Human Robot Interaction in an Airport

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***Abstract*— This paper investigates the subjective experience of social robots in an airport. method result conclusion**

I. Introduction

Social robots in airports, helping people, wayfinding, measuring subjective experience and stuff like that

A. Motivation

- Why robots? Karls robot Exploring disruptive technology Robots solves real business problems Robots is the future

- Why airports? Busy and often overcrowded area. Overwhelming amount of information

- Airport business goals Enhancing traveler experience Keeping people in sales area and away from gates and hallways to increase sales and decrease chaos. Being innovative and using disruptive technology to appear more modern and futuristic.

B. Problem framing

- What do we want to do and how do we want to do it? Cultural difference between how people experience and express themselves about robots, therefore we start out by finding out how danes talk about robots and which parametres are important in social robots. Afterwards scales will be designet, on which test subjects will be able to rate their experience with the robot.

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II. Method

In order to understand people's experiences and the words they use to describe the interaction with a social robot, travelers interacting with a robot in Aalborg Airport was investigated. In total 30 travelers, including 16 women and 14 men, was interview during 18 interviews. 11 interview were done on a single persons, where the remaining seven was done on groups of two or more. The participants' ages range from 8 to 62 years (M=37.9, SD=17.1) and have all been traveling more than once.

During the tests a double robot was used. Double is basically a segway merged with an iPad and in this study a new headmount was used, so the iPad was tilted a little upwards towards the participants, see figure (indst billede af double og referencen hertil). On the iPad travelers was shown a wireframe, intended to help them find a location in the airport of their choosing. In order to create a natural experience, the robot was used to recruit participants by asking them if it could help them find their was around Aalborg Airport. When travellers were willing to participate the robot led them to the interviewer instead of the chosen gate or restaurant. By doing this, the interviewer could start the interview by asking participants how their first meeting with the robot was without having to first set the scene for the participants.

By doing a contextual field study, including interviews and observations, the experience is captured. Afterwards the interviews are transcribed and affinity notes are made for building an affinity diagram. By building an affinity diagram these notes can be sorted into a hierarchy of different categories and subcategories, which will tell the users perspective of the interaction. The affinity diagram represent some of the main areas that are important for travelers when interacting with the robot. These areas are used to create scales, which then are tested with new users in the airport. After gathering data on the chosen parameters, it can then be evaluated in which degree the different attributes contribute to the overall experience of the interaction, and how they relate to each other.

III. Results

The 567 affinity notes were sorted into 149 blue categories, which were then sorted into 47 pink categories, which were finally sorted into 10 green categories. Some of the main categories consisted of the robots appearance, behaviour, approach and trust.

Compare results to literature

IV. Discussion

We introduce some interviewer bias, by having predetermined questions that drag the conversation in a certain direction. That means people talked a lot about a specific aspect of the interaction, because they were asked directly about it.

Due to the Marvel wireframe running inside the double app, the touchscreen was less responsive than expected. This resulted in some people not wanting to interact with the robot, but also it affected the experience for those who chose to interact with it anyway.

V. Conclusion

The conclusion goes here

A. Future work

During the next month, the evaluation of the scales in the airport will take place. This involves creating the scales from the results of the affinity diagram, bringing the robot to the airport, letting people interact with it, and measuring their experience on the developed scales and analyzing the results

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REFERENCES

[1] H. Kopka and P. W. Daly, *A Guide to LaTeX*, 3rd ed. Harlow, England: Addison-Wesley, 1999.