

# **A re-design of various components of a monitoring system**

This bachelor final assignment was performed at a multinational company that operates in many different countries around the world, including the Netherlands. They develop, sell and manufacture products in the field of nuclear medicine and (radio)pharmacy. These products include measuring equipment, dispensing/injection equipment and software.

The monitoring system consists of several devices which measure for example radiation, temperature, pressure or humidity. The data of these devices are stored and presented on a central screen.

This assignment is divided over three sub-assignments.

## **Assignment 1**

One of the devices of the monitoring system measures radioactivity. The device gives of a visual alarm with lights when the radioactivity is too high. The company wanted to improve the design of this device. The main issues they had were:

- The costs are too high
- It is too difficult to clean
- The look is too industrial

The goal of this assignment was to improve the design of this device with respect to costs, cleanability and looks, while also keeping in mind the assembling and ergonomics.

The approach was to make many different concepts based on the requirements to slowly move closer to the final design. Also improve the screen to be more intuitive and ergonomic. Afterwards, work out the concept in further detail so it can be easily produced and installed.

The current housing was made from sheet metal, but using injection moulding reduces the costs significantly. The visual alarm was an alarm stack, but a LED-strip inside the housing reduces the costs again and improves the overall look. With a good design, the cleanability and looks of the device can also be improved. Many different concepts were created and different ways of attachments were proposed. Eventually, a final design was presented.

The estimated costs have been reduced by 24% per unit, it is easily cleanable in a single wipe and the looks have (subjectively) improved.

## **Assignment 2**

All the information from the devices of the monitoring system are presented on a display. The second assignment was to improve the user interface from an ergonomic point of view. The display shows a map of the area with information about each device at its location.

The goal was to improve the main screen of the monitoring system, to make the design clearer and more ergonomic. The approach was to analyse various studies about User Interface and implement those findings into the prototype. Also, information from people of the company was used to gather the feedback from the users.

There is main navigation bar on top and an information/secondary navigation bar on the side. The user can navigate through different floors of the area with bigger buttons and text. The overview should now be clearer and easier to navigate. Unfortunately, the prototype could not be thoroughly tested, though this could be useful for further improvements.

## **Assignment 3**

All the devices of the monitoring system were individually designed without coherency between the look and feel. The third objective was to create a coherent style for the devices of the monitoring system that can represent the brand.

The approach was to analyse the colours and shapes used by the company. Look for details which can both add function and create a uniform look.

In conclusion, the devices can have a simple, white look. They can all have a descending top and some details in the alarm lights or basic shapes create more unity.