A Study paper on Development of Robust Video Contrast Enhancement Technique using intra-frame Techniques

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Abstract— **In today's scenario Visual information is one of the most imperative approaches to understanding the things. The information can be in the form of images, diagrams and videos. Videos are the very important medium of one of them. We use the video information in many way like surveillance, entertainments, Documentaries, Films etc. Video plays very important role in our daily life. Sometimes it happens that, recording video could not do properly. We face some problems regarding low contrast, blur recorded videos and poor quality of videos. Sometimes we transmit our images or videos using transmission medium. After processing, the received videos also need some processing so that it can be used for some applications. Video contrast enhancement involves the manipulation of the video data to outcome a visually high quality videos. Contrast enhancement is the most important issue in image processing. Here we are going to propose a development of Robust Video Contrast Enhancement Technique using intra-frame Techniques. Our main objective is to Development of Robust Video Contrast Enhancement Technique using intra-frame Techniques. The ultimate goal of such algorithms is to achieve higher perceived video quality.**

Keywords—**HE, BBHE, QBHE, DSIHE, INTRAFRAME, INTERFRAME.**

I. INTRODUCTION

Video enhancement is a mean as the improvement of a video appearance by increasing dominance of some features or by decreasing ambiguity between different regions of the frame images. The videos can be basically visualized as a collection of images. Hence the basic idea of this project is to utilize intraframe techniques available for still image enhancement to develop video enhancement techniques. Intraframe Image enhancement processes consist of a collection of techniques that seek to improve the visual appearance of an image or to convert the image to a form better suited for analysis by a human or machine. Our main objective in contrast enhancement in video processing is to find out the best possible combination of contrast and clearness in an efficient manner. The contrast enhancement problem requires adjustment of luminance in a suitable color space without changing the hue. In case of image contrast enhancement most often used techniques are, Gamma correction, power law transformation, bit plane slicing and histogram processing. Mean wise all these techniques are considered intraframe techniques for contrast enhancement for individual frame wise operation. Therefore the aim of this project work is first apply all these intraframe techniques for contrast enhancement of poor contrast videos, and then a statistical analysis will be presented for the analysis of efficient contrast response of different intraframe techniques.

II. RELATED WORKS

The previous works has been done in contrast enhancement like Histogram equalization. Histogram equalization (HE) is the most common methods for improving contrast in digital images and also, a simple and effective image contrast enhancement technique. Apart from it Brightness preserving Bi- Histogram Equalization (BBHE), Quantized Bi-Histogram Equalization (QBHE), and Dual Sub-Image Histogram Equalization (DSIHE) are the methods for same process. All these methods and research works has been done for the same objective, to improve the contrast in robust video. But there are some more scopes still left to do some research on video quality enhancement.

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┌─────────────┐
│    Start    │
└─────────────┘
       │
┌──────────────────────────┐
│  Read poor contrast video │
└──────────────────────────┘
       │
┌──────────────────────────────┐
│ Determine the number of frames │
└──────────────────────────────┘
       │
┌──────────────────────────────┐
│ Extraction of all constitutes frames │
└──────────────────────────────┘
       │
┌──────────────────────────────┐
│ Consider each frame in sequence │
└──────────────────────────────┘
       │
┌──────────────────────────────────┐
│ Convert frame into RGB space to LAB space │
└──────────────────────────────────┘
       │
┌──────────────────────┐
│ Applying Preprocessing │
└──────────────────────┘
       │
┌────────────────────────────────────────────┐
│ Applying intraframe technique for contrast enhancement │
└────────────────────────────────────────────┘
       │
┌──────────────────────────────────┐
│ Convert frame into LAB space to RGB space │
└──────────────────────────────────┘
       │
     ┌───┐
     │ A │
     └───┘
       │
┌──────────────────┐
│ Calculate parameters │
└──────────────────┘
       │
┌──────────────────────────────┐
│ Include all the Frames in sequence │
└──────────────────────────────┘
       │
┌──────────────────────────┐
│ Play Contrast enhanced video │
└──────────────────────────┘
```
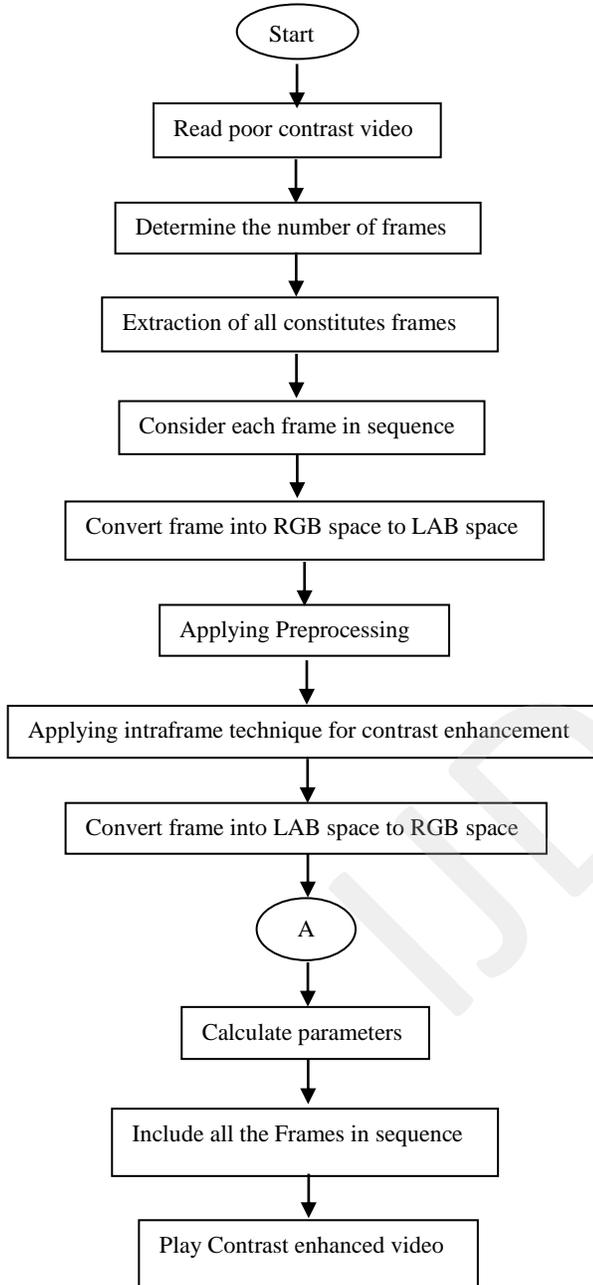
Fig 1: Flowchart of proposed technique

III. PROPOSE METHODOLOGY

These and many other published and implemented methods reviewed as part of our research. These methods are somehow did not find the objective of enhancing contrast in an effective, proper

and coordinated sense. A novel algorithm proposed during this work addresses the need for a more complete color and contrast enhancement algorithm suitable for the video processing chain of consumer video systems. Here I am going to propose a methodology for contrast enhancement technique in robust video using intraframe technique. The proposing method is very easy and simple understand. First of all we read the poor video. And after that as we know, a single video is combination of number of frames, the second step would be to determine the number frames. Extraction process would be there. Making the arrangement of a proper sequence of those frames. Then the conversion process would be apply, Converting frames into RGB space to LAB space. After that we will apply the intraframe technique to enhance the brightness in video. The next step would be Convert frame into LAB space to RGB space. After that we will calculate all the parameter, include all the frames in sequence and play the enhanced video. Full details cannot be disclosed due to the proprietary nature of the work. The above figure is showing the follow chart of the proposed approach.

A). INTRAFRAME TECHNIQUE

Intraframe technique is known as a technique for video quality improvement. The intra-frame coding refers to the fact that the various lossless and lossy compression techniques. This technique is performed relative to information that is contained only within the current frame, and not relative to any other frame in the video sequence.

IV. EXPECTED RESULT

The published color and contrast enhancement methods, most of them were originally designed for digital color images. Many of these techniques can theoretically be implemented for video as well. The hardware implementation issues can impose serious limitations for most of the methods, these are beyond the scope. After studying different papers and comparing all methods, we can conclude that the process of contrast enhancement in video needs higher brightness prevention we could not handled properly it by the previous method applied. The Proposed method in which we are going to work is the more extended way of the previous methods, and after applying this method we can predict that we would be able to enhance the brightness and contrast in video in more proper way.

V. CONCLUSION

By applying this method, we can conclude the following:

1. Improve the contrast in recorded video

2. Develop a approach for contrast enhancement in robust video.

3. Improve the quality of robust recorded video.

4. Avoid the uses of external hardware for video quality enhancement.

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