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Committee on WIPO Standards (CWS)

Eighth Session
Geneva, November 30 to December 4, 2020

REPORT BY THE 3D TASK FORCE

Document prepared by the 3D Task Force Leader

BACKGROUND

1.   At its seventh session held in July 2019, the Committee on WIPO Standards (CWS) noted the progress of the 3D Task Force on Task No. 61: "Prepare a proposal for recommendations on three-dimensional (3D) models and images." In particular, the CWS approved a questionnaire on the use of 3D for IP Offices (IPOs), and noted a model questionnaire for industry on use of 3D. The CWS requested the International Bureau to issue a circular inviting IPOs to respond to the questionnaire for Offices, and to attach the model industry questionnaire as an annex to the circular for Offices to consider. The CWS encouraged Offices to collect the data indicated in the model survey questionnaire from their applicants for consideration by the 3D Task Force. The Russian Federation is the Task Force leader. (See paragraphs 91 to 101 of the document CWS/7/29.)

PROGRESS REPORT

2.   The Task Force leader published on the Task Force wiki a draft Table of Contents for the Recommendations and the Work Plan for 2020. These items were agreed by the Task Force following comments and remarks from the Task Force Members at an online meeting in October 2019.

3.   In November 2019, the International Bureau issued circular C.CWS.129 inviting Offices to participate in the survey on use of 3D approved at the seventh session of the CWS, and provide their responses by December 2019. In addition to the survey of IPOs, a second model questionnaire was included for IPOs to collect information from industry stakeholders. Following the IPO survey, the International Bureau provided the Task Force with the survey responses for further discussion and analysis.

4.   The IPO survey received 30 responses, which are reported in document CWS/8/11. Some Offices also collect information from their local industries using the model questionnaire for industry presented at the seventh session of the CWS. The Task Force received information collected from industry from the following IPOs: Germany, Japan, and Russian Federation. The Industry information totaled 94 respondents: 74 from Russian Federation, 15 from Germany, 5 from Japan.

5.   Based on analysis of the surveys, a set of criteria for selecting formats is being developed by the Task Force, as well as recommendations on processing of 3D models and images at different stages of the IP lifecycle.

6.   The Russian Federation planned to host an in-person meeting of the 3D Task Force in April 2020. In February, the International Bureau issued circular C.CWS.132 inviting Offices to the meeting in Moscow on April 21-23. Due to the public health situation, the Task Force conducted an online meeting to discuss results of the surveys among Offices and industry, the set of criteria for selecting formats, and the draft recommendations on use of 3D. The Task Force members provided their comments on the documents at the meeting and via the wiki. Because the issues are complex, discussions are ongoing.

7.   The Task Force conducted discussions in July 2020, where the participating Task Force members discussed in more detail the content of the draft recommendations, as well as issues relating to file size and other limitations, publication and data exchange formats. The preliminary draft recommendations resulting from these discussions are made available on WIPO website[1] for information at this session.

8.   The Task Force continues to work on the draft recommendations, with a second round of discussions conducted in September and October 2020. The participating Task Force members again discussed comments on the draft recommendations from IPOs, including the list of recommended formats for different 3D objects, file size and other limitations, as well as adding a new proposed section, and requesting some clarifications regarding the draft documents. The Task Force continues its work and discussions according to the proposed work plan.

9.   The proposed work plan for 2021 is as follows:

Activity	Action Items	Tentative timeline
First round of discussion of the draft recommendations	Discuss updated draft recommendations with the TF Members, taking into account comments received from the Members	July 16, 2020
2nd round of discussion of the draft recommendations	Modification of draft recommendation	September 18, 2020
Eighth session of the CWS	− Progress report of the TF activity presented at the 8th session of the CWS − The survey results considered/adopted by the CWS − A proposal to set an additional task to study 3D search capabilities presented for consideration by the CWS	November 30- December 4, 2020

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[1] Available at https://www.wipo.int/edocs/mdocs/cws/en/cws_8/cws_8_item_17.pdf

Preparation of the study on search	Prepare the study of best practices and developments on search and comparison of 3D models and 3D images (if the proposal is adopted by the CWS)	After CWS/8 session
Study of the search and comparison of 3D models and 3D images	Carry out the study and analyze results	2021
3rd round of discussions of the draft recommendations (more rounds if necessary)	If necessary, carry out the 3rd round of discussion of the recommendations in order to finalize them for consideration/adoption at the 9th session of the CWS	2021
Preparation of documents for the 9th session of the CWS	Finalize documents that will be presented for consideration/adoption by the CWS at its 9th session	mid 2021
Presentation of the prepared documents at the 9th session of the CWS	Recommendations on 3D considered/adopted by the CWS Study on search and comparison of 3D models and 3D images considered/adopted by the CWS	9th session of the CWS (TBC)

PROPOSAL OF A NEW TASK FOR SEARCH CAPABILITIES

10.   According to the information received in the survey of IPOs, the number of IPOs accepting 3D models and 3D images is increasing. At present, the quantity of applications with 3D objects is not large. The majority of 3D object visual representations consist of 2D images, even at IPOs that already accept 3D visual representations within the application materials.

11.   Currently, most search engines used for the examination of 3D objects are focused on searching for 2D images. In this case, the search is carried out both by meta-data (image descriptions) and by images using neural networks. At the same time, IPOs are moving toward search automation where possible. These factors raise the question of how to approach searches when working with 3D models. The Task Force expects that the study of successful experience in creating search solutions for 3D models will contribute to the development of information retrieval systems of IPOs and facilitate the examination process.

12.   The Russian Federation reported its experience gained from a domestic pilot project in the search and comparison of 3D models and images. The pilot project used the following two basic algorithms:

    (a) "Covering" the surface of a 3D model[2] with a given number of reference points, calculating the distances between all points, converting the received data into a histogram of lengths with subsequent search, and comparing 3D objects using the histograms created by this system.

    (b) Applying neural networks and AI potential for training the test platform on the best practices of IP experts.

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[2] STEP or STL format for the pilot

13.   The Task Force proposes to study in detail the search capabilities for 3D models, best existing practices, promising technologies and criteria for comparison of three-dimensional models and 3D images. The Task Force Leader proposes updating the description of Task No. 61 as follows: "Prepare a proposal for recommendations on three-dimensional (3D) models and images, including methods of search for 3D models and 3D images."

14.   The CWS is invited to:

(a)   note the content of this document;

(b)   note the work plan of the Task Force for 2020-2021 set out in paragraph 9 above; and

(c)   consider and approve the proposed modification of Task No. 61 set out in paragraph 13 above.

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