Social Acceptance of Nomadic Virtual Reality

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ABSTRACT

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CCS CONCEPTS

• **Computer systems organization** → **Embedded systems**; *Redundancy*; Robotics; • **Networks** → Network reliability.

KEYWORDS

virtual reality, social acceptance, nomadic, field study

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1 INTRODUCTION

New presentation methods like VR experience a growing trend as alternatives to conventional screens in different terminals like tablets or mobile phones. These devices are always improving in measurements, functionality, and appearance because of this, to accommodate the mobility of modern life. Although the development process of them is still far away from being finished VR devices might be prospectively used in the same way we already use mobile phones today, at any time and everywhere. To achieve a broad utilization, it is not only important to focus on the unique user and establish hardware with high usability for the users themselves, but also something that fits all the tangentially involved people and their needs for well-being, comfort, and privacy. The most important issue to start with, which also is the topic of this paper, is the question about the current state of social acceptance of VR devices in public spaces. Before spreading out this type of gear and gaining the possibility of high sales output it is essential to find out if those devices are already accepted by society and which impacts they have on society.

In the paper "Virtual reality on the go?: a study on the social acceptance of VR glasses" [2] several researchers already tried to investigate this potential issue by showing pictures and videos of people wearing VR devices in public spaces to a group of test persons under laboratory conditions to find out more about their opinions, feelings, and reactions confronted with this subject. As we all know it is hard to put oneself in a position you only see on pictures. With the inspection of images, people will always keep a certain emotional distance to the context shown. The spontaneous confrontation with a previously completely unexpected situation in daily life might have another effect on their emotional acceptance. VR devices might be fully accepted by society, but it can also be that they evoke discomfort because people are not used to not see each other's eyes while passing by or sitting next to them on the bench. Sunglasses of course act similar but since

todays VR goggles still, cover almost half of the wearers face it cannot be generalized and needs to be examined more accurate. In this paper, the mentioned issue will be reexamined using a field study to achieve a high validity not only in the laboratory but also in the open field.

2 RELATED WORK

As noted in the introduction, the "acmart" document class can be used to prepare many different kinds of documentation — a double-blind initial submission of a full-length technical paper, a two-page SIGGRAPH Emerging Technologies abstract, a "camera-ready" journal article, a SIGCHI Extended Abstract, and more — all by selecting the appropriate *template style* and *template parameters*.

This document will explain the major features of the document class. For further information, the *LaTeX User's Guide* is available from https://www.acm.org/publications/proceedings-template.

3 STUDY: ACCEPTANCE OF NOMADIC VIRTUAL REALITY

As already mentioned VR devices represent a potential upcoming alternative to conventional screens in the mobile context. The specific target of this study was to examine more about the current state of social acceptance in the open field by confronting unprepared pedestrians with this topic in different real life scenarios. This was done with the help of a field study because of our hypothesis that the procedure under laboratory conditions will have another result due to emotional distances.

Study Design

The design of the study was a two-factorial within-subject design and conducted with the help of the three independent variables GENDER, WEARING OF VR-GOGGLES and PERFORMING GESTURES. The usage of VR devices does not only include the actual wearing of the goggles. Gesture control with the help of connected VR controllers is essential for the use of VR devices of any kind. Since performing those gestures might have a big impact on the acceptance this also was a very important issue to test to find out more about the general acceptance and how people react when beeing confronted with this situation. It is also important to investigate whether the gender of the wearer has an influence on the results or not.

Stimuli

In earlier researches pictures and videoclips have been used for probing [2]. Since we wanted to extend those results and test their external validity we used confrontations in real life situations in the open field rather than representations of it. The first important stimuli was the gender. We wanted to find out if the gender itself plays an important role with the acceptance of such devices in general. Both genders have been tested without using any VR tools to get a baseline for upcoming steps and procedures. Another stimuli we used was the fact that both our actor and our actress will wear a VR goggle to test its influence on the pedestrians. Last but not least we tested the goggles in combination with controllers and gesture controls which is our final stimuli. In this study we combined those three stimuli to receive as much information as possible about peoples reactions on different types of situations.

Survey Procedure

After handing out the informed consent, the randomly chosen participants obtained a short demographic questionaire in which we request allegations to gender, age and job. Afterwards we handed out another Questionaire to measure the acceptability of wearable devices [1]. The socalled WEAR Scale is a questionaire that consists of several items to finde out how acceptable a device is with regard to e.g. asthetic itself, the wearers charisma it awakes and the own attitude towards the gadget. Subsequent each participant received a little thank-you gift.

Participants

Because this study has not been researched under laboratory conditions it was not possible to recruit test persons. Another reason for us to not hire subjects was, that this would have not lead to the result we were looking for. We wanted to examine this Acceptance Rating by collection real life reactions and the opinions they might bear on. For this type of field study it was essential to blindside pedestrians in their daily life to receive an unbiased output.

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