VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM.

B.L.D.E. Association's
VACHANA PITAMAHA Dr P.G.HALAKATTI COLLEGE OF ENGINEERING & TECHNOLOGY,
BIJAPUR – 586 103.

B.L.D.E.A's BIJAPUR

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING.

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A PROJECT REPORT ON

" VLSI IMPLEMENTATION OF REAL TIME IMAGE PROCESSING SYSTEM "

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Under the Guidance of
Prof. BAPURAY. D. Y.

:Submitted by:

POONAM. USULKAR	2BL06EC405
SADASHIV. SHIRABUR	2BL05EC058
VEERESH. JUMANAL	2BL05EC085
SHREESH. CHHABBI	2BL05EC074

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ABSTRACT

Pre-processing the live images coming from CCD or thermal image is very essential for any tracking system to work reliably. In this project we have proposed real time image processing system for detection and tracking. The various components of image processing system are discussed separately to address different algorithms. In order to optimize the hardware, multiple vertical band analysis has been carried out prior to hardware implementation. Sixteen vertical bands have been selected for image partition after performance tradeoff between number of vertical bands and computation load. It provides hardware reduction by a factor of 14.94 at the cost of 4 percent performance degradation. The complete system is implemented using Spice and Magic tools. The simulations have been verified.

This project presents implementation of powerful algorithm for a 3×3 covolver which consists of 8 bit array multiplier, 16 bit adder and substractor. Along with this multiple vertical band analyzer to reduce hardware requirements.

A prototype CMOS integrated circuit of Real Time Image Processing System has been implemented. Simulation is done using SPICE and layouts are drawn using MAGIC in 0.35 technology.