

## PROGRAM FOR AUTOMATICALLY DIVISION AN IMAGE INTO SET NUMBER OF EQUAL RECTANGULAR REGIONS OF INTERESTS

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### Abstract

In recent years, computer image processing is widely used in various industries such as mechanics and mechanical engineering, medicine, food industry and others. Machine vision is focused towards automatic evaluation of indicators concerning appearance such as size of objects, color, structure, etc. One of the often used processing techniques is the division of an object or image into regions of interest in order to define indicators in more detail. The areas of the regions of interest need to be the same when the results obtained need to be compared or statistically processed. This article presents an algorithm and program developed in the LabVIEW software environment which automatically separates an object from an image into any number of identical rectangular regions of interest.

The algorithm is based on mathematical and logical functions. It includes several While cycles defining two one-dimensional arrays A [n] - with all left and right points and B [m] with all top and bottom points of the coordinates of the regions of interest, as well as one two-dimensional array C [n, m] uniting all the coordinates of all regions of interest. Proposed algorithm was tested with images of objects (cut surface of different types of cheese) of different sizes and with different number of areas of interest.

User interface of the LabVIEW application allows the user to specify any number of columns and rows defining the grid. The program data obtained in the one-dimensional arrays correspond to the dimensions of the object, and the two-dimensional array corresponds to the number of regions of interest. These results prove universality through the possibility of the algorithm and the program for adaptation to objects of different sizes.

Proposed approach is extremely useful for digital image processing in order to evaluate indicators. Its universality is proven by the possibility of adapting to objects of different sizes.

**Key words:** *Region of Interest (ROI), LabVIEW, Image processing.*