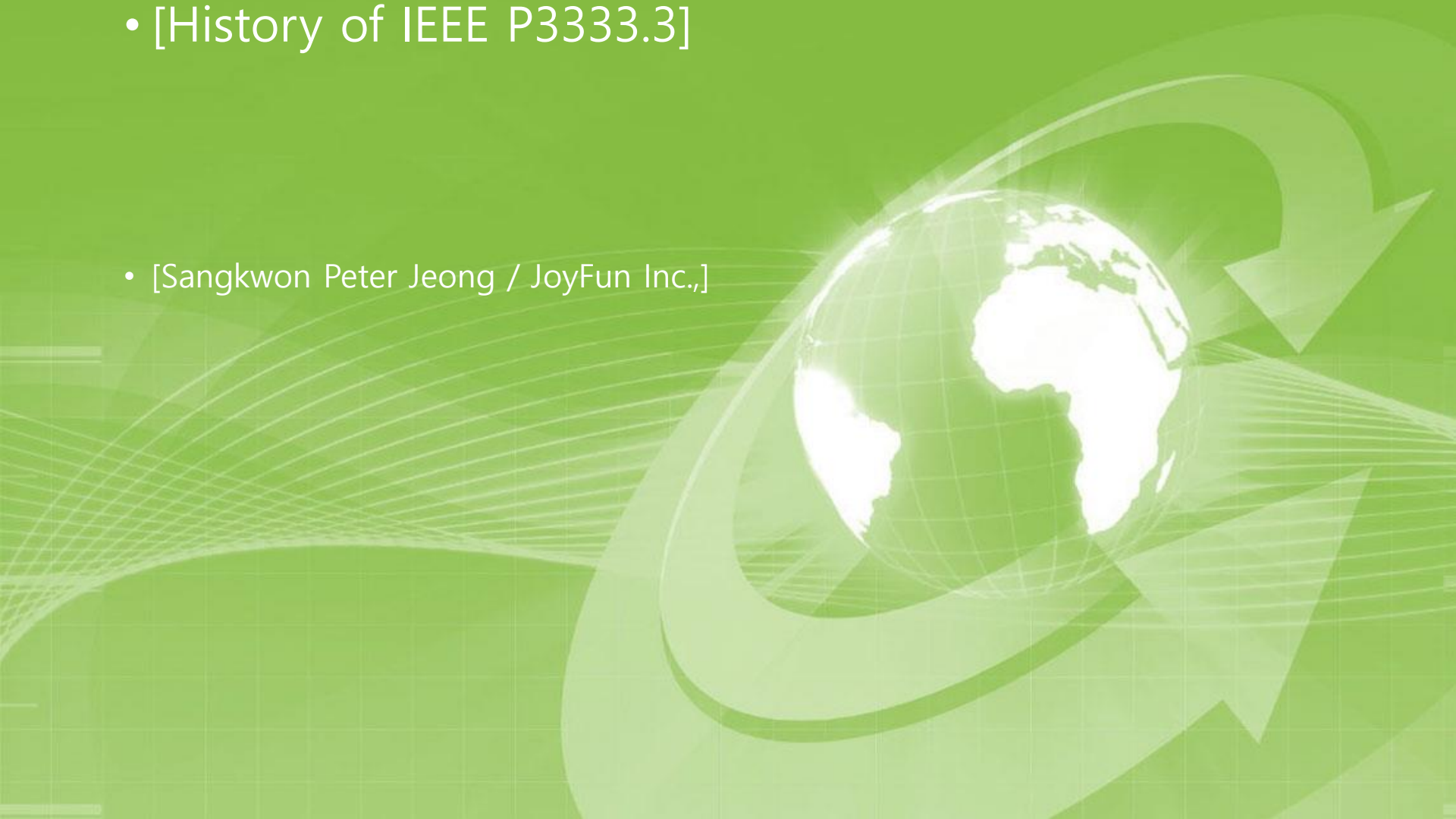


- [History of IEEE P3333.3]

- [Sangkwon Peter Jeong / JoyFun Inc.,]



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History of IEEE P3333.3

Date: 2017-04-23

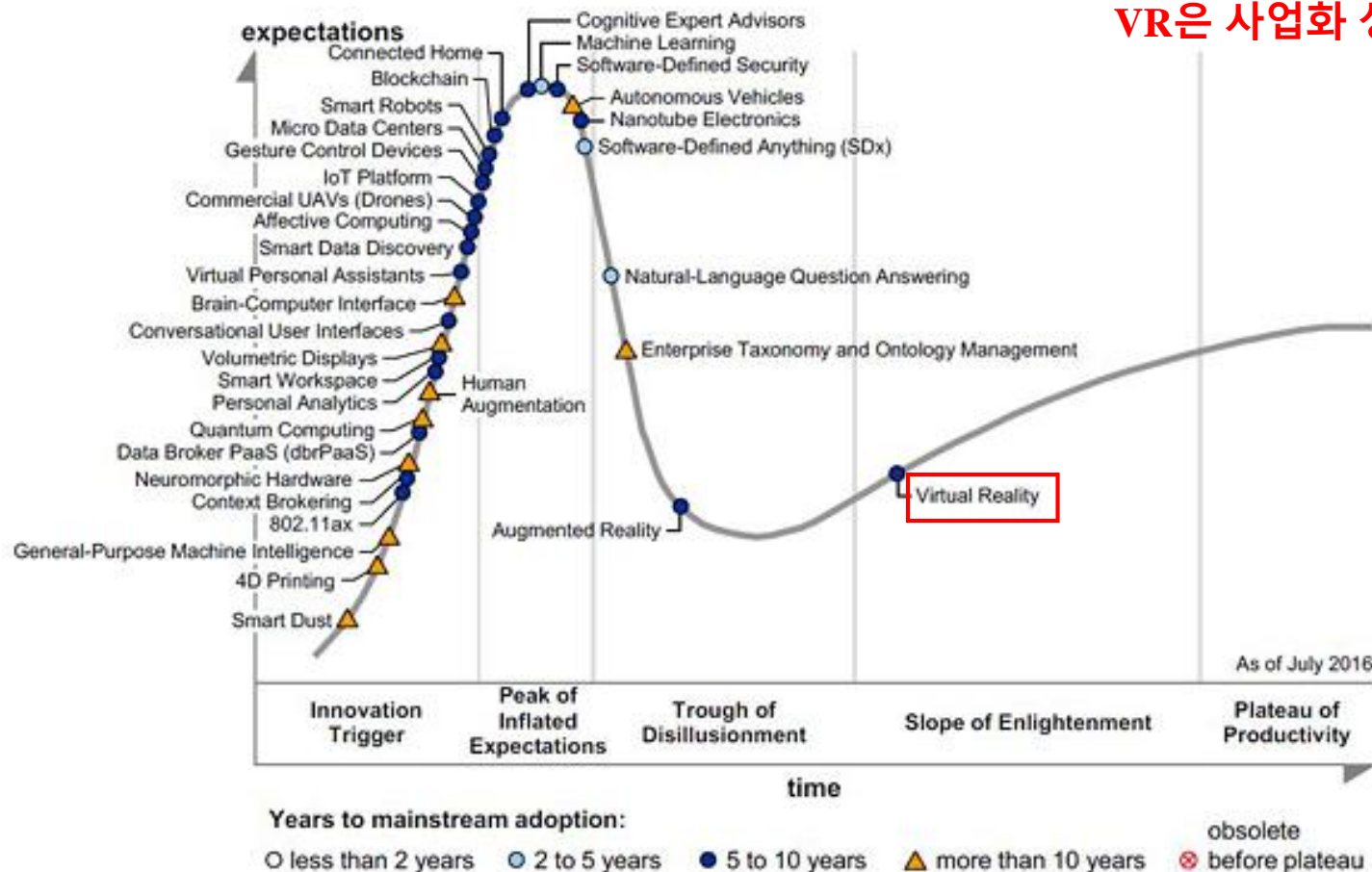
Author(s): Sangkwon Peter Jeong

Name	Affiliation	Phone [optional]	Email [optional]
Sangkwon Peter Jeong	JpyFun Inc.,	+82 10 8667 7329	ceo@joyfun.kr

1st Considering

Hype Cycle for Emerging Technologies

VR은 사업화 성장기에 진입



Source: Gartner (July 2016)

2nd Considering



<Cardboard of Google>



<Baofeng Mojing V>



<Gear VR2 of Samsung>



<360 VR of LG>



<Oculus Rift of Facebook>

2016. 03. 28



<VIVE of HTC>

2016. 03. 01



<PS VR of SONY>

2016. 10. 13

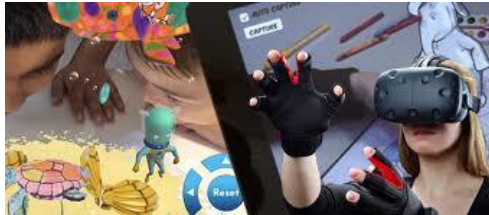


<Alloy of Intel>

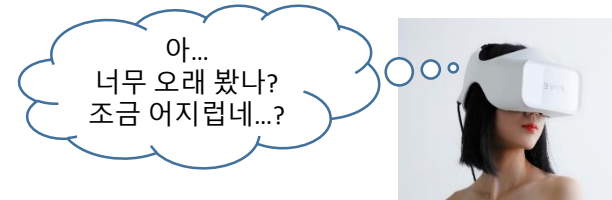
미정

High-End의 HMD 기반 VR 장치들은 대부분 2016년에 출시.
VR 서비스의 대중화가 본격적으로 시작

3rd Considering



<VR Book>



<Stereoscopic 3D Human Factor>



<VR Training>

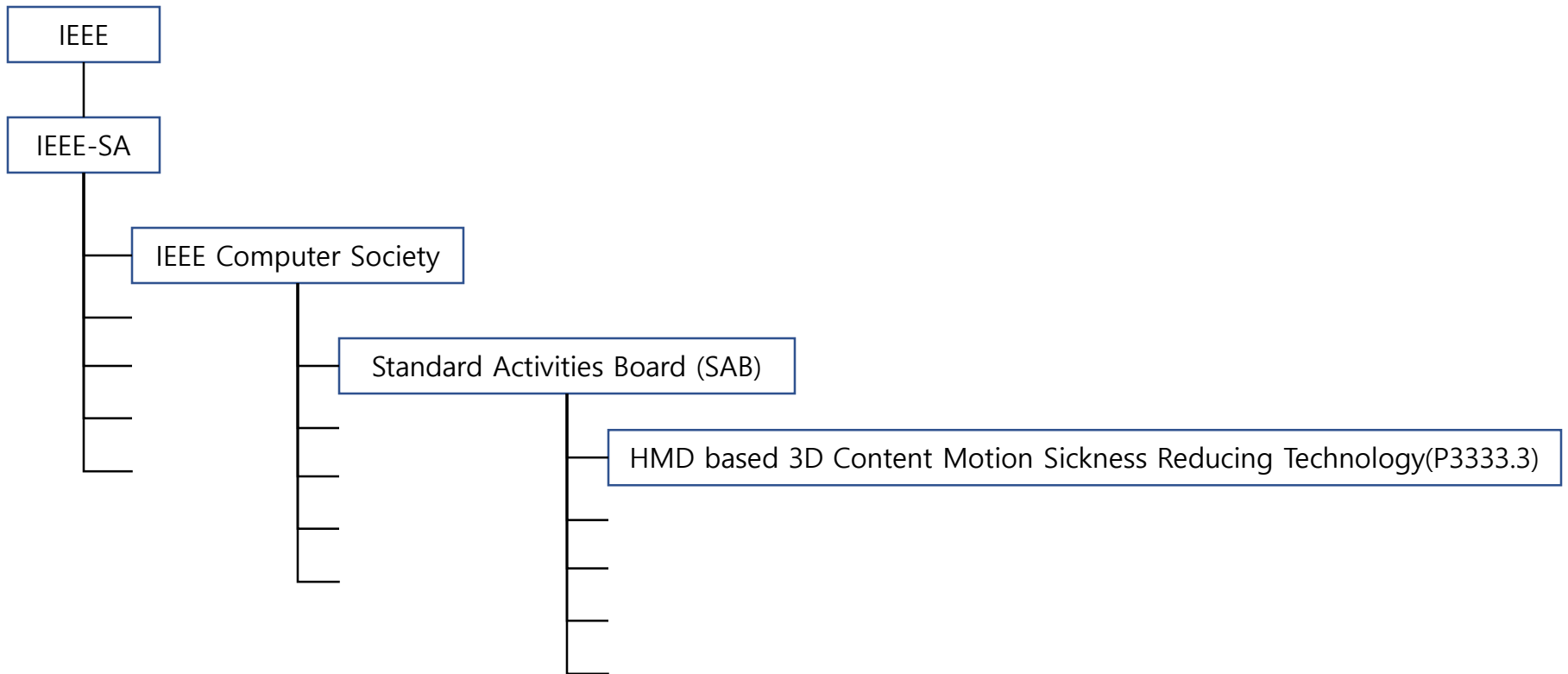
Reset Syndrome



<VR Game>

[Alice Syndrome]

IEEE P3333.3 Position



<p>P3333.1.2 (New)</p> <hr/> <p>Submitter Email:ceo@joyfun.kr</p> <p>Type of Project:New IEEE Standard</p> <p>PAR Request Date: 02-Jun-2016</p> <p>PAR Approval Date:</p> <p>PAR Expiration Date:</p> <p>Status: Unapproved PAR, PAR for a New IEEE Standard</p>	<p>5.3 Is the completion of this standard dependent upon the completion of another standard: No</p> <p>5.4 Purpose: This document will not include a Purpose clause</p>
<p>1.1 Project Number:P3333.3</p> <p>1.2 Type of Document: Standard</p> <p>1.3 Life Cycle: Full Use</p>	<p>5.5 Need for the Project: HMD-based MR / VR 3D technology, Oculus rift are merged into Facebook after a first introduction into the world of virtual reality by HMD, while Microsoft has implemented a full-scale MR services through Hololens has attracted attention as a next-generation display technology. In addition, the world's HMD-based MR / VR unit sales are expected to show an annual growth rate of at least about 36%, from 14 million in 2016 to about 38 million units in 2020. In addition, the MR / VR-related H / W and S / W market is expected to grow to about \$ 70 billion in 2020.</p> <p>HMD-based demand and supply, as the increase for the MR / VR 3D technology, the development of accurate perceptual quality evaluation technique is to be carried out proactively to develop the related products and industrial applications.</p>
<p>2.1 Title:</p> <p>Standard for the Perceptual Quality Assessment of HMD(Head Mounted Display)-based MR/VR(Mixed Reality/Virtual Reality) Three Dimensional (3D) Content on Physiological Mechanisms</p>	<p>5.6 Stakeholders for the Standard: Manufacturers of HMD-based MR/VR 3D content, games, display content, educational content, movie makers, HMD-based MR/VR display panel and HMD-based MR/VR devices;</p> <p>Service providers of HMD-based MR/VR 3D display content such like movie, TV shows, games, etc.</p>
<p>3.1 Working Group: Quality Assessment of Three Dimensional (3D) Contents based on Psychophysical Studies Working Group (C/SAB/P3333.1_WG)</p> <p>Contact Information for Working Group Chair</p> <p>Name:Sanghoon Lee</p> <p>Email Address: slee@yonsei.ac.kr</p> <p>Phone:+82-2-2123-2767</p> <p>Contact Information for Working Group Vice-Chair</p> <p>None</p>	<p>Intellectual Property</p> <p>6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?:No</p> <p>6.1.b. Is the Sponsor aware of possible registration activity related to this project?:No</p>
<p>3.2 Sponsoring Society and Committee: IEEE Computer Society/Standards Activities Board (C/SAB)</p> <p>Contact Information for Sponsor Chair</p> <p>Name: Chuck Walrad</p> <p>Email Address: cwalrad@daven.com</p> <p>Phone: +1-650-580-3003</p> <p>Contact Information for Standards Representative</p> <p>Name: P. Eastman</p> <p>Email Address: peastman@cox.net</p> <p>Phone: +1-602-993-7085</p>	<p>7.1 Are there other standards or projects with a similar scope?: No</p> <p>7.2 Joint Development</p> <p>Is it the intent to develop this document jointly with another organization?:No</p>
<p>4.1 Type of Ballot: Individual</p> <p>4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot:</p> <p>4.3 Projected Completion Date for Submittal to RevCom:</p> <p>5.1 Approximate number of people expected to be actively involved in the development of this project: 10</p> <p>5.2 Scope: This standard establishes methods of quality assessment of HMD-based MR/VR 3D content on physiological mechanisms such as perceptual quality and visual attention. This standard identifies and quantifies the following:</p> <p>causes and visual attention of perceptual quality degradation for HMD-based MR/VR 3D image and video contents: compression distortion, such as multi-view image and video compression, interpolation distortion by intermediate view rendering, such as HMD-based MR/VR 3D warping, view synthesis, structural distortion, such as bit errors on wireless/wired transmission errors, visual attention according to the quality degradation.</p> <p>Key items needed to characterize the HMD-based MR/VR 3D database in terms of the human visual system. These key factors are constructed in conjunction with the visual factors used to perceptual quality and visual attention.</p>	<p>8.1 Additional Explanatory Notes (Item Number and Explanation):</p> <p>In order to make the progress of standard activity, we need international participation and collaboration. In addition, technically, we need an associated project to work with the working group. This project will be a technical sponsor to verify whether the technical standard issues are important or not. Since this project is world-wide, we expect that a lot of industry and academy in the signal processing area will join the activity.</p> <p>In Korea, we have a government organization named 'Korea Electronics Association', which supports such standard initiation and activity as long as the technologies are important in near future. In the 3D-processing meeting group, major academy, industry, and government research institutes have been working on the preparation of coming world-wide standard activity.</p> <p>(Adequate participants)</p> <p>Once a WG is launched, the WG will be opened to all the people eventually. We expect that many companies including manufacturers of 3D display devices and service providers of HMD-based MR / VR 3D contents should participate the effect of this project, which may lead the HMD-based MR / VR 3D-related markets growth rapidly.</p> <p>The purpose of this standard is to define quality metrics for the quality assessment, and establish guidelines for reducing risks to users entertaining HMD content over HMD displays, and HMD devices. The major parameters dealt with in this standard include viewers' characteristics, visual contents, visual environment, display and devices described in the scope. Although metrics and methods for assessing quality of images and videos on 2 dimensional (2D) displays have been established, there has been little progress in doing so in the field of the 3D domain. This is, in part, due to the fact that 3D quality metrics need to take into account additional factors accrued from the dimension extension. Since the visual quality is eventually determined by the human eye, this standard will define how each human factor makes an effect on the visual quality over the 3D domain. This standard provides objective 3D image and video quality metrics that are in agreement with subjective human judgments and previous researched in the academy and the industry.</p>

PAR Submitted

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Submission Status ▼	Committee	PAR Number	Request Type	Title	Comments
Submitted by SangKwon Jeong 17-Aug-2016 C/SAB		P3333.3	PAR Request	HMD based 3D Content Motion Sickness Reducing Technology	0

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<p>P3333.3 (New)</p> <hr/> <p>Submitter Email:ceo@joyfun.kr</p> <p>Type of Project:New IEEE Standard</p> <p>PAR Request Date: 10-Aug-2016</p> <p>PAR Approval Date:</p> <p>PAR Expiration Date:</p> <p>Status: Unapproved PAR, PAR for a New IEEE Standard</p> <hr/> <p>1.1 Project Number:P3333.3</p> <p>1.2 Type of Document: Standard</p> <p>1.3 Life Cycle: Full Use</p> <hr/> <p>2.1 Title: HMD based 3D Content Motion Sickness Reducing Technology</p> <p>3.1 Working Group: Working Group of Technology for 3D Sickness protection based on HMD (C/SAB/P3333.3_WG)</p> <p>Contact Information for Working Group Chair Name:Dongil Seo Email Address:dillon@volercreative.com Phone:+82-10-3135-3194</p> <p>Contact Information for Working Group Vice-Chair None</p> <p>Contact Information for Working Group Secretary Name:Sangkwon Jeong Email Address:ceo@joyfun.kr Phone:+82-10-8667-7329</p> <hr/> <p>3.2 Sponsoring Society and Committee: IEEE Computer Society/Standards Activities Board (C/SAB)</p> <p>Contact Information for Sponsor Chair Name: Email Address: Phone:</p> <p>Contact Information for Standards Representative Name: Email Address: Phone:</p> <hr/> <p>4.1 Type of Ballot: Individual</p> <p>4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: Dec / 2016</p> <p>4.3 Projected Completion Date for Submittal to RevCom: Oct / 2018</p> <hr/> <p>5.1 Approximate number of people expected to be actively involved in the development of this project: 40</p> <p>5.2 Scope: This standard is setting a technical guidance to resolve VR sickness caused by the visual mechanism set by the HMD based 3D content motion sickness through the study of:</p> <p>visual response to the focal distortion visual response to the lens materials visual response to the lens refraction ratio visual response to the frame rate</p> <p>5.3 Is the completion of this standard dependent upon the completion of another standard: No</p> <p>5.4 Purpose: This document will not include a Purpose clause</p>	<p>5.5 Need for the Project: HMD based 3D content is being used in various fields such as games, medical, education and art through Mixed Reality (VR and AR included) technology. However, a motion sickness, known as a 3D sickness and considered as one of the most critical problems, has not been resolved even though it is highly utilized. Major companies from various regions such as the United States, Europe, Japan, China and Taiwan are releasing many devices and commercializing them but the industrial expansion will reach its limit if this 3D sickness problem is not resolved. To overcome this limit, we are suggesting a minimum guideline as a standard by studying some of the 3D sickness originating factors such as focal distortion, lens materials, lense refraction and frame rates per second. Moreover, our attempt to resolve this 3D sickness problem will facilitate the development of HMD based 3D content and will influence the 3D content developers, service providers, HMD manufacturers, HMD based content service providers and 3D display panel manufacturers very positively in developing a healthy ecosystem. Therefore, a standard to reduce the motion sickness caused by HMD based 3D content needs to be established in order to protect the user's health and safety and develop the ecosystem.</p> <p>5.6 Stakeholders for Standards: 3D Content, 3D Games, 3D Display Content, 3D Educational Content, 3D Movie Producers, 3D Monitors, 3D Display Panel and 3D Device Manufacturers;</p> <hr/> <p>Intellectual Property</p> <p>6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?:No</p> <p>6.1.b. Is the Sponsor aware of possible registration activity related to this project?:No</p> <hr/> <p>7.1 Are there other standards or projects with a similar scope?: No</p> <p>7.2 Joint Development Is it the intent to develop this document jointly with another organization?:No</p> <hr/> <p>8.1 Additional Explanatory Notes (Item Number and Explanation):</p> <p>In order to support this research, we need to collaborate with many International Experts. Technically, we also need a working group and a project related to this group. This project will be a technical sponsor that determines the importance of this technology standard problem. This project will be available world-wide so many industrial circles and academia are expected to participate.</p> <p>In Korea, HMD based 3D content developers consider this 3D sickness as a serious problem and many research projects are being conducted to resolve this. Also, it is known that many global companies are conducting the same research. When WG starts, this will open to everyone. We will encourage many companies related to MR, VR service as well as many R&D centers from academia to participate and expect them to join this project.</p> <p>The main objective for this standard is to establish a minimum guideline that can create an environment for users to use the HMD based MR, VR service 3D content safely.</p> <p>The variables this standard include focal distortion, lens materials, lens refraction and FPS. Also, the project will provide the minimum guideline for these variables.</p>
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2016. 8. 21.

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Sponsor Acceptance of PAR Submittal for P3333.3

To: "PAR Request Submitter" <ceo@joyfun.kr>, "C/SAB Chair" <peastman@cox.net>, "C/SAB Chair" <p.eastman@computer.org>
Cc: "C/SAB Standards Representative" <mark.paulk@ieee.org>, "C/SAB Standards Representative" <mark.paulk@utdallas.edu>, "C/SAB Project Staff Liaison" <s.h.kim@ieee.org>, "Dave Ringle" <d.ringle@ieee.org>, "Gregory Marchini" <g.marchini@ieee.org>, "Lisa Weisser" <l.weisser@ieee.org>, "Nicholas Nalywayko" <n.nalywayko@ieee.org>
Subject: Sponsor Acceptance of PAR Submittal for P3333.3

The Project Authorization Request (PAR) that you have submitted for P3333.3 has been accepted by the Sponsor and will be considered at the 6-Dec-2016 NesCom meeting.

If you should have any questions, please contact the NesCom Administrator via e-mail at nescom-admin@ieee.org.

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Submitted PARs

COMMENTS:

If comments are available regarding the PAR, you will view and respond to them here.

Submission Status ▼	Committee	PAR Number	Request Type	Title	Comments
Submitted by SangKwon Jeong 17-Aug-2016 Sponsor Authorized 21-Aug-2016	C/SAB/P3333.3/3333.3	P3333.3	PAR Request	Head Mounted Display (HMD) Based 3D Content Motion Sickness Reducing Technology	3

PAR Approved

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Active PARs | C/SAB | P3333.3 REFRESH

PAR Number	Project Type	Committee	Title	Scope	Purpose	Approval Date	PAR Expiration	Invitation Close Date	Ballot Close Date	Status
P3333.3	New	C/SAB/P3333.3	Head Mounted Display (HMD) Based 3D Content Motion Sickness Reducing Technology	This standard is setting a technical guidance to resolve Virtual Reality (VR) sickness caused by the visual mechanism set by the HMD based 3D content motion sickness through the study of:	visual more...	7-Dec-2016	31-Dec-2020			WG Draft Development

The background is a solid blue color with several white, curved, overlapping lines that create a sense of motion and depth. The lines are most prominent in the upper left and lower right areas, curving towards the center.

Thank You