Visvesvaraya Technological University
Belgaum, Karnataka-590 014

A Project Report on

"GRAPH THEORETIC SOLUTION TO MULTIDIMENSIONAL OPTIMIZATION PROBLEM"

(Sponsored by KSCST,Bengaluru)

Project Report submitted in partial fulfillment of the requirements for the award of the degree of

Bachelor of Engineering in Computer Science Engineering

Submitted by

Shailaja Biradar	**2KL11CS071**
Shivali Metgud	**2KL11CS075**
Swaroopa Dugani	**2KL11CS087**
Ruksar Meer	**2KL12CS413**

Under the Guidance of
Prof. Roopa Patil

K.L.E DR.M.S.SHESHGIRI COLLEGE OF ENGINEERING AND TECHNOLOGY UDYAMBAG, BELAGAVI-590008.

Department of Computer Science Engineering

2014-15

ABSTRACT

Representation and traversal of rectangular area graphs is a problem well known in Electronic design Automation (EDA). Commonly used representations include R-tree, horizontal and vertical constraint graph etc. Some algorithms like O-trees are suitable for raster image representation. Some EDA tools also use B*-trees. Essence of the problem is the need to handle two "Forward only" trees simultaneously corresponding to x and y axis .In addition, each of the rectangles can have different sizes and aspect ratios, necessitating a multi resolution grid to be used.

A new approach to the problem is to use Area trees or A-tree that have quadruple network of area pointers that can be used to traverse area in any of the four planar directions.

The work done in this research enumerates the problems faced while performing basic operations on rectangular areas .We have implemented bisect, sort, merge and insert operations in A-tree. This work is a part of research work been done in E & CE of our college.