Hand Gesture Recognition Using K-Means Clustering And Support Vector Machine

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Abstract: This paper outlines Human band gestures which provide the most important means for non-verbal interaction among people. They range from simple manipulative gestures that are used to point at and move objects around to more complex communicative ones that express our feelings and allow us to communicate with others. Hand gesture recognition based man-machine interface is being developed vigorously in recent years. Due to the effect of lighting and complex background, most visual hand gesture recognition systems work only under restricted environment. Many methods for hand gesture recognition using visual analysis have been proposed for hand gesture recognition.

Gesture recognition is the process by which gestures made by the user are made known to the system. Gesture recognition is also important for developing alternative human-computer interaction modality. It enables human to interface with machine in a more natural way. Gesture recognition is a technique which used to make computers 'see' and interpret intelligently is becoming increasingly popular. Dynamic gesture recognition isn't something entirely new Gestures are expressive, meaningful body motions physical movements of the fingers, hands, arms, head, face, or body with the intent convey information or interact with the environment. There are several aspects of a gesture that may be relevant and therefore may need to be represented explicitly.

Index Terms: Gesture, recognition, clustering, modality.

I Introduction:

Machine learning is a part of Artificial Intelligence (AI) which discusses the development of a system that depends on information or data. Classification is the process to be a group of models or function that distinguish class data or concepts that aims to be used as a class

prediction model of an object as unknown class. The model derivation is based on analysis group of training data which is represented in various forms of classification rules, decision trees, mathematical formula, or neural network. Hand gestures as media for communication can deliver message to achieve information. Hand gesture recognition implementation is using Microsoft and hand gestures as media for communication can deliver message to achieve information.

II Existing Work or Literature Survey:

In this approach, after the images are separated into frames, the skin detection algorithm is applied. The closed contour of the fingers is identified in this technique even in the presence of a noisy background and hence eliminates the need of a white background which was required in the first approach. Then the technique is used to detect the fingertips and the gesture is recognized by the system depending on the relative movement of the fingertips in the different frames.

The supervised training methods are commonly used, but other networks can be obtained from supervised training techniques or from direct design methods. Unsupervised networks can be used, for instance, to identify groups of data. Hand gesture recognition based man-machine interface is being developed vigorously in recent years. Gesture recognition is also important for developing alternative human- computer interaction modality. It enables human to interface with machine in a more natural way.

III Proposed Work:

This paper implements and analyzes very simple gesture recognition techniques which work fairly well in moderate to complex backgrounds. Gesture recognition is user friendly compared to other hardware or accessory based methods and leads to simplification of human affair. Deploying hand as the medium for human computer interaction has applications in sophisticated computing environments as well providing aid for hearing impaired. The techniques used in this paper are invariant to distance and cluttered backgrounds.

IV Results:

The proposed system gives the study of gesture recognition as input command for system using both clustering and thresholding which can be implemented for gesture recognition using web camera..The result is accuracy of thresholding using support vector machine decision with less recognition time. A motion authoring using finger-system interaction is successfully done.

The proposed method is a user-friendly method that easily authors can control motion according to the number of fingers. Laptop captured the image through camera, identified the input gesture and it is converted into binary image by thresholding. The noise and distortions are removed by morphological filters and using support vector.

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