Indoor navigation
For the Blind and strongly visually impaired people

T. J. Toft[1]   B. M. Remmen[2]

Sør-Trøndelag University College
The Faculty of Informatics and e-Learning

May 29, 2015

MazeMap
Indoor navigational system

This project is initiated and supported by MazeMap AS, a company behind an indoor navigation system by the same name. They can be found at NTNU, Trondheim.

This thesis serves as a *proof of concept*, to see what blind and strongly visually impaired people would require in order to be able to use the product.

The goal of this project was to enquire the requirements that blind and strongly vision impaired people have to indoor navigational systems. We wanted to answer the following:

How can we make indoor navigation more accessible for blind and strongly vision impaired people?

Blind Path
The concept and vision

To be able to understand the target audience, we enquired information about certain elements. Some key elements were:

1. Technology uses/limitations
2. Environmental perception
3. Information threshold

Blind Path
The concept and vision

We also needed certain technical baselines, such as:

1. Position precision
2. Incoming data frequency
3. Supported technology
4. Physical environment (concrete walls, floors etc)

Methology
Testing

To produce successful tests we tried to make the tests as isolated as we could. Some elements involved:

1. Client front end controlled by us, remotely
2. Seperate interviews and tests
3. Different approaches and routes

The conclusion
Short summary

We discovered that the minimum output of information was:

1. Direction (read once)
2. Vibration worked well
3. Need for information on doors and stairs (direction)
4. What floor to exit (elevators, stairs)

The conclusion
Short summary

Regarding voice output we discovered that this was only wanted once per new command. The explanation is that too much voice output is a disturbing and stressful element for people that need to use their senses more than seeing people do.