Evaluation Protocol

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I General Outline

I.I Evaluation Goals

Analyze MR(Mixed Reality) application in OpenXR(Cross Platform Development) and Native implementation using Unity Game Engine for the purpose of comparision with respect to Accuray, Effiency and Time.

I.II Tools to Compare

a MRTK(Mixed Reality ToolKit) Native implementation in Unity

b MRTK OpenXR implementation in Unity

I.III Scenarios

Described in further details in the Evaluation Task sheet.

I.IV Variables

a Dependent Variables : Effictiveness and Accuray

b Effectiveness is to be measured in terms of the accuracy (closeness of measurements of a quantity to that quantity's actual/true value) with which certain tasks are performed.

c Efficiency is to be measured in terms of required time to accomplish the tasks chosen from the task sheet.

d Performance Expectancy and Effort Expectancy are to be used for rating Acceptability.

e Utility, Intuitiveness, Learnability, and Personal Effect are to be used for rating Usability.

f Usability (Questionnaire closed-ended)

g Acceptance to be measured using TAM (Technology Acceptance Model; validated and standardized test instrument).

h Independent variable: XR Devices and Tools

I.V Target sample

a Knowledgeable with respect to Virtual Enviroments (XR/MR/AR/VR) and Unity Game Engine.

b Convenient Sample : Researchers and Students of Apl. Prof. Dr. Achim Ebert and Dr.-ing. Taimur Kausar Khan.

I.VI Experimental Setup

a General Design : Quasi-experiment.

b Assignment of participants to group : Both Native and OpenXR(Cross-Platform Development) implementations are very similar, Both groups will solve similar tasks in both the cases but on different days for avoiding bais.

II Hypotheses

Careful consideration of the visualization and appropriate interactions in the virtaul world with XR Devices seem to be important for understanding the difference between Native and CPDF

III Operationalization