Demonstration of Rapid Prototyping Techniques for Augmented Reality User Interface Design

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Augmented reality interface design is still in the early formative stages. For the user interface designer augmented reality interfaces pose the unique challenge of designing an interface around an existing physical space. There are no style guides or tried and true heuristics to guide the interface designer in tackling issues such as text placement or ideal color scheme for a dynamic background. As such it is imperative that a wide variety of possible designs be explored quickly and cheaply with the target user population in order to insure that the interface fits the environment into which it will be deployed. Rapid prototyping methods are a well-established means of quickly evaluating possible interface designs prior to more labor intensive and costly programming and development efforts. However, the current AR literature lacks information describing how these methods might translate to the design of augmented reality interfaces. In this tutorial we will discuss a variety of possible prototyping techniques that we have used in the design of augmented reality interfaces. These techniques range from simple sketches on paper printouts of the target location, to more advanced mockups methods where we use a 360º camera lens and a digital camera to take panoramic images of the target environment. By implementing the techniques that will be demonstrated at our exhibition booth the augmented reality interface designers will be able to engage in iterative participatory design sessions with users to inexpensively explore a wider variety of potential interface designs.

Keywords: Augmented Reality, User Interface Design, Rapid Prototyping, 360 panoramas, QTVR

Demo Storyboard Description

Conference attendees visiting our demo will have the opportunity to engage in hands on demonstrations of rapid prototyping techniques.

In one area of the demonstration visitors will see printouts of panoramas taken at various locations around Darmstadt. These printouts will be laminated and visitors will be invited to sketch AR ideas onto the images using overheard projector markers.

In another area of the demonstration visitors will be able to see the BeHere 360 lens and Nikon Coolpix camera that we used to take the panoramas. They will be allowed to handle the camera, take a picture of the demo area, download the image onto a computer and use the BeHere software to convert the image into a panorama.

We will also have a computers set up with photo editing software and the hot-linking software so visitors can try their hand at creating multi-node panoramas and implementing the prototypes that they developed earlier with the laminated images and overhead markers.

The authors will be on hand to answer questions and assist in converting the prototype sketches into interactive demos.