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Application for Analaysing Gesture and Convert Gesture into Text and Voice

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ABSTRACT: Hand gestures are a strong medium of communication for hearing impaired society. It is helpful for establishing interaction between human and computer. In this project we propose a continuous Sign Language Gesture Recognition system where hand is used for performing any gesture. Recognizing a sign language gestures from continues gestures is aver challenging research issue. In this system user will start video from camera. User will be able to register different sign for further recognition using camera. When user will start recognition activity and give various hand gestures in front of camera sign will be detected and speech will be produced to announce detected sign.

KEYWORDS: Android Mobile Device, Camera, Image Input, Sign Language, Hand Gesture Reorganisation.

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I. INTRODUCTION

Until now there aremany who feel reluctant to communicate with normal people.This is based on their inability to deliver something that they mean well. This gap makes the deaf indirectly be eliminatedfrom people in general. Statistical data over the course of eachyear will change, be increased or reduced. Good communication between the disabled impaired speech withnormal people is essential to the relationship between the twocould stay in touch with the good.

There are several forms of communication among people. One of those is visual communication, e.g., hand gesture, body language,etc. This type of communication is a useful tool to improve a quality of life for deaf or non-vocal persons. Besides being the communication between humans, visual communication becomes one of the important communication channels between human and machines.Deaf or non-vocal persons communicate using sign language or hand gesture. However, there is a barrier between hearing and deaf persons because most hearing persons cannot understand the language. Hence, the problem of recognizing a sign language becomes an interesting and popular research area.

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II. EXISTING SYSTEM

Now Conversion of a video signal or series of images into a sequence of text or speech is called automatic sign language recognition. Gesture recognition has been investigated by many researchers in India. There are various approaches that have been used for converting sign language images into text or speech. Most of the authors present their work on conversion of Sign into text or speech. In vision-based automatic sign language recognition capturing, tracking and segmentation problems occur, which makes it is hard to build a robust recognition system for ISL. Researchers in India are trying designing a software program which instantly translates sign language into text which can be read on a computer screen or it can be converting into speech. A camera is used to record the user's hand signals, face expressions and body movement which are imported into the computer program and translated into written text so that the user can read it without needing to understand sign language. For the automated recognition point of view all the existing sign languages are still in the research. There are two general approaches to capturing sign language: direct measure devices and vision based devices. Direct measure devices can provide exact information about hand shape, orientation, location and movement; but they are impractical to use outside the lab since end user can not wear motion-capture gloves and other devices all the time. Second approach which is computer vision based provides a more natural solution.

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DISADVANTAGES OF EXISTING SYSTEM

- It is a time consuming process.
- There is no surety of availability of rooms.
- Paper work results in need of lot of space to keep the data.
- Lack of security.
- Chances of human errors.

III. PROPOSED SYSTEM

In this system performs different stages of image processing steps. The captured image has to be identified by the system accurately of the best results.

The A ANN will help the system to identify the image without any complex calculations and without involving any cumber some components.

A. CAPTURING THE IMAGE IN REAL TIME REAL-TIME VIDEO

An image is extracted from a captured r e pre-processed using a webcam. The obtained image has to be in order to make the image into a compatible one for the image processing to be applied to it.

The image processing stages include gray scale conversion and the e throes holding. The morphological operations such as erosion, dilation etc. Is also performed. The web camera has to be installed in such away that the hand should be totally visible with all its edge totally visible. The video input objects are captured using the normal web camera. Here YUY_640 × 480 resolution input frame image is used. Input is taken from the current s elected source. According to the camera used in different t devices, the camera ID will change and it should be s elected before capturing the video. 5 frames per trigger is taken using the selected source. The system camera initially captures a frame every second. A snapshot is taken for further processing

B. SKIN SEGMENTATION

In order to identify the hand gesture t the skin region has to be identified from the obtained image. For this skin segmentation is performed. Since the captured image is of segmentation. So the image is converted to YCbCr domain Even though YCbCr domain facilitates skin s segmentation it always results in noisy spots with the variation of the light intensities. This phase detects and segments the hand data from the captured image. The hand region is detected using skin color pixels. The background is restricted hand is the largest object with respect to skin colour. The detection results in binary image which will have other objects also. The other components are the filtered by comparing the area of the detected binary y objects. The resultant is subjected to morphological closing and dilation operation with disk shaped structuring element in order to obtain a well-defined segmented gesture image.

(a) Angle 300 (b) Angle 450, (c) Angle 900

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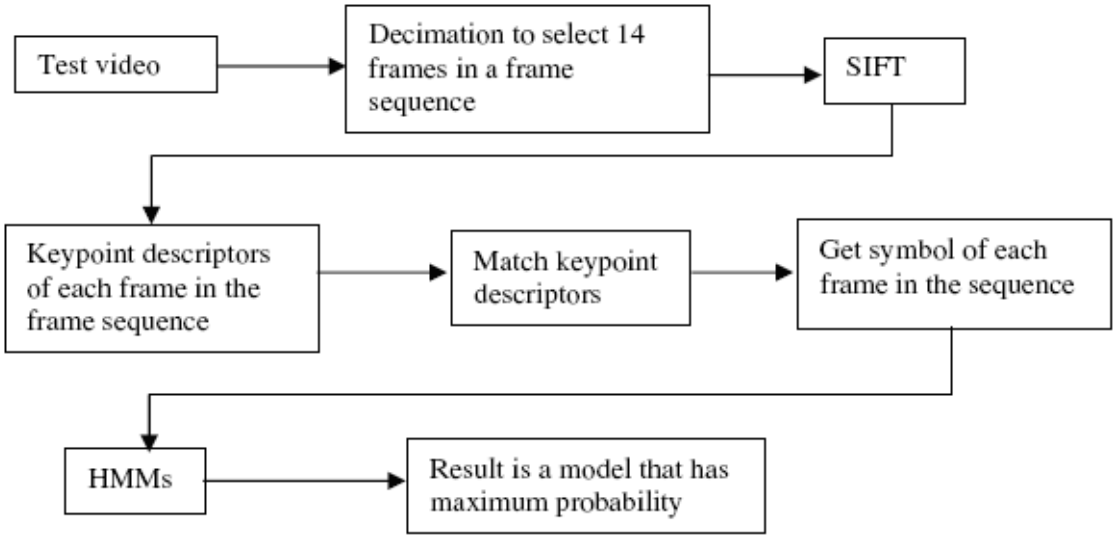

Fig. Architecture diagram

IV. TYPE OF COMMUNICATION

Communication can be categorized into **three** basic types:

1. verbal communication, in which you listen to a person to understand their meaning;
2. written communication, in which you read their meaning; and
3. nonverbal / visual communication, in which you observe a person and infer meaning.

V. MODULE DESCRIPTION

Sign to Text

Conversion of a video signal or series of images into as equence of text or speech is called automatic sign language recognition. Gesture recognition has been investigated by many researchers in India. There are various approaches that have been used for converting sign language images into text or speech. Most of the authors present their work on conversion of Sign into text or speech. In vision-based automatic sign language recognition capturing, tracking and segmentation problems occur, which makes it is hard to build a robust recognition system for ISL. Researchers in India are trying designing a software program which instantly translates sign language into text which can be read on a computer screen or it can be converting into speech. A camera is used to record the user's hand signals, face expressions and body movement which are imported into the computer program and translated into written text so that the user can read it without needing to understand sign language. For the automated recognition point of view all the existing sign languages are still in the research. There are two general approaches to capturing sign language: direct measure devices and vision based devices. Direct measure devices can provide exact information about hand shape, orientation, location and movement; but they are impractical to use outside the labsince end user can not wear motion capture gloves and other devices all the time. Second approach which is computer vision based provides a more natural solution.

VI. CONCLUSION

In this work, we build an automatic Thai sign language translation system using Scale Invariant Feature Transform (SIFT) and Hidden Markov Models (HMMs). In particular, we decimate a video sequence into 14 image frames. We then find a matched observation symbol from the keypoints descriptors in the signature library database collected from

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five subjects at different times of day and for several days using the SIFT algorithm. We found that the best result of the blind data sets of signer-dependent is in between 86% and 95% on average and the average of that of signer-semiin dependent same subjects used in the HMM training) is around 79.75%. Whereas the best average classification rate of the blind data sets of signer-independent is 76.56%. This system, however, does not need any segmentation technique before translating each video sequence into a word. The important feature of the proposed system is that it does not consider only the position of hands, but also considers the shape and position of fingers which is not the

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