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HYBRID CLASSIFIER FOR GAIT RECOGNITION :- A REVIEW

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Abstract: *Gait Recognition is one kind of biometric hi tech that can be used to monitor people without their cooperation. A specific manner or way of moving on foot is known as gait and gait recognition is the process of identifying an individual by the manner in which they walk. Gait is less undesirably noticeable biometric, which offers the possibility to locate or differentiate people at a distance, without any interaction or co-operation from the subject. This paper proposed new technique for gait recognition. In this method, frames are created from video and stored. Secondly, feature from each frame is extracted using Hanavan's model. Here height of person, distance between two hands and distance between two legs are taken as key feature. At last K-NN with SURF and SVM are used for training and testing purpose. Here all the research work is done on gait database created using mat file. Different groups of training and testing dataset give different results.*

Keywords:: *Gait, SURF, SVM, K-NN.*

I. INTRODUCTION

Depending on the sensors used gait recognition system can be classified into three groups namely; motion vision based, floor sensor based and wearable sensor based and floor sensor based. Appearance based methods and model based methods

can be divided as motion vision. State space methods and spatial-temporal methods are two subparts of appearance based method. Person walking image can be impounded from long distance and the image is then processed with low resolutions is the most important advantage. In this paper, we concentrate on two different approaches Principle Component Analysis (PCA) only and PCA with radon transform (RT) on device vision for gait recognition purposes.

Models whose parameters are decided by processing of gait sequences (binary silhouettes) are applied by Model-based approaches. These methods are measure, view invariant and require good quality video sequences. In these methods, parameters used as highlight are the height, the distance between head and abdomen, the maximum distance between abdomen and feet and the distance between feet. In, the silhouette of a walking body is divided in to some regions (generally seven regions). Afterward, ellipses or rectangles are feasible to each region and region feature vectors are determined. This includes averages of the centroid and the aspect ratio. Entire methods operate directly on binary silhouettes without assuming any specific model for the walking human. The contour figuration of the silhouette is the most reasonable feature in this method. For perfect binary silhouettes, wideness of some amount of outer contour of the silhouette was proposed as a suitable feature. For imperfect binary silhouettes, the binary silhouette may be is used as a feature.

In moment detection, silhouette is defined as a region of pixels of the moving person. Silhouette extraction mainly focuses on disunite the human body. The Silhouette extraction procedure is shown in "Figure".

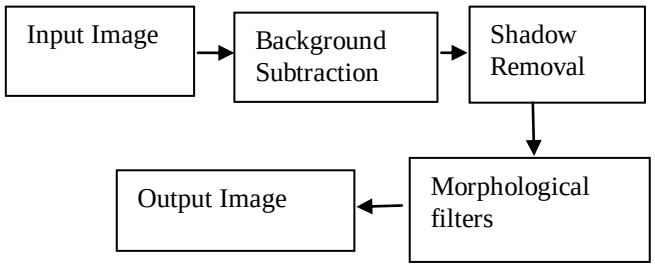

Figure: Silhouette extraction

To discard shadow from the difference image, a threshold value is applied to the difference images. The

difference image map is first analyzed by develop the intensity histogram of the image so that the pixels distribution along the image can be shown clearly and in an effective way according to an applied threshold value. The threshold must be relevant so that the foreground picture is neither under segmented nor over-segmented. Under-segmentation and over-segmentation function is to produce first and second reliable silhouette respectively.

To discard noises produced during partition of silhouette, morphological filters are used. Morphological opening, morphological closing and area thresholding through connected constituents labeling are the main constituents of morphological filters that are used in the system.

II. LITERATURE SURVEY

Huang and Boulgouris developed a gait recognition system that uses multiple views. According to Motion of Body (MoBo) database they have used six views and combined the gait cycles which resulted in an improved recognition rate of 96%.

Guo and Tian developed a gait recognition method based on anatomical knowledge. They applied Hidden Markov Model for the experiment purposes. At first, by applying morphological operation they extracted the silhouette and selected gait period. They used CMU gait database for the experiment, and selected three walking styles gait cycles which are fast, slow and carrying a ball for identification function.

Sharmila and kirubakaran developed a method to juice human gait feature automatically even in low resolution. In free motion features from video sequence for silhouette extraction they applied two techniques called Image Based Gait Recognition and Formula Based Gait Recognition. With clothing, lighting, segmentation and follow the Image based gait technique can deal. With Height and stride parameters of walking gait the formula based approach deals with. For Identification purposes they used their own video frame and applied it.

Qiong et al. suggested gait recognition based on PCA and Linear Discriminate Analysis LDA. PCA is mainly used for dimensional reduction method and LDA is performed to optimize the pattern class. For the test, they used their own database and they achieved better identification rate from PCA compared to (LDA). About PCA with RT and PCA without RT technique for gait recognition purposes we go into and compare the result in this paper.

Honggui and Xingguo proposed dimension reduction method for gait images. They found that the Gaussian technique is superior than the normal background subtraction technique. Gait alignment technique also applied by them. For test and finally Fast Fourier Transform (FFT) module apply the different manner of gait cycles have been applied to 1D Locally Linear Embed (LLE) for gait recognition purposes. They applied CMU MoBo gait database and attain 92% recognition rate in rank 5.

III.PROPOSED WORK

I propose an enhanced Human Identification Using Gait Recognition algorithm which is based on SURF + SVM (Support Vector Machine) + K-NN algorithm.

- Our improved Human Identification Using Gait Recognition algorithm is more accurate.
- Our improved Human Identification Using Gait Recognition algorithm assures quality of result.
- Our improved Human Identification Using Gait Recognition algorithm is quick and thus saves time.
- Our improved Human Identification Using Gait Recognition algorithm is distributed and is range independent for different video images.

V. CONCLUSION

In this paper, for gait recognition we have proposed various techniques. The different techniques used to get the better result for accuracy we will combine the various techniques such as Support Vector Machine (SVM) + SURF and K-NN which will show better results than earlier obtained using other different methods.

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