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Removal Of Haze Using Image Processing Techniques

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Abstract. Road fatalities on account of weather condition such like fog, Haze, run in thousands every year. Here we propose an best method to separate haze or snow from a video and images. Photography of hazy scenes tends to low-contrast that removes the visibility of scene. In our project use of image processing tech- nique victimization cV2 tool that accustomed observe the haze and take away from the still pictures and video.Cv2 is a tool which mainly concentrate on image processing, video capture and analysis including object detection. Here we use additional method such as genetic programming and Gaussian method to over- come the different problems. This method is highly efficient when compared to other methods. Our method manufacture de-hazing which results increases with higher visual quality compared with alternative progressive ways.
Keywords: Cv2 tool, Genetic programming, Gaussian method, Image pro- cessing

1. INTRODUCTION

Outside images measures continuously with low visibility, particularly in hazy weather conditions this can be caused due to some of the objects which scattered within the atmosphere because of the carriage of aerosols like mud, water- droplets and fog, which merging with the air light .In long distance photography this method has a considerable result on the still image which results in the loss of efficiency and quality of image, that act as the problems for many applications.

1.1 Scope Of The Project

- It is used to prevent accident in roads and so on
- It also avoid traffic in roads and highways.

1.2 Existing System

In Existing system, it uses the van Herks algorithmic rule. This algorithmic rule is in- flated with the quality once the image size is simply too giant. planned is incredibly easy however it uses powerful previous, referred to as the dark channel previous. In this scene objects square

measure inherently almost every region has light-weight and no shadow is run up, the dark channel previous is invalid. This procedure provides bright values only for nearer objects.

Disadvantages

- It removes the haze from images only and it does not work in videos.
- It is not clear when the haze removal process is done.

2. LITERATURE SURVEY

Survey 1
P. Chavez-etal explained about cogent dark channel prior algorithm is used to sepa- rate haze from single image. Dark channel prior is used in haze-free outdoor images. All patches in local region of haze-free outdoor images consist some of pixels which have minimum level of intensities in at least one colour [1]. By help of this technique, we directly calculate the thickness of the haze. It also provides the high quality haze- free image.

Survey 2
G. Meng-etal explained about the degradation of scene due to the haze. Single im- age dehazing performance is limited by the certain constraints [1]. In this paper, they ex- plain alternate method for removal of haze, which uses its retrieved correlated haze- free images as external information. The correlated haze-free images are use to dehaze the scene, here variations in scales, viewpoints and illumination conditions exist. In addition, they combine additional external information with internal constraint and for calculating the transmission map [2].

Survey 3
Zhu Q etal explained about the Image haze removal and it has more application in com- puter vision which increases its demand [2]. Images taken in poor weather which de- grades the degraded the scene by scatting effect of the atmosphere, which makes the image color grey, and also minimize the contrast of the object features which difficult to identify [2]. The poor climate leads to the difference in visual effect and it consist numerous disadvantages during the post processing of image. This problem also leads to rely on optical imaging, aerial photo system, outdoor monitoring system and object identification system etc. These are the major reason to increase the quality during the post processing process. This paper consist of quantitative and qualitative evaluations techniques which leads to overcome the existing system challenges. Here they proposed to satisfy certain expectations to the future research field of image haze removal.

3. PROPOSED ALGORITHM

Here we proposed an efficient algorithm such as genetic programming and Gaussian method[3]. In genetic programming it use an certain mathematical operators which used to remove an haze automatically from the input image. This algorithm is highly based on Mean and Absolute error method.

a. Proposed System Work Flow

In proposed system workflow it explains the back end process. Here the input videos are

collected and feed on the start. Then it Separate the videos into the different frames and it transferred to the Pre-processing process[4]. Here Pre-processing process is done using by the Gaussian method. Then it transformed to the air light estimation process Here it estimates the haze level according to the specific pixels .If the level of haze is equal to "0" then it transformed to the restoration process if else it again send to the Air light estimation process .After the restoration process it removes all the haze and pro- duce the final haze free video.

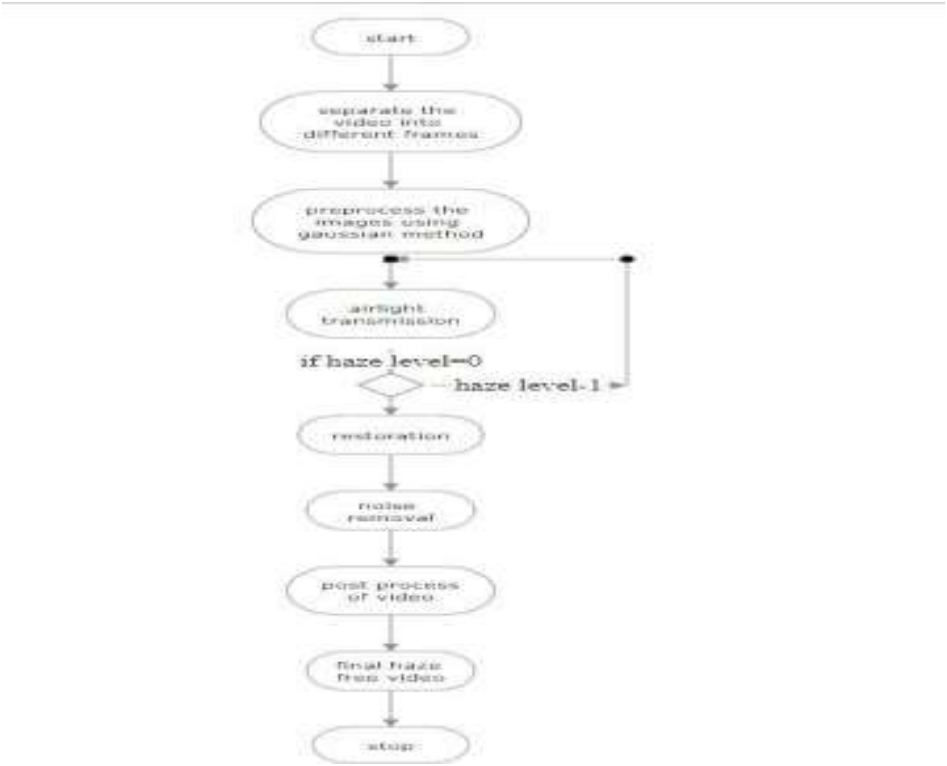

Fig. 1. Proposed system Workflow

b. Working Principle

The image is given as input to the pre-processing which uses Gaussian method[5]. Then after completing pre-processing data is send to the air light transmission, Air light trans- mission consists of two parts which is used to remove the haze from the video[6]. After completing the refinement process the data move into the restoration which uses the generic programming method. After the restoration process the noise level is removed from the video and it undergoes the post processing[7][9]. Finally the output is obtained with haze-free video.

c. Architecture of Proposed System

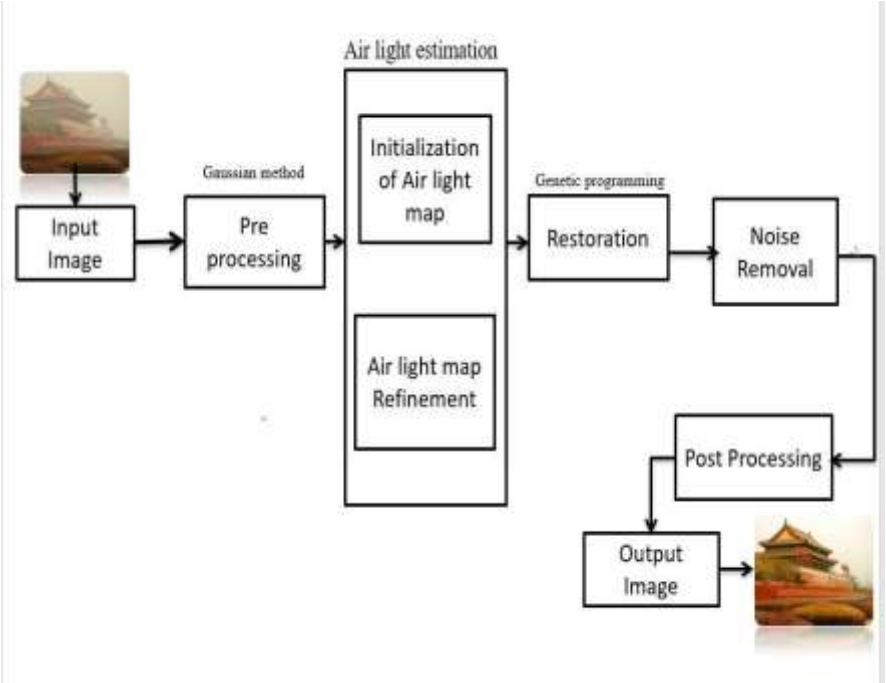

Fig. 2. Proposed system Architecture

4. WORKING MODEL

In Bellow figures it shows the working model images.

Fig. 3. Input Haze image

Airlight Estimation is used to assume the air light in the input image and it also used to detect the pixel strength by using the Gaussian method[8].

Fig. 4. Airlight estimation

Image restoration is the process of taking a noisy image and it convert directly to clean, original image. It may occur in various forms such as motion ,noise and camera mis- focus. This process is performed by the reversing operation by cv2 tool.

Fig. 5. Dehazed image

Along with this method and making use of CV2 tool, this paper provides an unique way to remove haze from the video.

5. GRAPH

In this Graph X axis denotes the pixel value and Y axis denotes the pixel location. Here restoration process is used to remove the types of noise. As a result, it removes all the noise and it reduces the level of haze. In FIG 6 it shows the increase level of saturation which indicates the high level of noise. After restoration process it remove saturation and pixel intensity and it increase the level of brightness.

Fig. 6. BEFORE Restoration Process

Fig.7. AFTER Restoration Process

6. RESULT

The main page of my working model is

Fig. 8. It shows the uploading of input picture

Fig. 9. It shows the input video in order to removal of haze from the video

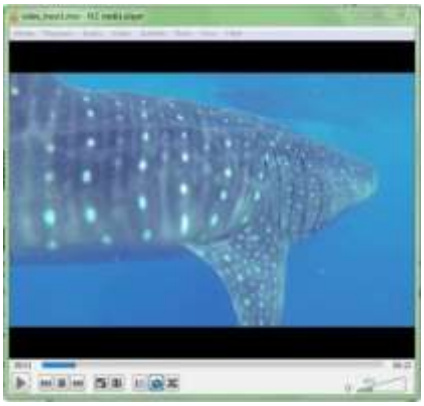

Fig 10: Input of working model

Fig 11: Output of working model

7. CONCLUSION AND FUTURE WORK

We have projected a special technique to get rid of haze by the help of correlative haze- free videos. The variations between hazy and haze-free videos square measure explored for dehazing as scene previous. This technique provides correlation between mathema- tician technique and generic programming. Then we have a tendency to calculate trans- missions of scene by combining 2 completely different external data. Therefore the internal variations within hazy video consist native smoothness also it reduces halo effects on edges.This project was developed keep in the mind to overcome the road accidents due to the haze. I believe that this project can be further developed in a full- fledged manner that will basically help the drivers in all sorts of their travelling. Mon- itoring the haze can be a part of this project but also there can be an app that has a list of contact numbers and allows calling them on a voice command. If any suspicious activities such as accidents were detected, they can be notified to the correct person. Due to this project the accident rates were further reduced in the future.

8. REFERENCES

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