AKADEMIA GÓRNICZO-HUTNICZA
IM. STANISŁAWA STASZICA W KRAKOWIE

AGH UNIVERSITY OF SCIENCE
AND TECHNOLOGY

RESEARCH
UNIVERSITY
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A
Crowdsourcing Study
of
Video Quality Assessment

Author: Avrajyoti Dutta | avrajyoti.dutta@agh.edu.pl
Supervisor: Prof. Dr. hab. inz. Mikołaj Leszczuk | mikolaj.leszczuk@agh.edu.pl
Co-Supervisor: Dr. inz. Dawid Juszka | dawid.juszka@agh.edu.pl
Institute of Telecommunications
Discipline: Information & Communication Technology
Unit: Faculty of Computer Science, Electronics & Telecommunications

agh.edu.pl

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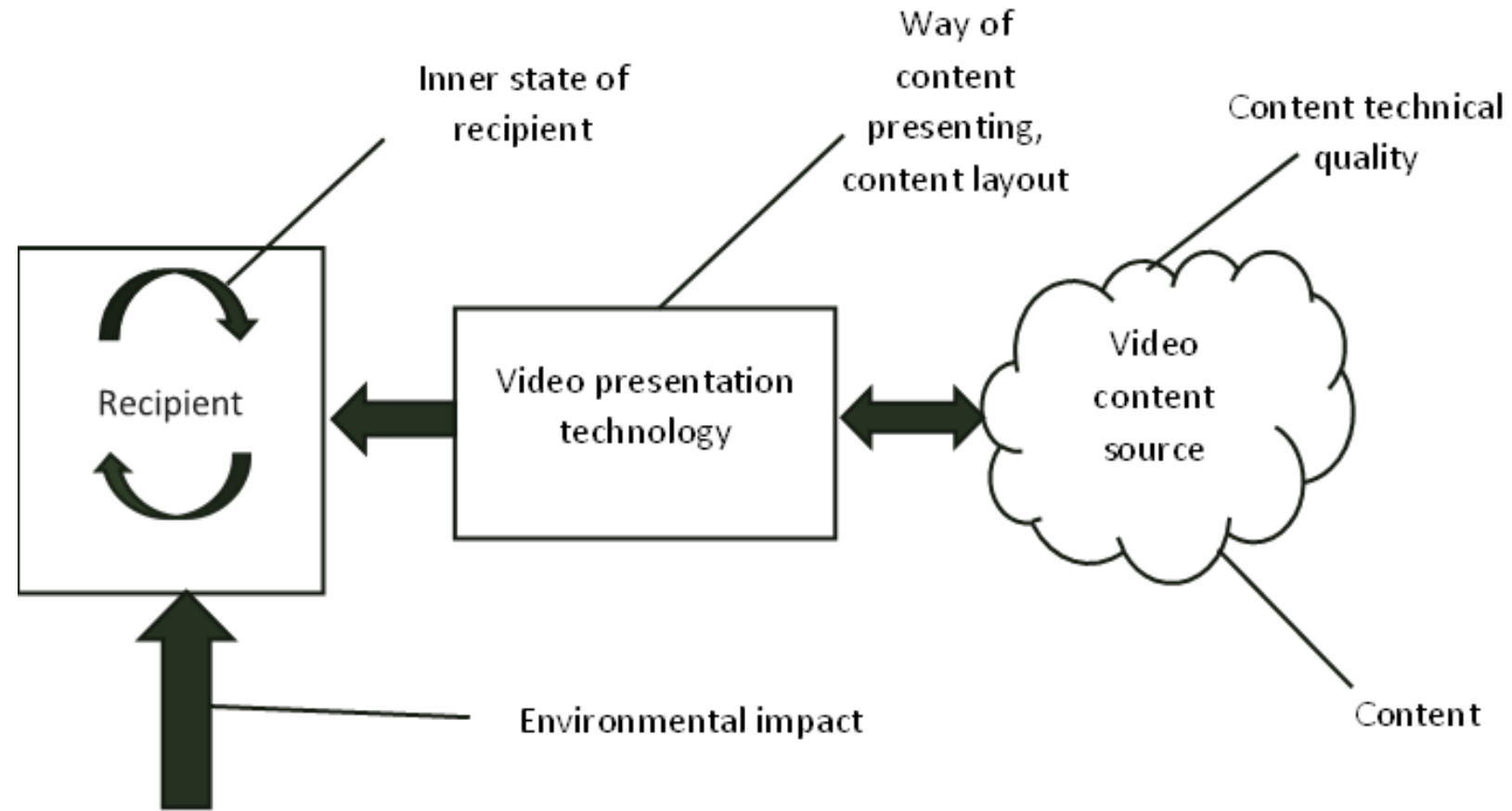
Motivation:

Figure 01: Factors impacting recipient's perception

<u>Introduction</u>:

Evaluation of video quality is a crucial topic for Internet content providers (ICPs) to address to enhance their service. Although there have been some studies on evaluating objective video quality, real-time evaluation is still a challenging task. The development of a web interface for assessing video clips' quality is covered in this work. Approximately 55 minutes were required for the full experiment or to assess the quality of video clips.

Web Version Link of the Experiment:
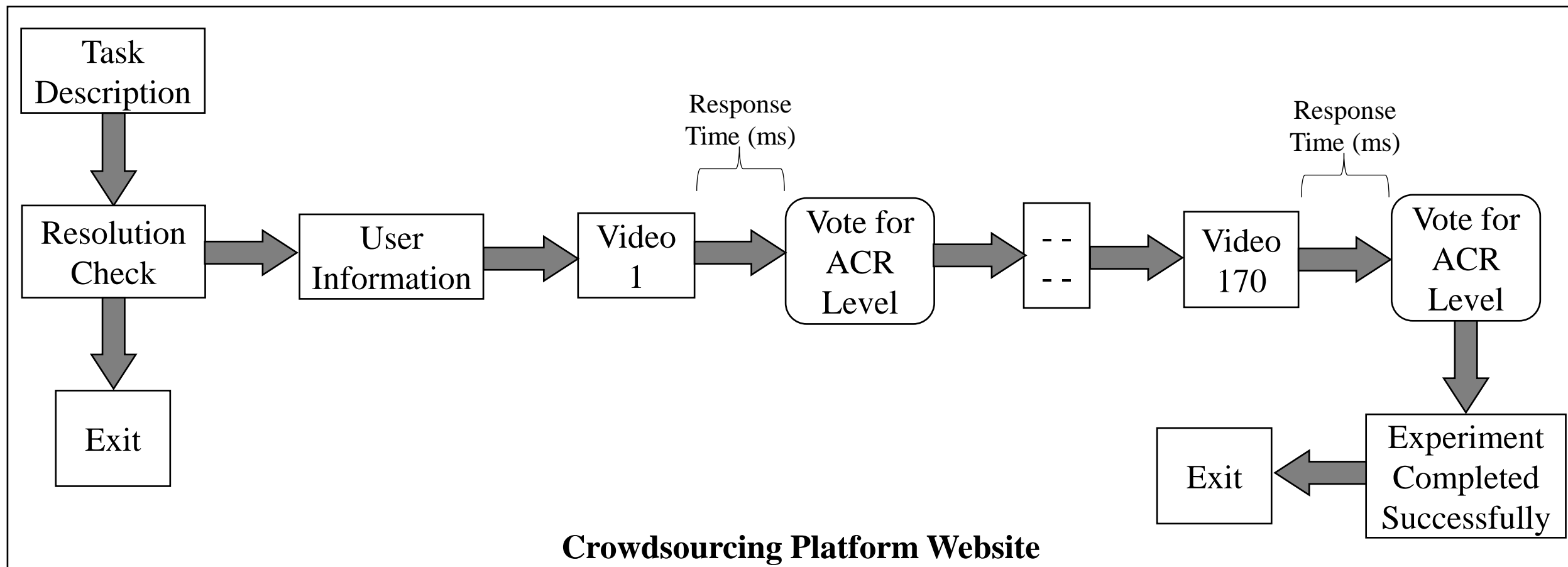http://pbz.kt.agh.edu.pl/~testySubiektywne/QoE_Dutta/final/

Flowchart:

Figure 04: Flowchart of the experiment

<u>Scientific Experiment:</u>

CrowdQoE - Video Quality Assessment Website

Hi!

Welcome to the Video Quality Assessment Test. The results of your test will be used in our further research into video quality algorithm systems.

The test is best done using the Google Chrome web browser, in the latest version, working in Incognito mode (instructions).

If you do not have this browser, you can download it by clicking on this link.

The test will take you about maximum 60 minutes. We will be grateful if you dedicate this time to us. You are a voluntary participant in the test, you can stop it at any time. However, we encourage you to continue the study.

The information collected will only be used to evaluate the quality of the video summaries. We value your privacy and do not collect personal information or share it with third parties.

Short guidelines of the experiment

1. During the experiment, one video (without audio) will be displayed sequentially of an approximately 15 seconds (games, sports, reportage or news).
2. The test consists in watching and assessing the quality of short video summaries. By "summary" we mean a shortened, condensed version of the original video.
3. After viewing a video, your task will be to choose the quality of the video you think is better.
4. It is up to you what criteria you will use to determine the superiority of one variant of the abstract over the other.
5. Please do not use the "Mobile Phone" during the experiment.
6. Please do not use the "Back Button" during the experiment.
7. Press F11 (for better experience) when starting the experiment.
8. When the test is complete, a test completion message will appear.

Thank you for your willingness to participate in the experiment.

AGH Video Quality of Experience (QoE)

For any questions related to this test, please contact us via e-mail: avrajyoti.dutta@agh.edu.pl.

Warning: For this experiment, please use a PC, desktop, or laptop.

Start

Figure 02: Preview of "Guidelines Page"

User Information

Country:

Choose ▾

Please select your country

Age:

○ Below 18
○ 19 to 30
○ 31 to 45
○ Above 45

Gender:

○ Male
○ Female
○ Other

Education Group:

○ Primary School
○ GCSEs or Equivalent
○ University Undergraduate Programme
○ University Post-Graduate Programme
○ Doctoral Degree

Education Type:

○ Administrative
○ Agricultural/ Forestry
○ Artistic
○ Economic
○ Engineering and Technology
○ Humanistic
○ Legal
○ Medical
○ Military and Naval
○ Pedagogical
○ Psychological
○ Social
○ Tourism and sports
○ Other

Subjective Mood Assessment:

○ Positive (+)
○ Neutral (0)
○ Negative (-)

Subjective Feeling of Tiredness:

○ High
○ Medium
○ Low

Interests:

○ Art
○ Beauty
○ Cars, automotive
○ Cinema, movies
○ Cooking, food
○ Electronics
○ Entertainment
○ Gaming
○ Health
○ History
○ IT, Computers
○ Literature
○ Multimedia
○ Music
○ Nature
○ Photography
○ Science
○ Sport
○ Theatre
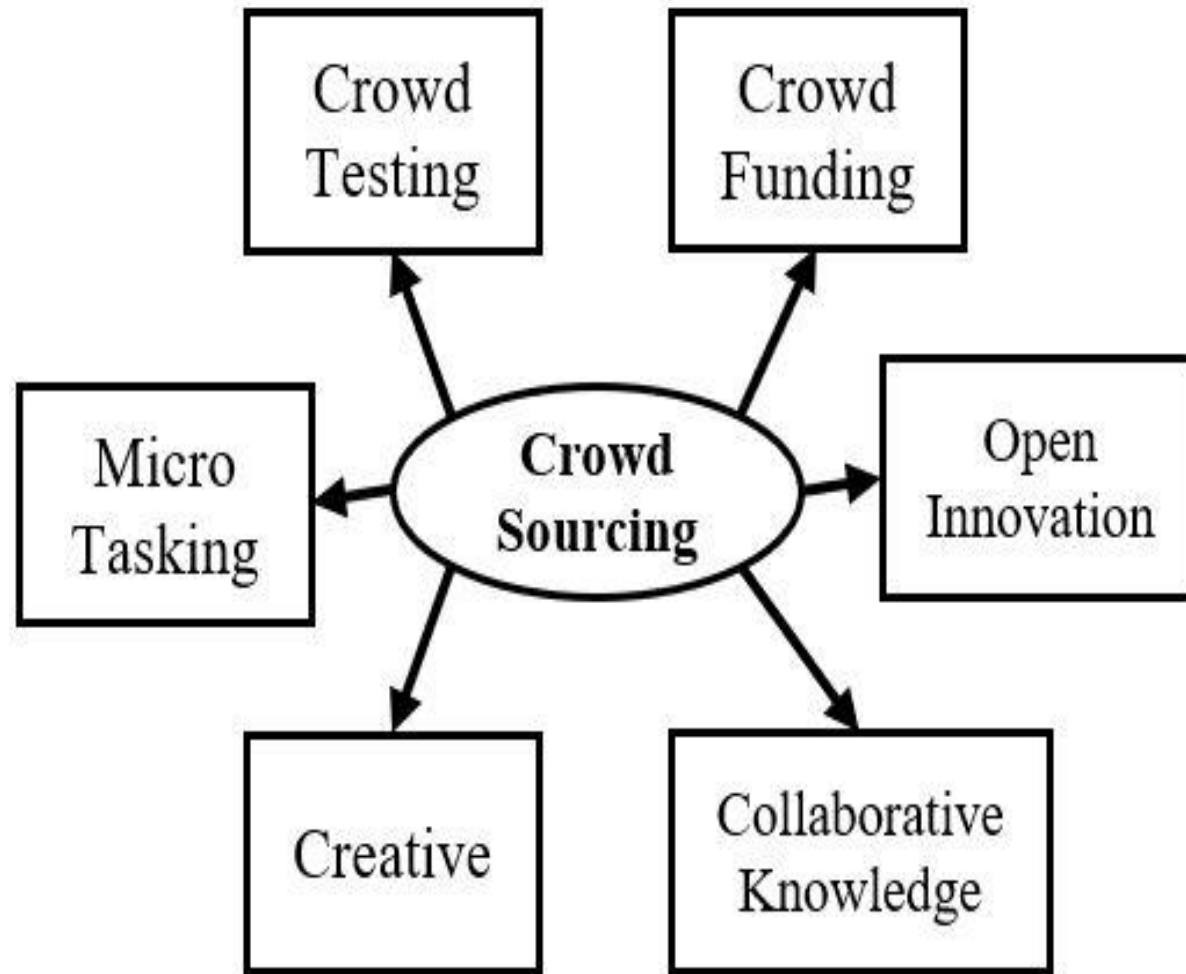○ Travelling

Crowdsourcing:

Figure 03: Different types of crowdsourcing

- Technique

- Via an online platform

- Divided into small parts

- Large group of individuals

- Impossible for machines to do

- More comprehensive

- Short period

- Low cost

Experiment Parameters (Summary):

Parameters	Specifications
Crowdsourcing Platform	PHP, HTML5, JS & CSS at AGH University Web Server
No. of Participants	47
Education Group	Engineering Undergraduate Students
Total Different Logic	6
Processed Video Sequence (PVS) Datasets	170
Experiment Duration	55 minutes
Total No. of Votes Collected	8219
Participant's Platform	Laboratory Desktop Computer/ Laptop
Length of video clips	9 to 21 seconds
Video Databases	Netflix, CableLabs, SJTU Media Lab and Xiph.org
Video Resolution	Full HD (1080x1920 pixels)
Video Source	News, Sports, Entertainment

position 5filename config-p2-sp2.xlsxhighest sheet - 181

Figure 05: Preview of 'Video Clips'

This is the voting section of the previous video

Which quality best describes the previous video?
Please Vote!!

○Excellent

○Good

○Fair

○Poor

○Bad

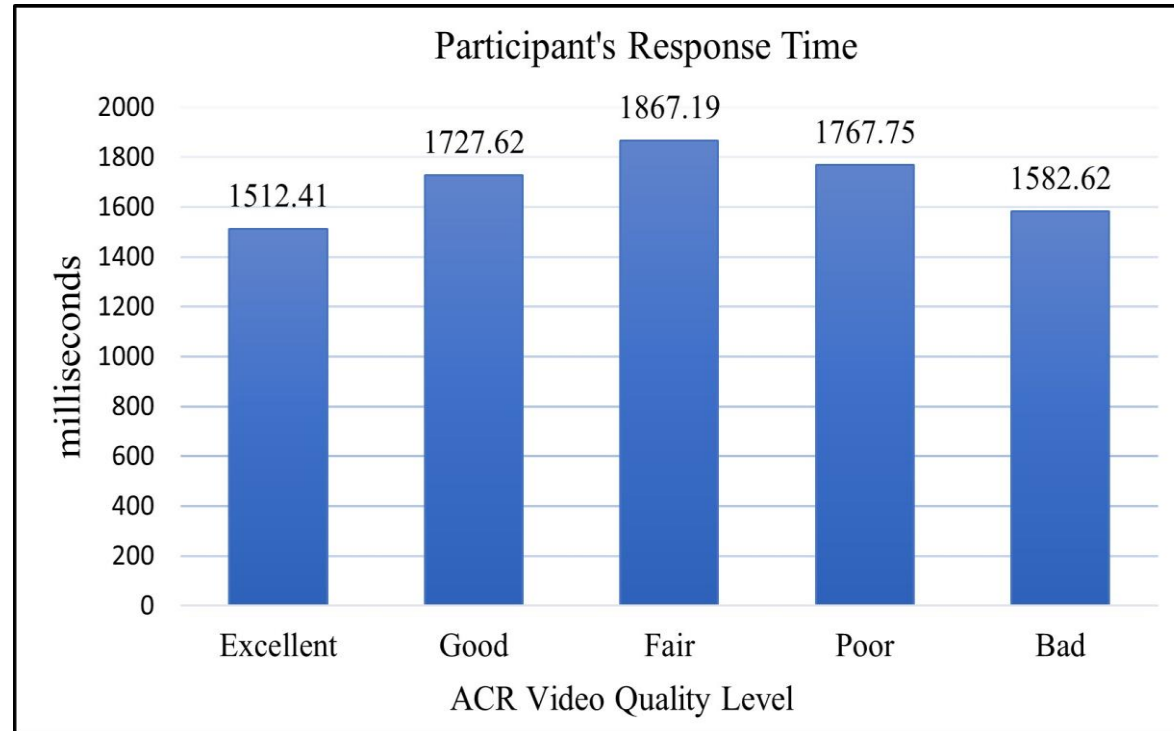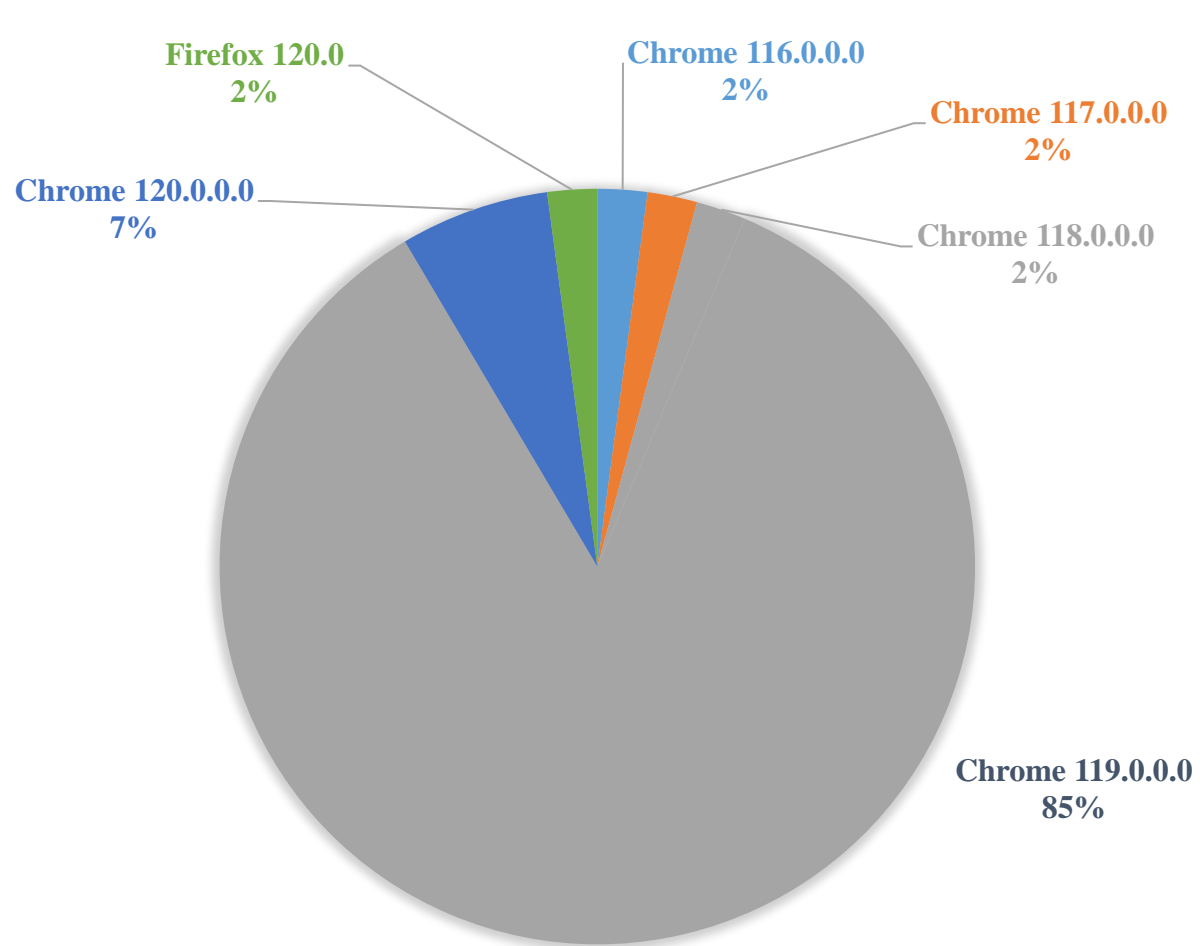Figure 06: Preview of 'Voting Page'

Preliminary Results:

Figure 07: Response time

ACR Video Quality Level	Mean Response Time (ms)	SD (ms)
Excellent (5)	1512.41	870.142
Good (4)	1727.62	960.115
Fair (3)	1867.19	1042.44
Poor (2)	1767.75	1020.17
Bad (1)	1582.62	869.601

Table 01: Statistical analysis

Technical Specifications (Background):

BROWSER VERSION

- Chrome 116.0.0.0 — 2%
- Chrome 117.0.0.0 — 2%
- Chrome 118.0.0.0 — 2%
- Firefox 120.0 — 2%
- Chrome 120.0.0.0 — 7%
- Chrome 119.0.0.0 — 85%

OPERATING SYSTEM

- Linux — 4%
- Mac — 7%
- Windows — 89%
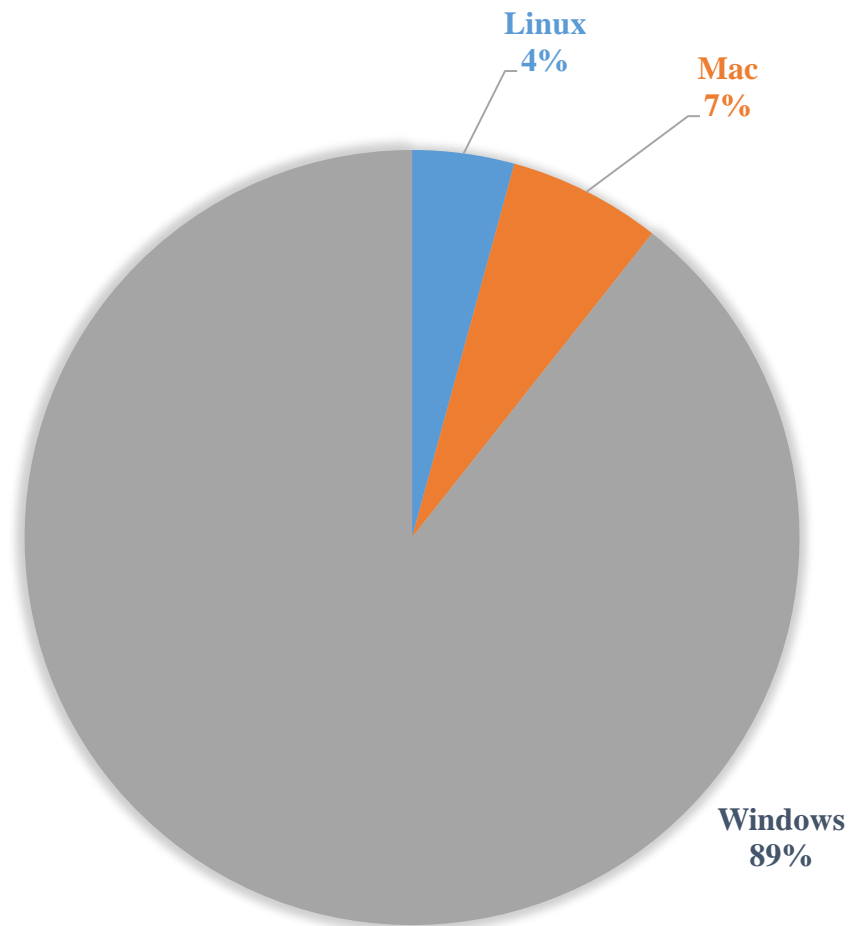
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Publications:

1) Accepted (2024): **A Dutta,** T. Konaszyński, D. Juska, M. Leszczuk; "A Crowdsourcing Study of Video Quality." Telecommunications Review - Telecommunications News KRiT 2024, on 21st June, 2024.

2) Submitted (2024): **A Dutta,** D. Juska, M. Leszczuk; "Crowdsourcing Evaluation of Video Summarization Algorithm." International Journal of Electronics and Telecommunications, on 13th March, 2024

3) Published (2023): **A Dutta,** D. Juska, M. Grega, M. Leszczuk; 2023, "Subjective Quality Assessment of Video Summarization Algorithms: A Crowdsourcing Approach" vol. 96, no. 4, pp. 333 - 336, Telecommunications Review - Telecommunications News on 20th September, 2023. DOI: http://dx.doi.org/10.15199/59.2023.4.75

Thank You !!