AN IMPROVEMENT OF ROAD SCENE IMAGES USING PIXEL POINT DESCRIPTOR AND COLOR MODEL

Lakhveer kaur[1],Rajbhupinder kaur[2]
Department of Computer Engineering, Punjabi University
Yadavindra College of Engineering, Talwandi Sabo,Punjab, India
Email: [1]Lakhveerdhaliwal49@gmail.com

Abstract:-**The visibility of images of outdoor road scenes will generally become degraded when captured during inclement weather conditions. Drivers often turn on the headlights of their vehicles and streetlights are often activated, resulting in localized light sources in images capturing road scenes in these conditions. Additionally, sandstorms are also weather events that are commonly encountered when driving in some regions. In sandstorms, atmospheric sand has a propensity to irregularly absorb specific portions of a spectrum, thereby causing color-shift problems in the captured image. In existing technique HDCP module and CV module was used. New technique pixel point Descriptor and RGB & HIS is used to improve the values of PSNR and MD as compared to existing technique.**

Keywords:-PSNR, MD, Color shift, dark channel prior.

1. INTRODUCTION

Perceivability in street pictures can be corrupted because of characteristic environmental wonders, for example, fog, haze, and dust storms. This perceivability corruption is because of the ingestion what's more, scrambling of light by climatic particles. Street picture corruption can bring about issues for wise transportation frameworks, for example, voyaging vehicle information recorders and movement reconnaissance frameworks, which must work under a wide range of climate conditions The measure of ingestion and dispersing relies on upon the profundity of the scene between an activity camera and a scene point; in this manner, scene profundity data is critical for recuperating scene brilliance in pictures of cloudy situations. These can be separated into two main orders, i.e., the given profundity and obscure profundity approaches. This data is gained from extra operations or collaborations, for example, applying data relating to the height, tilt, and position of the camera Therefore, a fog evacuation strategy changes the given profundity into an obscure profundity. Numerous studies have proposed the estimation of an obscure profundity to recuperate scene brilliance in dim pictures. Because of this expense, recent research has focused on single-image restoration. Recent investigations have examined the use of single images to estimate the unknown depth without using any additional information to recover scene radiance in hazy images. Tan [20] proposed a single-image haze removal approach that removes haze by maximizing the local contrast of the recovered scene radiance based on an observation that captured hazy images have lower contrast than restored images.

2. EXISTING APPROACH

In existing approach they present an effective approach for the haze removal of single images captured during different environmental conditions that not only avoids the generation of artifact effects but also recovers true color. Our approach involves three proposed modules, i.e., an HDCP module, a CA module, and a VR module. Initially, the proposed HDCP module designs an effective transmission map to circumvent halo effects in the recovered image and estimates the location of the atmospheric light to avoid underexposure. In order to recover the true color of scenes featuring a wide range of weather conditions, we propose the CA module. This CA module determines the intensity statistics for the RGB color space of a captured image in order to acquire the color information. As the final step of our process, the proposed VR module recovers a high-quality haze-free image.

3. PROPOSED TECHNIQUE

Our approach involves three proposed modules, i.e., pixel point descriptor, a RGB and HSI color model, DCP and median filters. The proposed DCP module designs an effective transmission map to circumvent halo effects in the recovered image and estimates the location of the atmospheric light to avoid underexposure. In order to recover the true color of scenes featuring a wide range of weather conditions, we propose the RGB and HIS. The following steps are followed:

Step 1: Read input image.
Step 2: Use the Pixel point descriptor to select the most hazy pixel of the image
Step 3: Apply the boundary connection to identify neighborhood pixel.
Step 4: Apply the dark channel prior to identify the darkness on image.
Step 5: Apply the RGB and HIS color model on image to maintain the color values.
Step6: Apply the dehazing on input image after processing the above steps.
Step 7: Calculate the parameters i.e. PSNR, MSE, and MD.
Step 8: Compare the existing work and proposed work parameters.
Step 9: Repeat step 1 to step 8 on different images.

4. RESULTS

Experimental results deals with the output. In this chapter, we will explain the output result with selected dataset. In this work we will show a sufficient number of results with selected datasets with different number of parameters. We will show the output of existing technique as well as proposed technique

Fig.1 Load the input image

Fig.1 show that after opening the starting window of my project, next task is to upload an input image by pressing the Input image button, we can upload the dataset by choosing from destination location. The input image will be shown in the input image field.

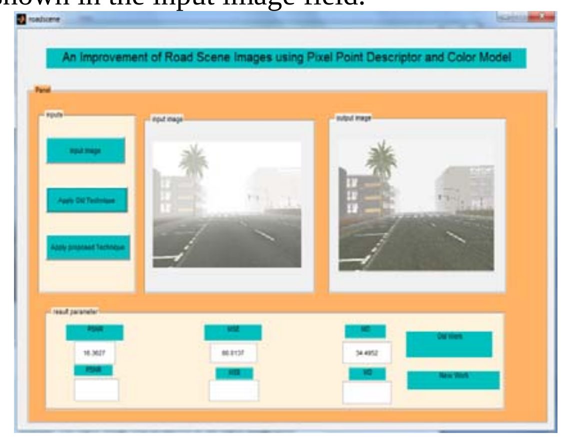


Fig2Result after applying existing technique

Figure 5.4 shows the result of existing technique. In this the result image is shown in output image field and values of different parameters shows in text boxes. These parameters are PSNR value, MSE value and MD values of result image after applying the existing technique.

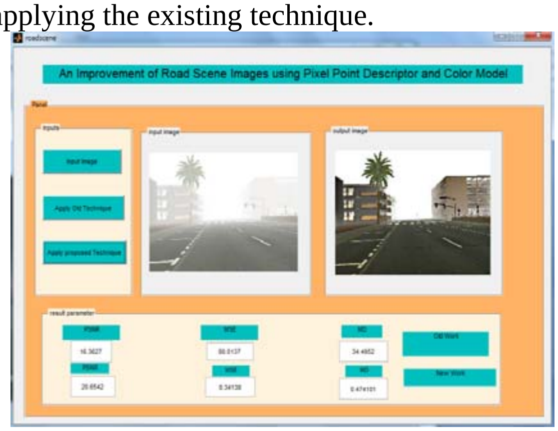
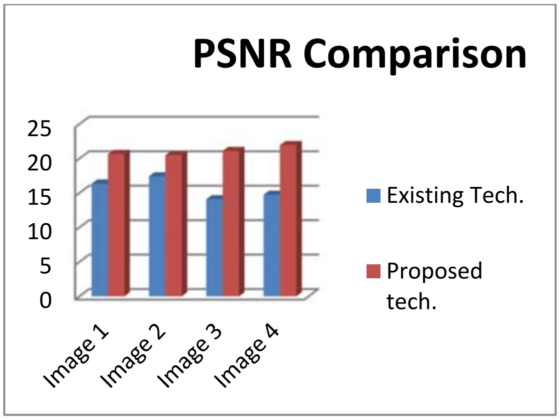


Fig.3 Result after applying Proposed technique

Fig3. Shows the result of proposed technique. In this the result image is shown in output image field and values of different parameters shows in text boxes. These parameters are PSNR value, MSE value and MD values of result image after the complete processing of proposed technique.



Graph1 PSNR Comparison

In Graph1 shown that the comparisons between existing and proposed work on the basis of PSNR during experiment on different Images. It is found that proposed algorithm calculate large PSNR values then existing work.

Table1 Comparison Table

Data set	PSNR	MD	MSE
Image 1	E= 16.3624	E=34.4952	E=80.0137
	P=20.6568	P=0.4403	P=0.3142
Image 2	E=17.4326	E=34.477	E=80.0105
	P=20.4893	P=0.3986	P=0.2899
Image 3	E=14.0921	E=34.5312	E=80.0224
	P=21.1055	P=0.6163	P=0.4196
Image 4	E=14.7528	E=34.5115	E=80.0193
	P=21.9568	P=0.4846	P=0.3543

Table1 shows that the comparison between existing and proposed works on the basis of different parameters. In this we have shown the output of our research on four images. In this table E represents the performance of existing algorithm and P represents the performance of proposed algorithm.

5. CONCLUSION

In this paper we have studied that implemented the pixel point descriptor and color model for haze removal in single images captured under a wide range of weather conditions. The existing approach dark channel prior is used to enhance the image But there are some limitations of existing method to overcome the limitations of existing technique new pixel point descriptor technique is used to enhance the image. In this comparison of existing technique with proposed approach is also discussed. In this we analyze the results on the bases of PSNR, MD and MSE. The proposed technique requires large value of PSNR and lesser value of MD calculations.

REFERENCES

[1] C.H. Huang, Chen, and Y.J. Cheng, “An Efficient Visibility Enhancement Algorithm for Road Scenes Captured by Intelligent Transportation Systems”, IEEE Transactions on Intelligent Transportation Systems, vol. 15 no 5, pp.2321-2332, October 2014.
[2] K. He, J. Sun., and X. Tang,“Single Image Haze Removal Using Dark Channel Prior”, IEEE transactions on pattern analysis and machine intelligence, vol. 33 no 12, pp: 2341-2353,Augest 2011.
[3] B. Li, S. Wang, J. Zheng, and L. Zheng, “Single image haze removal using content-adaptive dark channel and post enhancement:, IET Comput. Vis, vol. 8, no 2, pp: 131–140, July 2013.
[4] W.J. Li, B. Gu, J.T. Huang, S.Y. Wang, and M.H. Wang, “Single image visibility enhancement in gradient domain,” IET Image Process., vol. 6(5), pp: 589, June 2012.
[5] B. Xie, and F. Guo, and Z. Cai. “Improved single image dehazing using dark channel prior and multi-scale Retinex,” in Proc. Int. Conf. Intell. Syst. Des. Eng. Appl., Oct. 2010, pp: 848–851,May 2010.