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| Project | **HMD based VR Sickness Reducing Technology**<<http://sites.ieee.org/sagroups-3079/> **>** |
| Title | **Dataset for quantitative analysis of VR sickness** |
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| Re: |  |
| Abstract | This document includes guidelines on database construction for quantitative analysis of VR sickness. The guideline has the methods on creating reference content and measuring VR sickness for object/quantitative analysis of physiological symptoms arising from viewing VR content. |
| Purpose | This document deals with the database construction for quantitative analysis of VR sickness that are willing to opened publicly by contributors for supporting further research in VR sickness level’s grading. |
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# Introduction

VR sickness can be an inhibitor to the spread of the industry that users can experience when flaming VR content in the VR industry. There have been many studies for the quantification of VR sickness, and the absence of data from clinical trials has made comprehensive research difficult. Therefore, it is hoped that more in-depth research in the relevant field will be conducted by disclosing data from clinical trials to quantify VR sickness phenomena.

# Overview

## Purpose

This document deals with the database construction for quantitative analysis of VR sickness that are willing to opened publicly by contributors for supporting further research in VR sickness level’s grading.

## Scope

The standard describes the guideline that has the methods on creating reference content and measuring VR sickness for object/quantitative analysis of physiological symptoms arising from viewing VR content.

# Definition

* TBD

# Dataset for quantitative analysis of VR sickness

The dataset consist of 4 categories; creating VR scenes for VR sickness measurement, designing the protocol for subjective VR sickness evaluation, public database format for analysis of VR sickness, and the method on quantitative analysis of VR sickness.

<Table 1> Standard provisions for dataset of VR sickness

|  |  |  |
| --- | --- | --- |
| Main category | subcategory | Note |
| 1. Creating VR scenes for VR sickness measurement | 1.1. Categorizing scenes along VR sickness level | Grouping the VR scenes along the sickness level |
| 1.2. VR contents params. Inducing VR sickness | Factors on VR contents |
| 2. Designing the protocol for subjective VR sickness evaluation | 2.1. VR sickness measuring protocol | Overall procedure of obtaining data |
| 2.2. Clustering of subjects | Age and sex |
| 2.3. Agreement format | Ethics and IRB on subjective test |
| 2.4. Obtaining personal VR sickness susceptibility | In order to reflect individual differences |
| 2.5. Measuring Physiological signals | Detailed measurements of biological signals |
| 2.6. Designing the tutorial session | Reflecting the demand characteristics of human |
| 2.7. Resting and assessing |  |
| 3. Public database format for analysis on VR sickness | 3.1. Database for VR sickness | Data format of VR contents and scenes |
| 3.2. Objective measurement | Data format of objective measurements |
| 3.3. Subjective measurement | Data format of subjective measurements |
| 4. The methods on quantitative analysis of VR sickness | 4.1. Analysis on system params – VR sickness | Statistical analysis |
| 4.2. Analysis on physiological signal – VR sickness | Statistical analysis |
| 4.3. Analysis on gaze – VR sickness | Statistical analysis |
| 4.4. Predictive model for the level of VR sickness via machine learning | Using supervised learning |

# Conclusion

This document lead to expanding VR content market via guaranteed human’s physical safety, triggering further in-depth R&D for reducing VR sickness, and increasing the revenue in terms of royalties or the authorization fee for the proprietary standard related to the large-scale clinical test dataset.