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VIDEO ENCODING TO INCREASE VIDEO AVAILABILITY IN TELECOMMUNICATION SYSTEMS

Article shows presence of the imbalance caused by insufficient level of productivity of modern and perspective information communication technologies concerning information intensity of bit streams. It is described how imbalance level reducing can be formed as a result of increasing of information processing technologies efficiency and that JPEG platform is the basic concept for construction of technologies of compression representation. Therefore it is proposed to provide further development of video processing methods using individual components of the JPEG platform for improving the integrity of information in terms of ensuring the required level of its availability.:

Keywords: video image, integrity of information, areas of coherence, local-position coding.

Nowadays the development of information and communication technologies is accelerating as never before. Brand new technological concepts are being created such as quantum computing, 5G generation telecommunications systems, robotic systems, computer vision, intelligent technology, VR / AR applications. On the other hand, such technological breakthrough in the creation of IT concepts, in turn, provides background for the development of information services, increasing their popularity and quality. As a result, the level of imbalance between the capacity of existing and upcoming IT systems and the level of information load is not reduced. Moreover there is an increase in such an imbalance which level reaches 99%.

Reducing the level of imbalance is achieved by increasing the efficiency of information processing technologies [1 - 5]. At the same time, we have to face a contradiction due to the presence of an inversely proportional relationship between the amount of compressed representation of the video frame and the level of its information integrity [1-5]. Thus, increasing the efficiency of video data compression technologies is an urgent research and applied research issue.

Based on the assessment of the shortcomings of the existing methods of reducing the bit volume, it follows that to reduce the time delays for the delivery of the video it is necessary [5]:

1) to organize a reduction of the bit volume (RBV) of the video with a controlled level of visual assessments of based on the identification and approximation of the description of the elements for the areas of coherence;

2) to provide reduction of the bit volume relative to the code description of the characteristics of the areas of coherence should be carried out not only on the basis of

reducing statistical redundancy, but also on the basis of reducing structural redundancy.

Accordingly, the purpose of the research in this article is to create a method of reducing the bit size of video frames based on the detection and processing of their areas of coherence.

Achieving the required level of availability of information in terms of maintaining indicators of its integrity is proposed to organize on the basis of ensuring the reliability of the structural components of the relevant objects of interest. To do this, it is proposed to identify the segments of the video frame by the degree of their importance from the standpoint of maintaining the required level of integrity of objects of interest. Identifying segments by component brightness is proposed. This can be explained by the fact that the brightness component carries the main information load among other color components in the color difference model of the video frame. It is proposed to carry out identification for localized areas of the video frame, which are characterized by greater homogeneity of their structural and statistical properties. Therefore, from a methodological point of view, the assessment of the information contribution of the segment should be based on the results of structural and statistical processing of its four microsegments, $S(X)_{i,j}^{(u)}$, $u = \overline{1, 4}$ from the point of preserving the semantic integrity of the video resource. Depending on the informational significance, microsegments $S(X)_{i,j}^{(u)}$ are classified into three types, namely: microsegments with a high level of structural-statistical saturation (SSN) at the syntactic level of the description; microsegments with an average level of SSN; microsegments with low levels of SSN.

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