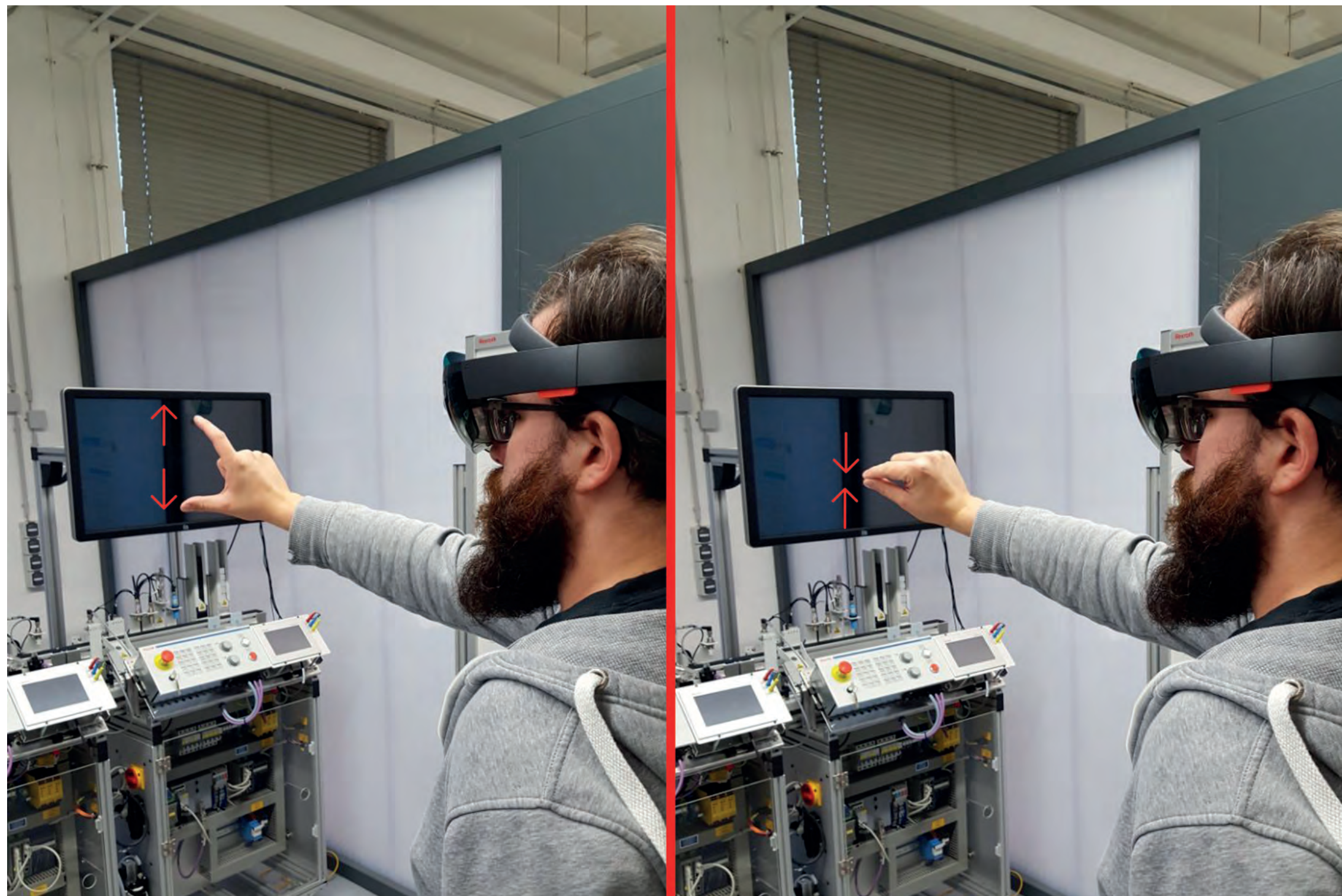


Development of design guidelines for Augmented Reality in production



Using the selection gesture

Special Focus

The first step aimed at getting an accurate picture of the target group. For this purpose, primary and secondary personas were developed and graphically displayed. In addition, the context of use in which the app is to be used was defined.

Subsequently, four hypotheses were formulated and corresponding test scenarios designed. For these tests a special prototype was developed, which was then tested with real subjects. The first hypothesis related to the control of the app (speech or gesture). The second aspect involved the question of how to display an unknown object on an industrial plant. The third test addressed the question how the indicators need to be designed to refer to objects outside the field of view. Following this, the question of information positioning was discussed.

The participants were persons of the primary and secondary target group. In total, two rounds of testing were conducted and evaluated. The methods used were Observations and Thinking Aloud. During the development, the focus laid on the approaches User Centered Design and Lean UX.

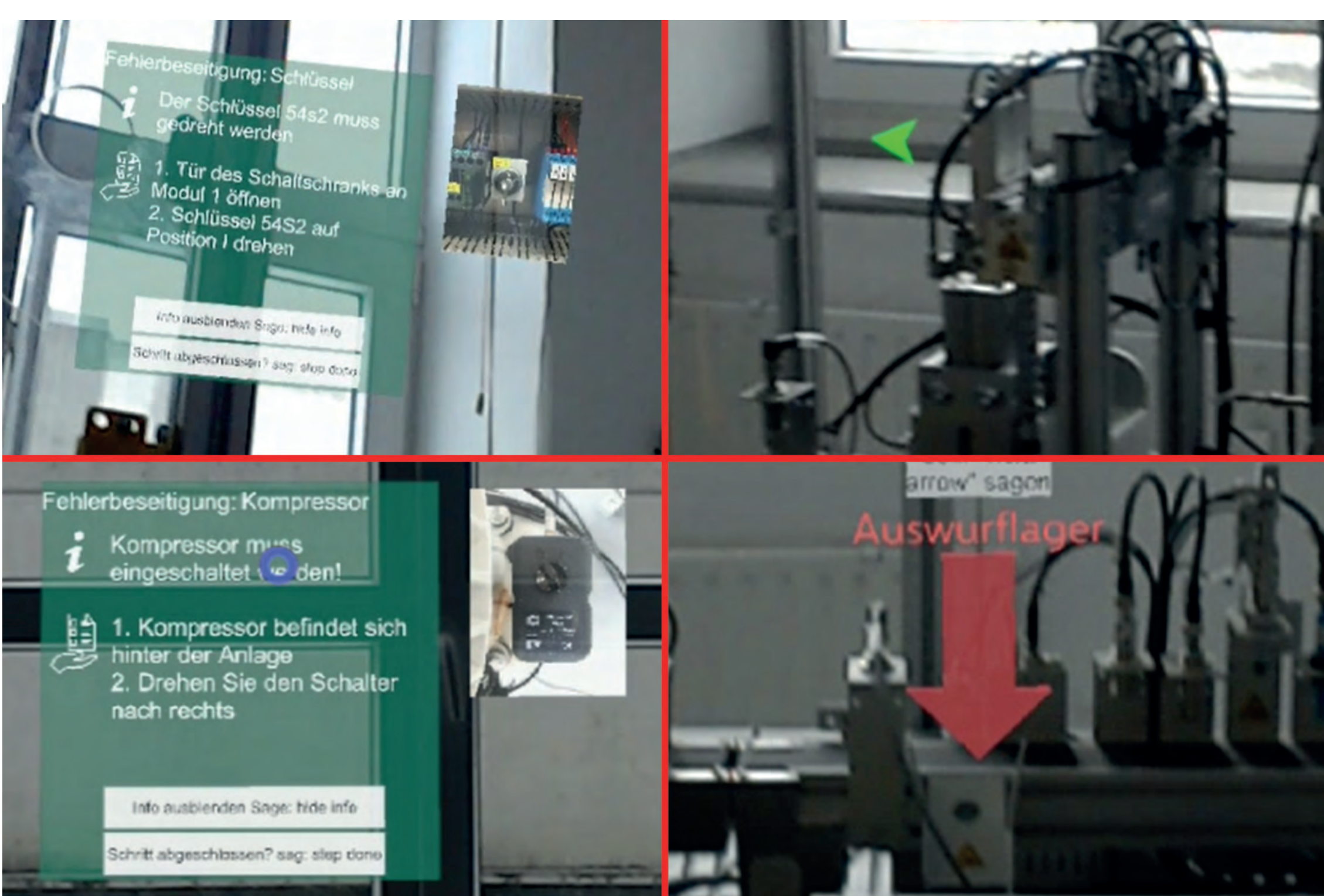
Abstract

By now the term digitization can be found in many areas of everyday life. Even in the industrial context, this topic is now increasingly represented. The buzzword to name these changes is Industry 4.0.

The digital transformation in the industrial context also entails changes for people. In the future, assistance systems will support employees in their day-to-day tasks, both on a cognitive and a physical level. One application here is the maintenance of industrial plants with the help of Augmented Reality.

This thesis deals with the topic User Experience Design of such applications and targets to provide recommendations for the development of these apps. During this thesis, the Microsoft HoloLens was used as hardware.

Primary persona and context of use



Various Augmented Reality elements

Result and Future Work

During the tests, there were no clear preferences for the app control. Rather, it is recommended to equip the system with both variants to give the decision-making power to the user. On the other hand, it is possible to draw some conclusions regarding the display of unknown objects on an industrial plant. The pure photographic image could not prevail against the direct AR reference to an object. The research also showed that indicators should be colored with positively associated colors, while animation of the indicators is not necessary. Similar to the test result regarding the app control, no precise statement can be made on the question of information positioning.

Future works could focus on categorizing maintenance in order to make recommendations for action generally applicable to industrial maintenance. Further research into the user groups could further sharpen the personas developed here. Furthermore, the app could be brought to a more mature level in order to use it in a real context. This could lead to more and more extensive research in this area, leading to new insights.



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