DEBLURRING OF NUMBER PLATE IMAGES

A PROJECT REPORT PRESENTED BY

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**CHAPTER 1**

**INTRODUCTION**

Human vision information is the most trusted source of information compared to other data acquisition done by the human body. An image is a generic container of any visual information. The procedure of retrieval and analysis of the visual information by a digital device is called digital image processing. The development of visual information for human logic and processing of visual data for independent machine perception are the main important areas that had triggered the interest in image processing subject long ago [1].

In fact, when a physical process generates an image, the energy radiated by the source is proportional to its intensity. Hence, the final image, i(x,y), is not zero and finite [2]. Hence, an image is expounded as a two dimensional light intensity function, i(x; y), and the numeric value of i, at any given point (x; y) will be corresponding to the brightness of the image at that given point [2]. A digital image can be expressed as a matrix. Its row and column indices will indicate point in the image. The analogous matrix element can be known as picture element. Its pixel value represents the intensity at that point in the matrix. The input for digital image processing is always an image and the output of it would be an image and some relevant information gathered on function application on the given image.

Followings are the methods used as techniques of digital image processing [1]:

A. Image Representation / Modelling

B. Image Enhancement

C. Image Restoration

D. Image Analysis

E. Image Reconstruction

F. Image Data Compression

With the use of these techneques images can be processed to get various outputs such as processing of motion blurred image to get better details of the content in the image.

This project is focusing on motion blurred images of number plates. Motion blur is the apparent streaking of moving objects in a photograph or a sequence of frames, such as a film or animation. It results when the image being recorded changes during the recording of a single exposure, due to rapid movement or long exposure [3].

Blurred number plates are the pictures of vehicle number plates which are merged with above mentioned motion blur. It is hard to get the details of a motion blurred number plate image, so that we use image processing techneques to reveal the details of unclear images.

**CHAPTER 2**

**BACKGROUND**

With the need of various fields at present, image deblurring is an important subject which is used in a vast scale. For example it is very important to get the details of a vehicle or a person which is captures with a blur on a CCTV camera. Likewise there are a lot of valuable needs which can be obtained using image deblur. There are mainly few fields which uses image deblur which are, security field, advertising firld and data analytics.

As we consider the field of security, image deblur is a main keypoint which can reveal data of a scenario.

**REFERENCES**

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[3] Wikipedia : <https://en.wikipedia.org/wiki/Motion_blur#:~:text=Motion%20blur%20is%20the%20apparent,rapid%20movement%20or%20long%20exposure>[.](https://en.wikipedia.org/wiki/Motion_blur#:~:text=Motion%20blur%20is%20the%20apparent,rapid%20movement%20or%20long%20exposure.)