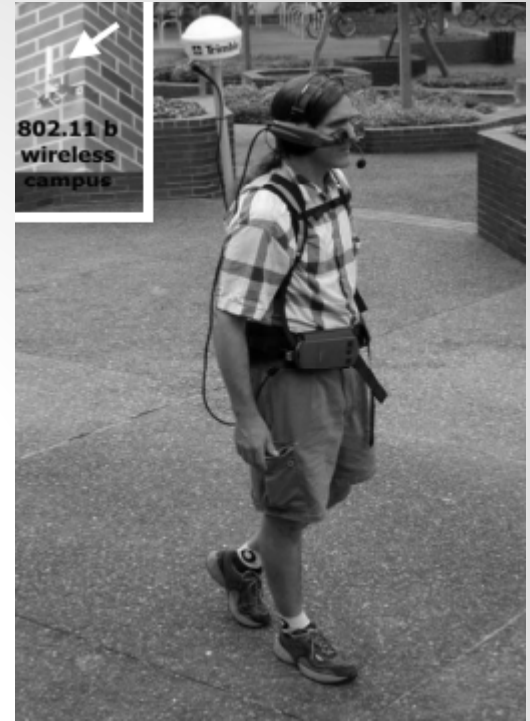


# Loadstone GPS

- Symbian S60
- open source
- Bluetooth GPS receiver

# Drishti

- Client-Server Architecture
- Dynamic
- text-to-speech dialogue



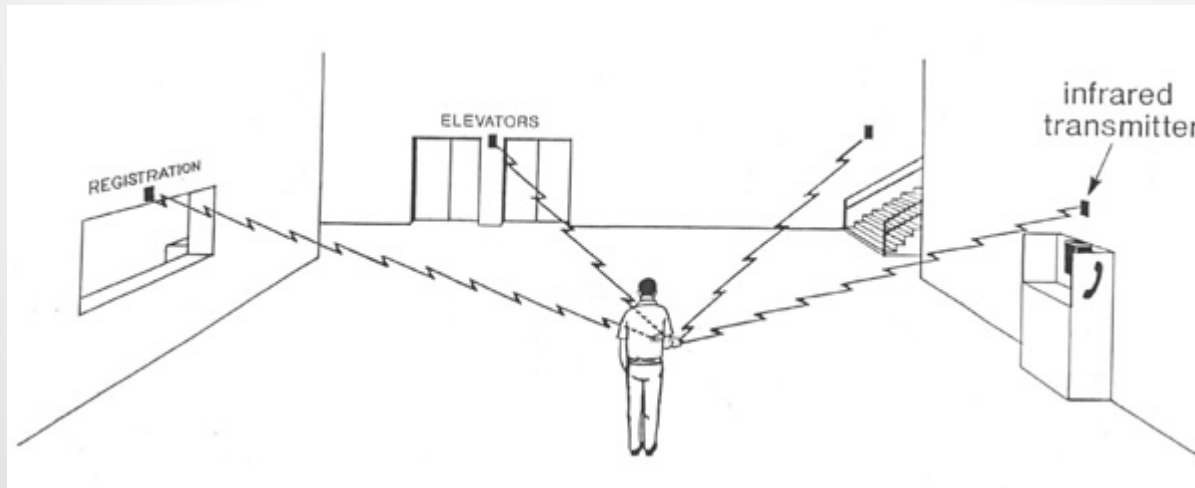
# SWAN

- many sensors
- sounds instead of speech
- army, firefighters



# Talking Signs

- audio signals via infrared beams
- permanently installed transmitters





# RFID InfoGrid

- RFID chips and readers
- cheap



# ShopTalk

- help with shopping in supermarkets
- map of supermarket
- barcode reader

# vOICe

- images to sounds
- left to right processing
- loudness/brightness
- height/pitch



# K Sonar

- ultrasound
- sound clues about obstacles



# MiniGuide

-vibrations



# iSONIC Electronic cane

-vibrations

-colors/brightness



# Sonic pathfinder

-5 emitters

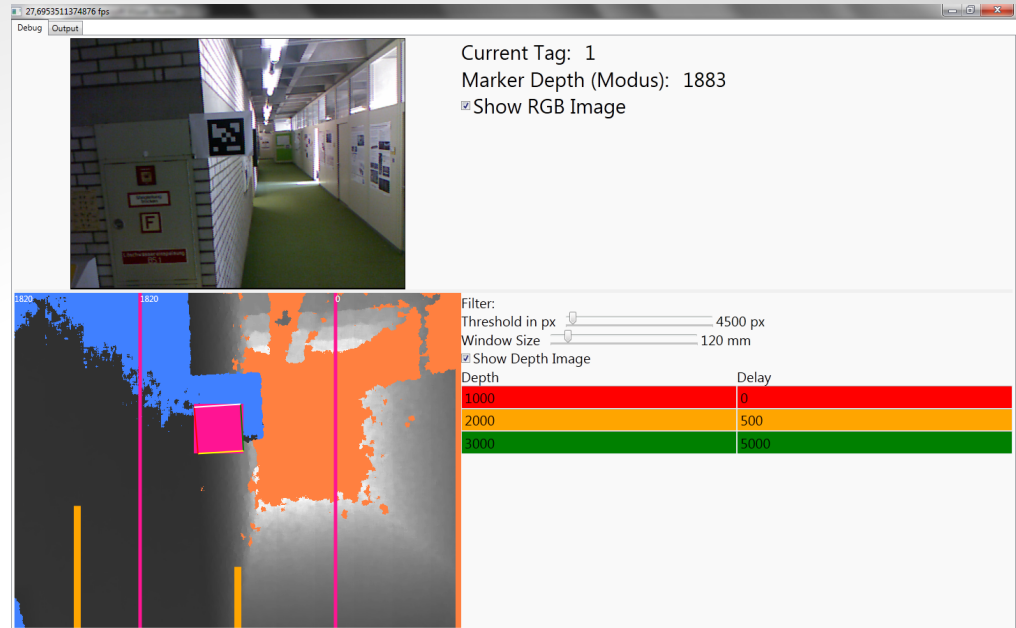
-musical tones



# NAVI

-MS Kinect

-vibrational belt



27.6953511374876 fps

Debug | Output

Current Tag: 1  
Marker Depth (Modus): 1883  
 Show RGB Image

Filter:  
Threshold in px: 4500 px  
Window Size: 120 mm  
 Show Depth Image

Depth	Delay
1000	0
2000	500
3000	1000

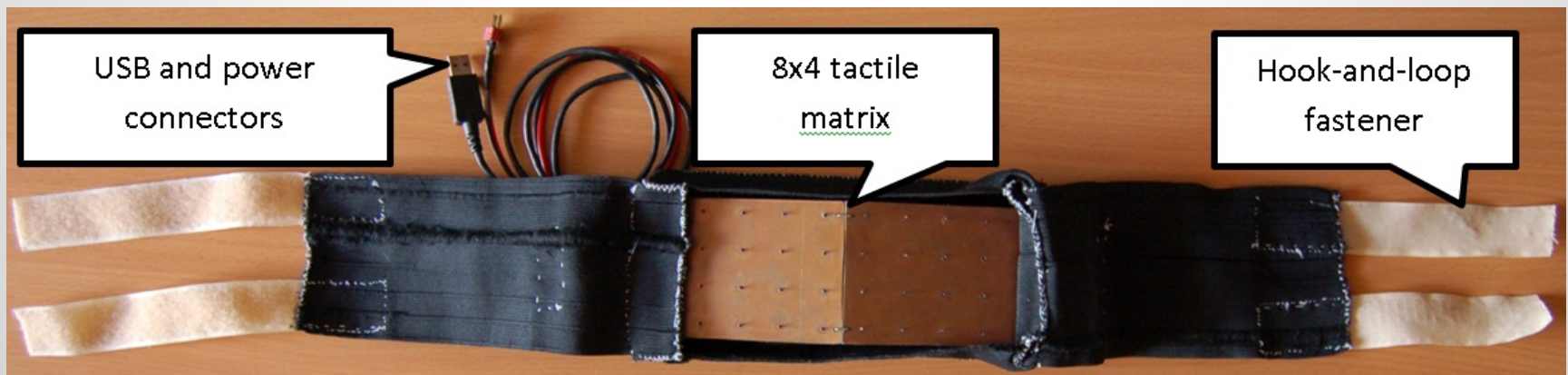
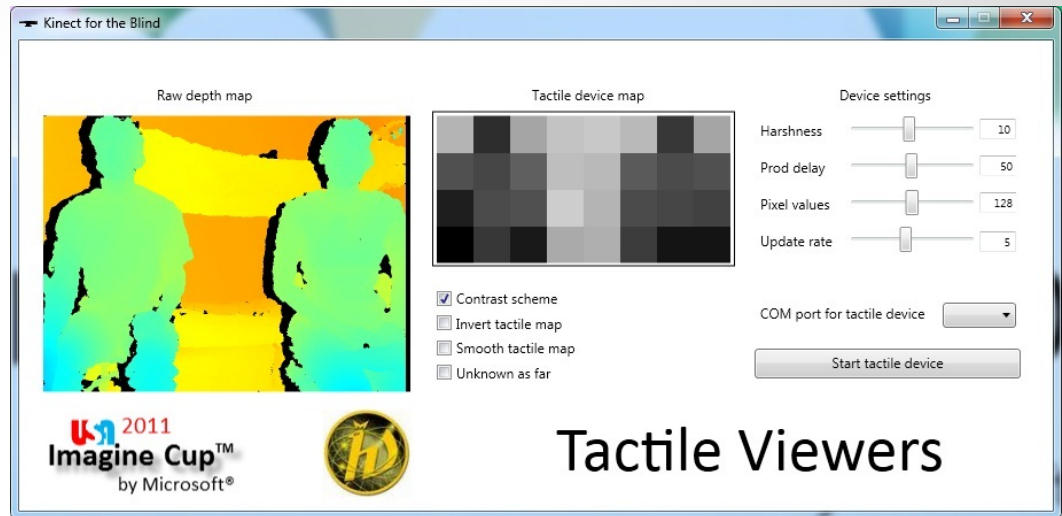
The screenshot shows a software window with a top-left view of a hallway, a bottom-left depth map with a pink square marker, and a right-side control panel with a table of depth filters. The table has three rows: 1000 depth with 0 delay (red), 2000 depth with 500 delay (yellow), and 3000 depth with 1000 delay (green).





# Kinect for the Blind

-tactile matrix



# Traffic lights problem

- important aspect of safe navigation
- cars, color blind
- processing power/portability
- classifiers

# OnTheBus

-android  
-free

