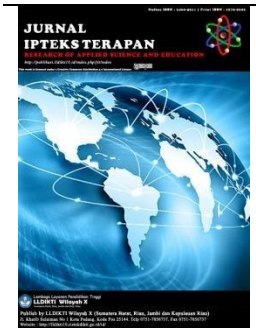

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SEGMENTATION-BASED WINE IMAGE IDENTIFICATION SYSTEM USING THE K-MEANS CLUSTERING METHOD

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Abstract

Computerized Image Handling is a field of science that concentrates on how images are framed, handled, and examined to produce data that people can understand. Image sharing interactions can be solved by applying existing techniques. Many techniques can be used, for example the Gabor Channel strategy, GLCM technique, Wavelet strategy, Area Development strategy, K-implies Grouping strategy, Mean Shift Bunching strategy. In this test, we tried the process of dividing image variations in pictures of grapes. Division is an important part of image inspection, because in this system the desired image will be dissected for further processing to make it easier to break down, for example on design ID. The image division can be partitioned into several stages in the cycle of examining and recovering several objects of interest. One strategy for dividing images is grouping. Bunching is the work of grouping information based on classes and is a strategy for collecting information in a dataset. The division of images and differentiation of evidence in this exploration uses the K-Means clustering technique. K-Means is a simple and fast computational strategy, before cutting or differentiating leaves, first determine the variation space using CIELab. ID testing information uses two methodologies, namely shape inspection and surface investigation.

Keywords: Identification, Grape, Segmentation,K-Means Clustering

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INTRODUCTION

Mechanical improvements over the years have progressed so rapidly. Starting from mail delivery innovations to advances in PC innovation which are widely used by the public. Today's PC technology tasks are not only used to send and handle word handling programs, but can also be used to send and handle computerized image programs.(Humani et al., 2016)

Computerized Image Handling is a field of science that concentrates on how images are formed, handled, and investigated to produce data that people can understand. Judging from the type of signs that form it, images are divided into two types, namely simple images and advanced images.(Yuhandri et al., 2022)This method of partitioning or separating an image into several locations based on comparison credits is called division(Orisa & Hidayat, 2019).

Image sharing interactions can be solved by applying existing techniques. There are many strategies that can be used, for example the Gabor Channel technique, GLCM strategy, Wavelet technique, Locale Developing technique, K-implies Grouping strategy, Mean Shift Bunching strategy, etc. Although the Gabor Channel technique is also used for edge recognition in computerized images, this strategy should be more definitive when used to resolve image surfaces. Meanwhile, the K-implies Bunching strategy is used to group information into several groups (clusters).(Premana et al., 2020)

K-implies Bunching calculation is a tiered strategy that does not vary, which will collect information(Nurdini et al., 2019)Utilizing the division cycle of information will be very useful in providing contrast to objects in the image and make it easier to provide extra examination and make it easier to distinguish objects in the image (Liu, Z. et al, 2020). One calculation that can be applied to speed up division interactions is K-Means Grouping. K-implies is a non-progressive clustering technique that attempts to divide existing information into at least one group(Fernando Ade Pratama et al., 2022)

Like the exam led by Andika and Hafiz in 2018 which utilized image division using K-Means and Fluffy C-Means. This examination considers both techniques. Based on the research results of brothers Andika and Hafiz, the K-implies technique is superior to the Fluffy C-implies strategy(Andika & Hafiz, 2018)

Grapes are one type of plant that can fill West Asia with sub-hot temperatures and humidity.(Ansah et al., 2022)Grapes are a fruit plant with climbing shrubs that belong to the Vitaceae family. This natural product is usually used to make grape juice, jam, marmalade, wine, grape seed and raisin oil, or eaten simply(Mahapsari, 2013)In Indonesia itself, grape plants began to spread in the nineteenth century. Grapes are rich in vitamin A which is good for eye health and contain high levels of antioxidants which are useful for preventing cell damage caused by free radicals. Grapes are remembered as belonging to the Vitaceae family because they are plants(Ansah et al., 2022).

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RESEARCH METHODS

Research information can be grouped into two types, namely essential information and additional information. An understanding of these two types of information is needed as a reason for determining strategies and steps for collecting research information. Important information or unique information collected directly from information sources or obtained from direct sources. To obtain important information, analysts must collect it directly. Methods that analysts can use to gather important information include perceptions, interviews, focused conversations.

Figure 1. Sample Of Data

Each of the above datasets goes through highlight extraction including shape and surface inspection using the K-Means strategy.

Division is a method for partitioning an image into several localities where each district has comparable characteristics (Li, J. et al, 2021).Computerized image handling is a logical discipline that studies matters related to the further development of image quality (improvement of contrast, variation change, image reclamation), image change (revolution, interpretation, scale, mathematical changes), selection of appropriate image elements. ideal for inspection purposes, completing the most common way to recover data or depiction of items or observing objects contained in the image, carrying out pressure or reduction of information for reasons of information capacity, information transmission and information handling time. The contribution of image handling is the image, while the result is the image being handled (Makantasis, K., et al, 2015).

Image division techniques are divided into two parts, namely low-level division techniques and low-level division techniques. Low-level partitioning techniques such as mean shift, watershed, level set, and super pixel usually partition the image into a small number of locations. Although division results often exceed division, low-level division techniques provide a reasonable basis for solving significant-level division tasks. Undeniable level division strategies e.g. district mixing, graph truncation.(Sivi Anisa & Herdian Andika, 2020). Clustering-based image division uses multi-layered information to group image pixels into groups. This layered information in an image implies the number of properties or parts that make up an image, for example a grayscale image has one aspect, an RGB image has three aspects, etc. Typically, pixels are grouped based on their proximity. of the distance between pixels. This grouping-based division has become popular since it was implemented in OCR (OpticalCharacter Acknowledgment) applications, finger impression recognition, and remote detection. The progress of this grouping-based division is not completely determined by the results of collecting

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adjacent highlights into one group.(Andika & Hafiz, 2018).

RESULT

This framework interface is able to improve image sharing application activities using K-implies and Fluffy C-implies strategies. Images of the division frame connection points are in Figures 2 below (HA Moh, et al, 2021):

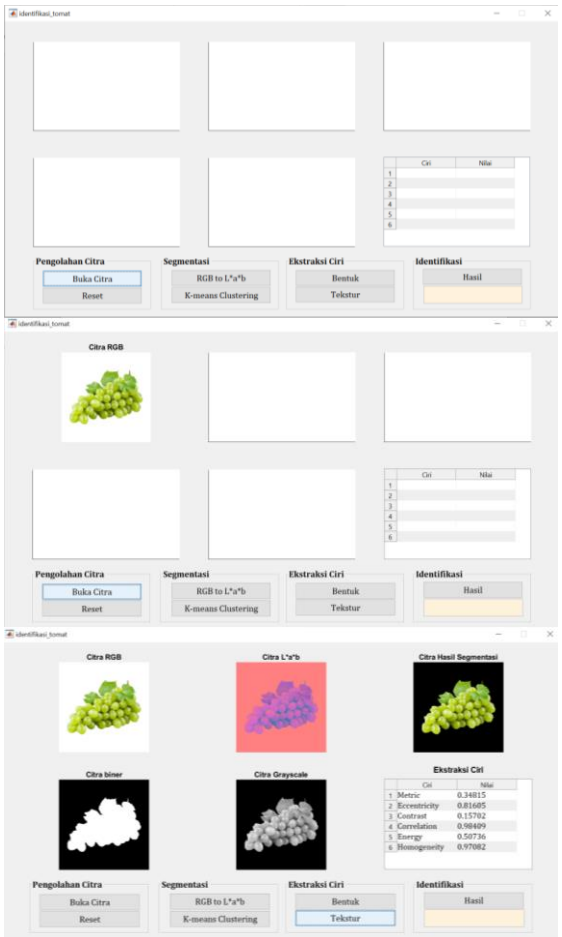

Figure 2. Shape Inspection Data

In the interface image above, shape inspection data is displayed, in the form of measurement values and certain irregularities, surface inspection, especially differentiation, relationship, energy and homogeneity values. After the shape inspection and surface investigation process is complete, the next system is to determine evidence that can be recognized from the results of sample recognition using the K-Means grouping division.

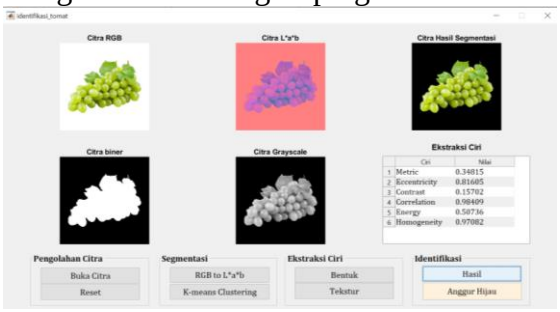

Figure 3. Results of Texture Analysis and Shape Analysis

Shape Investigation Inspection combines metrics and uncertainty, while Surface Inspection combines contrast, connection, energy, and homogeneity (Agarwal, M. et al, 2020). The direct consequences of this check can be seen in the table below.

Make use of title styles in this layout easily. The style has been arranged in such a way as to provide appropriate division of headings (d'Ascoli, S., et al, 2020). Collection of data on the shape and surface quality of images of organic tomato extract products is shown in the table below:

ciri_database

8x6 double

	1	2	3	4	5	6
1	0.3481	0.8161	0.1570	0.9841	0.5074	0.9708
2	0.1593	0.7272	0.2572	0.9891	0.4392	0.9849
3	0.3965	0.8571	0.1864	0.9796	0.5535	0.9782
4	0.4146	0.8752	0.2278	0.9822	0.3467	0.9632
5	0.5320	0.6286	0.2761	0.9559	0.6978	0.9765
6	0.0681	0.8146	0.1036	0.9523	0.8921	0.9868
7	0.3296	0.8126	0.0981	0.9613	0.5332	0.9784
8	0.1479	0.6596	0.1071	0.9663	0.6724	0.9696
9						
10						
11						
12						

Figure 4. Limits Of The Shape Examination

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While segments 3, 4, 5 and 6 are the values of contrast, connectedness, energy and homogeneity which are the surface limits of the investigation (Chiang, W.L., Li, Y., et al, 2019). The trademark information is then stored so that it can be properly stacked in a recognizable proof stage. The identification results of leaf image segmentation using the K-Means clustering method are shown in the table below (Hasan, et al, 2018).

CONCLUSION

Based on the 8 trials that have been carried out in this research, it can be concluded that in segmentation for pattern identification using texture analysis and shape analysis, the results of leaf identification using the K-Means clustering method can be carried out from 8 trials without any identification errors.

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