The Effect of Interface Domain on Decision Making Experience

Introduction

Measuring the Decision Making Process is almost always difficult due to limitations of measuring it as it happens as well as various biases that people have after they make a decision. We created a system to use augmented reality (AR) to evaluate decision making as it is happening and compared it to systems in virtual reality, on paper, and on a computer screen.

Experiment

To test how effective augmented reality is as a way to measure the decision making experience, we compared four different domains to see what effect they had on the decision making experience of selecting a car to purchase. The four domains were paper and pencil, 2D, AR, and VR. We used a survey to gather participants' thoughts on the domain.

Augmented Reality

The AR system we created using ARToolkit uses multiple markers to render four cars, participants can walk around the real environment and look at these cars, in addition there was also a decision matrix rendered which is what we use to capture the decision making process. We were able to track a participants moves in the decision matrix to see what they looked at before making a final decision.







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The Decision Matrix

Part of our experiment involved creating a decision matrix to be used as a decision capturing interface in all of the domains. In our experiment this was a 4×4 matrix with the four cars listed on the top by color description, and the factors that people consider when making a decision (evaluation dimensions) listed down the side. Participants selected different boxes from the matrix to make their decisions.







Future

In the future we would like to see if this type of AR system can be used to evaluate high risk decisions such as those faced by firefighters, emergency responders and military personnel. There is promise here as AR allows emergency situations to be simulated in a way that is measurable and repeatable.

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