

Introduction

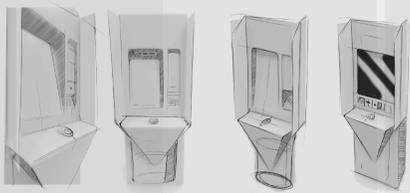
The task was given to design a new ticket vending machine for Skånetrafiken. The focus has been to develop the hardware of the machine, where it would be possible to pay with credit card, smart card or cash.

Target group

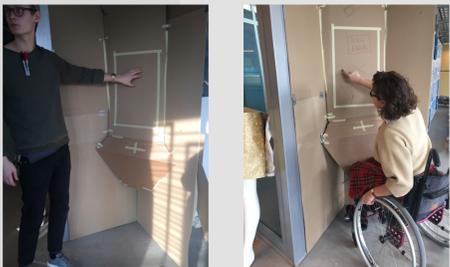


Method

The project started with Skånetrafiken sharing a valuable user analysis of the current machine. Doing research on similar, already existing machines, further valuable documents on user experiences were found. One on ATMs by Stelacon for the Swedish post and telecom authority was especially useful throughout the whole process, focusing on people with different disabilities.



Sketch of Skånetrafiken's characteristic arrow shape was applied in different variations on the machines.



A simple cardboard model was made to get a first grasp of size, height, proportions and angles. The sketch work continued while having continuous brainstormings and discussions regarding sabotage, cleaning, accessibility etc.



The first cardboard model had a 90° angle on the backside, but after having done small models with different angles, the conclusion was made that 60° would be more efficient both from an accessibility and space perspective.



When the mapping of the different components was to be decided, 20 people were given simple graphical printouts and asked to put them the way they preferred on a cardboard model of the machine. After several try outs and discussions a final decision was taken, placing all components underneath the screen. Lastly the overall shape of the machine was refined, with both aesthetics and accessibility in mind.

Problem

- Unwelcoming hardware, difficult to notice from far distance
- Mapping could be found messy
- Slow software
- Too many steps to buy a ticket

Improvements

- Quicker and easier to understand, both hardware and software
- Designed according to the seven universal design principles
- Characteristic design connected to Skånetrafiken's trademark
- Allowance for changes and updated of different components

Universal design considerations

Simple and intuitive use

The components have been arranged and grouped so that the use of these will be as intuitive as possible.

Perceptible information

The machine is lit up at night time; facilitating for those with low vision. The key pad for credit card pin code has been kept tactile, giving a secure feeling both to those who can see and those who can't. There is a possibility to have a speaker voice and for those who feel exposed by this or just have troubles hearing the voice in noisy environments, a plug in for headphones is available.

Flexibility in use

The components for payment are placed underneath the screen and can be used by both right- and left handed. The little bowl where the change comes out of the machine is shaped and placed so that the user can fetch the coins in several ways, regardless of hand precision.

Equitable use

The same machine can be used by a variety of people. No stigmatizing solution.

Low physical effort

The height of the machine allows for people in wheelchairs to reach within their optimal height range, and tall people should not have to bend to operate the machine. The interface minimizes the repetitive actions.

Tolerance for error

The screen shows clearly the users choices throughout all steps of the purchase. The interface should have a good workflow that prevents mistakes from happening.

Size and space for approach and use

All components of the machine are within a comfortable reach for any seated or standing user.

180 cm

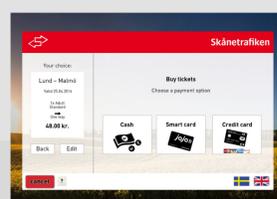
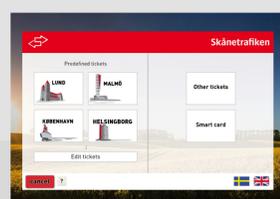
135 cm

105 cm

90 cm

Skånetrafiken
Biljetter - Tickets

Välkommen
Skånetrafiken



Interface

Since the focus has been to work on the hardware, the interface has not been fully developed. However, the interface and the hardware should interact with each other, suggestions of the interface have been given.