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VLSI DESIGN PROJECT PROPOSAL

CS-319

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IMAGE PROCCESSING FPGA

ABSTRACT:

In order to implement the image processing algorithms and to process the amount of data captured from sources such as medical instruments, intelligent high speed real-time systems, etc. has become imperative. In this project, an efficient FPGA-based design and implementation of image processing algorithm will be presented using hardware description language. The FPGA provides the necessary hardware for image processing algorithms with flexibility to support image processing by using point operations.

IMPLEMENTATION OF IMAGE PROCESSING ON FPGA:

In this project we will implement four basic operations of Image Processing. The image will be processed and the output image can be obtained in the following four forms:

1. Threshold (grayscale) version of the input image,
2. Modifications in contrast of the input image,
3. Image having some modifications in brightness level,
4. Inverted version of the input image

This will be done by manipulating the RGB values of every pixel of the given input image. Input will be given in the form of bitmap image. Bitmap image will be converted into hex file first, which will

include the RGB data of the image given as input. The given input image will be then processed and the output image will be stored as a Bitmap image too.

SOFTWARE AND HARDWARE DESCRIPTION LANGUAGE :

The proposed image processing abstract on FPGA will be designed using Verilog HDL, and will be simulated, tested and synthesized using Xilinx.