Implementation of Inpainting Algorithm

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ABSTRACT--The inpainting algorithm is related to image. First a low-resolution image is built from original picture.An inpainting algorithm is applied to fill-in the holes of low-resolution image.The quality of the inpainted image is improved by using a single image super resolution method.

Keywords -Diffusion-Based Method, Exemplar-Based Method, Single Image Super-Resolution Method
Image Restoration

1. INTRODUCTION

With all programming languages, you compile or interpret a program so that you can run it on your computer. The Java programming language is not usual in that a program is both compiled and interpreted. With the compiler, first, you convert a program into an intermediate language called Java bytecode. the platform-independent codes interpreted by the converted on the Java platform. The interpreter parses and runs each Java bytecode instruction on the computer. Compile happens just once. conversion occurs each time the program is executed.

In the implementation of inpainting algorithm first, an input image we have to take. Then in the image, we have to crop some area. The cropped area will be anything in the image. By the inpainting algorithm, the holes are filled.but the quality of the image quality is not good. For the good quality of image single image super-resolution method is used. And at last we can save that image is our system only. It will take less time compared to existing approaches. There are two existing approaches are present. first is Diffusion-based method. By Diffusion-based method, the image holes are not filled correctly and the quality of the image is not good. It looks a blur image. The second approach is the Exemplar-based approach. In Exemplar-based approach, by the frames the image is clear. But it takes long time and frames are also increased. but the proposed system has two main components inpainting algorithm and super resolution method. By this two main components, the image looks like a real image.

2.SYSTEM ARCHITECTURE

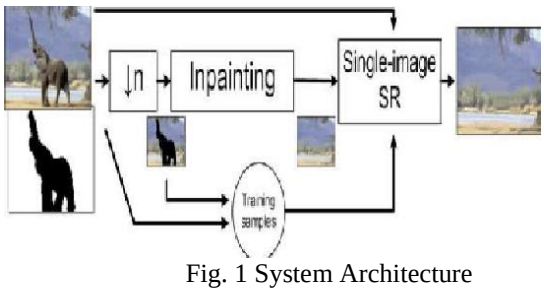


Fig. 1 System Architecture

1.1 Image inpainting

Inpainting is the process of reforming lost parts of images. In the digital world, in painting refers to the application of algorithms to replace lost parts of the image.

Image Restoration is the operation of taking a region of an image and forming the clean original image. Corruption may come in many forms such as blur or camera miss focus.

Super-resolution

Super-resolution is a technique that enhances the resolution of the imaging system. In some SR techniques termed optical Super-Resolution the diffraction limit of systems is transcended.

Detailed Design

Use Case Diagram

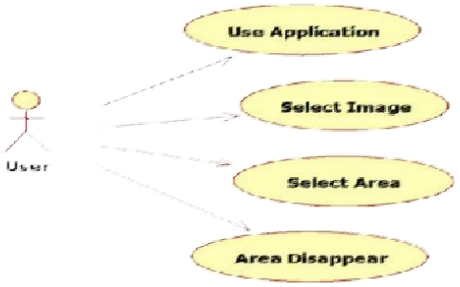


Fig. 2 Use Case Diagram

Sequence Diagram

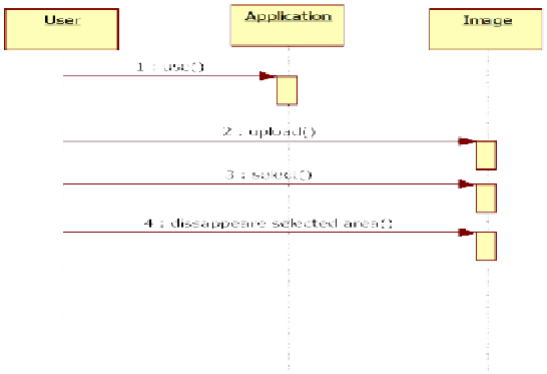


Fig. 3 Sequencial Diagram

3.THE INPAINTING ALGORITHM

Super-resolution is a technique that uses the resolution of the imaging system. There are different super-resolution techniques are present. Like optical single-resolution and geometric single-resolution.The geometric single-resolution is related to the resolution of an image. Images may contain textures. but by the sampling theorem the contents can be automatically restored. For the case of missing areas exact

reconstruction is recommended. The inpainting model is successful for the large image the region must be small. If the region is small the result will be more clear. In this algorithm, the human visual system can tolerate some amounting of blurring areas.

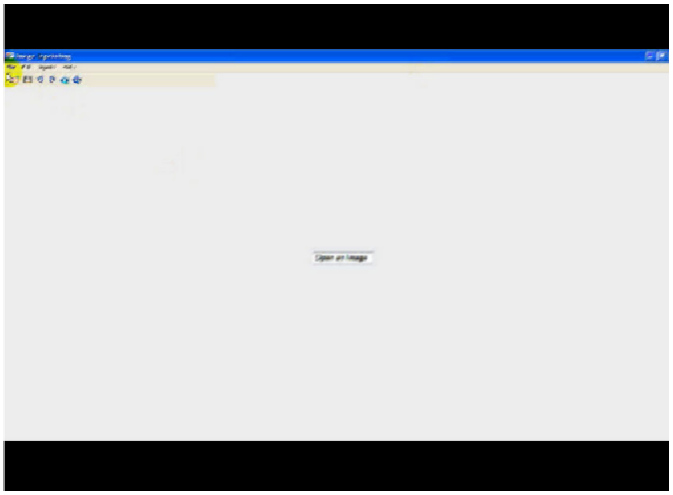
Let Ω be a small area to be inpainted and let ∂Ω be its boundary. since Ω is small, the inpainting by the diffusion process that ∂Ω into Ω. An algorithm reconnects edges reaching to ∂Ω.

This algorithm consists of initializing Ω.by clearing the color information and region to be inpainted with a diffusion kernel. ∂Ω is a one-pixel boundary and the no. of iterations are controlled for inpainting domain by checking none of the pixels belonging to the domain their values are changed more than a certain threshold during the previous iteration.The diffusion process is iterated,the inpainting progress from ∂Ω to Ω.

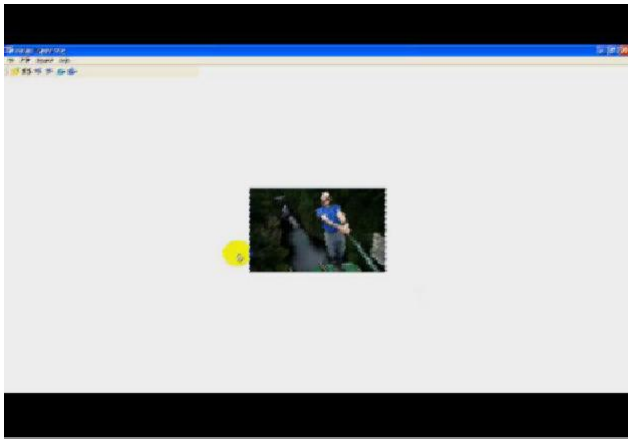
4.IMPLEMENTATION

Module 1 – Image upload

The First module is used to image upload. The image will be taken by our system only.

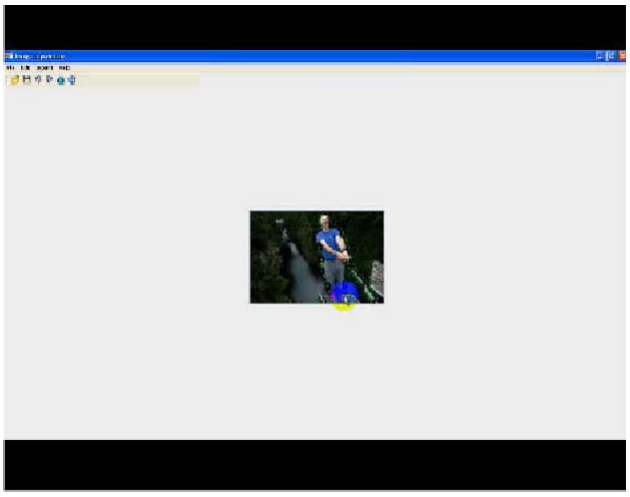


After image upload, the image is displayed.

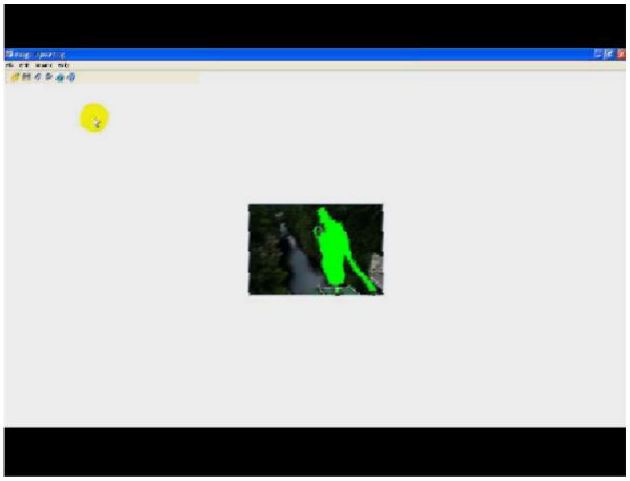


Module 2 – In the Image Cropping Some Area

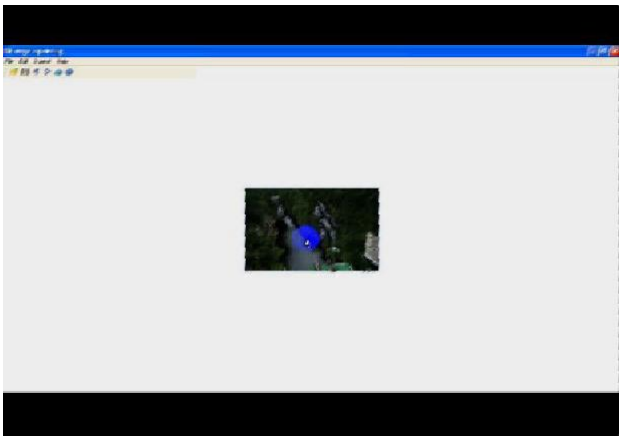
After image uploading, some area in the image will be cropped.



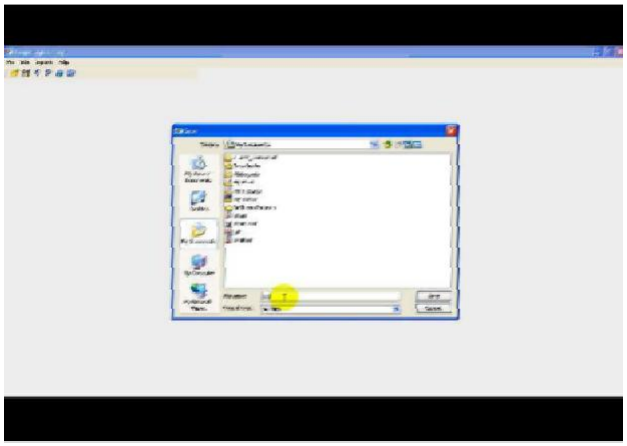
It displays the cropped area in image



Module 3 – Final Output and Saving In System
By inpainting algorithm, this is the final output.



The final output is stored in our system.



5.CONCLUSION

In this project, I have introduced a new inpainting framework. I first propose an extension of a well known exemplar-based method and compare it to existing methods. Then , a super-resolution method is used to recover high-resolution. This is interested for different reason. One interesting avenue of future work is to perform several inpainting of the low-resolution images. First, different kinds of inpainting methods is used to fill the missing areas of a low-resolution image. Second, by given inpainting method, one can fill the missing areas by using different setting. The use of the proposed framework is reduce the computational time.

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