

IMPLEMENTATION OF HUMAN ACTION RECOGNITION

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ABSTRACT

: Identifying of human activities is used to identify regular and irregular event in normal places such as bus stand, railway station, hospitals, and airports. Finding of changes in people's performance is important task in action identification. Commonly two major action identification methods used are used to detect the events. The main objective of human action identification is automatically found out and succeeding events from unnamed video footage. Image Processing is a technique of converting an image into digital for. Image processing help to extract features based on the action the done. It is a tough process to execute based on the time because the action various from time to time. Here the human action identification can be implemented by using python programming. The input is captured from the video footages.

KEYWORDS- Image acquisition, Preprocessing, Segmentation, Classification, Feature Extraction.

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I. INTRODUCTION

Human activity recognition is a most studied computer vision problem. And this image processing technique is a tedious process in various dimensions. As in this method there is high variation between actual event and captured event. In simple the image processing is the process of different kinds of algorithms on the particular image to obtain the result based on the requirements. The

first method is to recognize the action by using vision concept. The second method is to identify the activities by using depth map. In vision based method the various computer based methods are used to identify action of the people. This system starts on identifying the humans action which is provided in the data base and then it sends the signals to the camera system to store the video in the system, then using the image processing the action is analyzed and the results is given. The example of the actions is running, walking. At last the accuracy levels of the machine learning algorithms are compared. Images are captured from real time situation by using camera coverage. Mainly this concept is used for monitoring wild animals in the forest. Camera sensors are used to capture the pictures. This concept is applied in various applications such as human action identification,

animal monitoring etc.

The remaining part of the paper can be divided as: section 2 describes about various techniques used for human action identification and section three demonstrates the proposed system. Fourth section shows the experimental result and discussion. Section 5 concludes the current research work.

II LITERATURE REVIEW

Nilam Nur Amir Sjarif et al., uses Silhouettes for human action identification. This is the important research area in video data observation. Here the authors try to extract the human action using various movement options. Final output also shows the better accuracy rate compared with existing approaches. The input data collected from the video capturing. Here the authors use HUMI (Higher United Moment Invariant) method for human action identification [1].

Earnest Paul Ijjina et al., proposed deep convolutional neural network framework for people action identification by using action bank related features. CNN concept is used to retrieve local texture values with every action. This proposed technique is applied on UCF50 dataset. The experiment result shows that the proposed technique is very effective for collecting and identifying linear pattern values [2].

Normally cameras are used to capture the pictures from various places. The motion pictures can be collected by using video footages. Suraj Vantigodi et al., proposes a new approach for human action identification by using motion data capturing. A joint coordinate in the 3 dimension skeleton is used to examine the various actions performed by the people. The important features like joint value of the skeleton and weighted variance value are used to classify the data. Features can be retrieved and it is suitable for real time data identification. The proposed method is tested by using Multimodal data set. Performance evaluation can be done by using correlation and support vector machine concept (SVM). This proposed concept attained the accuracy level 95% [3].

In current situation video observation concept is used in various purposes such as monitor surrounding, entertainment and security. Large volume of data can be collected from video captured data. Due to this the demand of the automatic investigation system is increased. In video data analysis system human action identification is one of the important research topics. But human actions and activities are very critical. Video data also contains large amount of various features. So, human action identification is the one of the challenging task in research level. Zi-Ming Wu Et Al et al., proposes a new action identification approach using the concept of RBFNN. The data can be trained by L-GEM error model. For decrease the amount of noises uncertainty tasks are used from various classes. The experiment result shows that SVM classifier is the best classifier for human action identification [4].

Xinyi Liang et al., proposes a novel human action identification system using skeleton-based concept. This system uses joint trajectory pictures and vision value features are used to model the human action. Initially the data can be collected from RGB Camera device and Openpose is applied on the data. Here SVM method combined with HOG is used to identify the human action. The proposed method is evaluated and compared with other methods [5].

Neziha Jaouedi et al., says that machine and human communication is one of the research area in data processing. Here the authors focused the analysis of human actions from video data. Video analysis can be used to find the sudden motion value, gesture value and speed value of walking. Many researchers are tried to develop a model and identify the human features using motion value. Here the model is tested by using KNN approach [6].

Qinkun Xiao et al., developed a model to recognize human action using neural network model. This model is the combination of encoder and PRNN concept. This approach can be divided into two sections. The first stage is called

action identification stage. In this stage preserve the human part outline for every frame and joined the outline to construct the binary images as training information. Using neural network an encoder can be trained for retrieve the features. In the second stage apply supervised learning methods to train PRNN on the attained features. Finally combine encoder and PRNN to construct a new framework called APRNN. It achieved better performance. This APRNN model is used to identify human action recognition. Final result shows the better result compared with existing methods [7].

Yun Han et al., proposes a new model GSA(Global Spatial Attention) to offer spatial data for identifying human action. Then they introduces ALC (Accumulative Learning Curve) model can highlight the frames. GSA and ALC models are integrated and from a new model called LTSM to develop human action identification model. The proposed model tested with NTU datasets. It shows the better performance in terms of accuracy, complexity and training overhead values [8].

Jagadeesh B, C et al., address human action identification system based on video data. This concept is applied on KTH dataset and real video data. In this concept initially large numbers of frames are collected from the video data and compute the optical flow value. Then the video data can be converted into binary image data. Using SVM classifier trained model is generated. The final output shows that the various human action such as clapping, walking, running and jogging [9].

Linquin Cai et al., says about the uses applications of human activities detection. It is used in unlike domains of computer field, pattern detection and human-system communication. In this paper the authors uses customized CNN model to identify human activities. CNN model is one of the deep learning concepts. In this model at first extract the features of the images by using depth maps. In this modified CNN model 3D inputs and 3D task recognition is used to advance the computing speed and decrease the level of complexity of identification task. The final result shows that this modified algorithm produce better result compare with other techniques [10].

III PROPOSED SYSTEM

Human action identification is one of the major research areas in multimedia data processing. The data from the video can be collected from various places. It generates large amount of data. The major applications of the action identification are monitor animal movements, human movements and security purposes also. The following figure 1 shows the block

diagram of proposed human action identification system. This system is implemented by using python programming. Initially the data can be captured from the video surveillances. It contains large amount of noises also. In the preprocessing step the unwanted data can be removed from the original video footage. Video footage consists of large amount of frames. After preprocessing the specific frames can be extracted. Then the video footage is converted from color to binary image. It represents the binary matrix. Number of classifiers is available in machine learning concept. The important classifiers are KNN, ANN, CNN, Back Propagation etc. Classifiers are used to classify the required frame from the original image. From the classified data the specific human action can be recognized. The action may be changed depends upon the data set. The important actions are walking, running, sitting, standing etc.

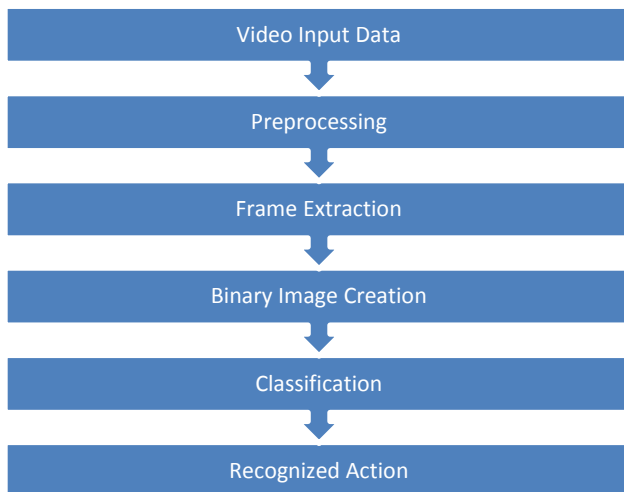


Figure 1 Step for Human Action Reorganization

IV RESULT AND DISUCSSION

Identifying human action is the very tedious task. Because all the video images consists of large number of frames. This proposed model is implemented by using python programming. Python is one of the high level language programming. It is simple and easy to develop GUI. The main benefit of python programming is it is an open source programming. Most of the real time applications are developed by using python programming. The following figure 2 shows the various human actions identified by our proposed system. The identified action is displayed on the textbox below the pictures.

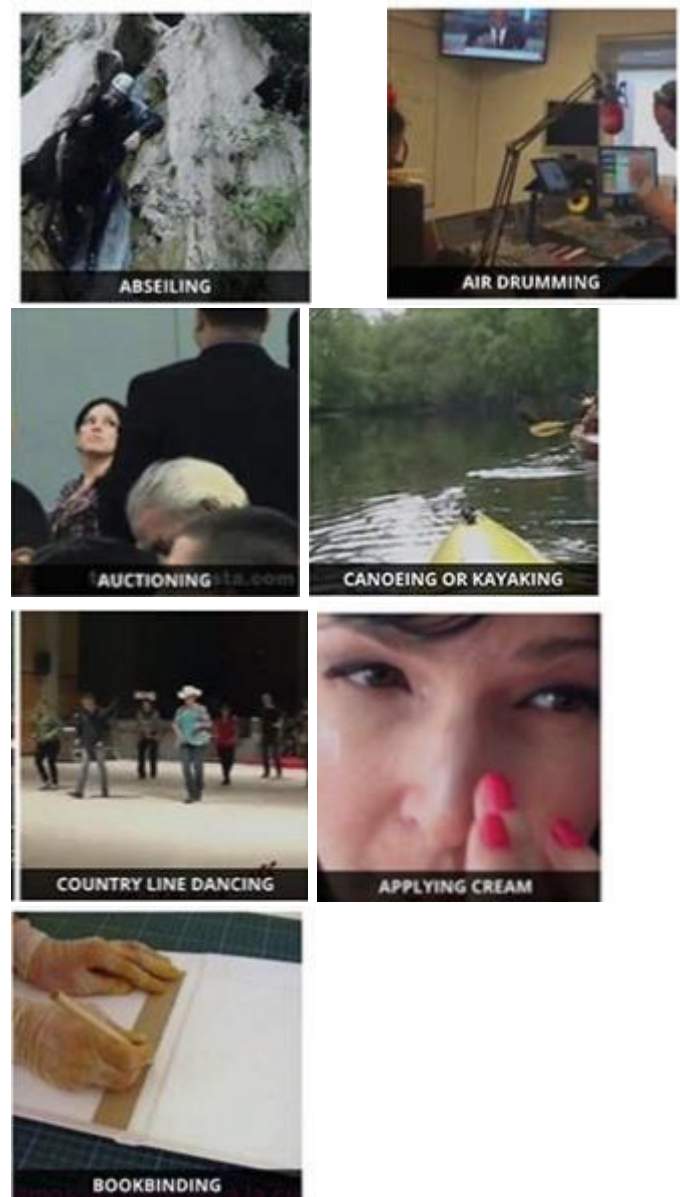


Figure 2 Human Actions Recognized output

V CONCLUSION

Human action identification is the one of the important and challenging task in computer related applications. Traditionally cameras are used to capture the pictures. Now various types of devices are used to capture videos in real time. This paper proposes a new system with classifiers used to identify the human action. By using our system the various human actions are identified. The important actions identified by our system are Abseiling, Air Drumming, Auctioning, Canoeing Kayaking, Country Line Dancing, Applying Cream and Book Binding. This proposed system is developed by using python programming language. This system tested with real time data and compared with existing approaches.

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