PROJECT REPORT
IMPLEMENTATION ANT COLONY BASIC ALGORITHM
INSIDE AN OPTIMAL ROUTE SEARCHING
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INFORMATICS ENGINEERING DEPARTMENT
FACULTY OF COMPUTER SCIENCE
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APPROVAL AND RATIFICATION PAGE

PROJECT REPORT
Implementation Ant Colony Basic Algorithm
Inside an Optimal Route Searching
by
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ABSTRACT

Searching for the route is an existed problem since long time ago. A lot of route selection and to determine the most optimal route are some example of the existed problems. Searching for the optimal route means to search or find the most ideal route composition or the closest one that is suitable with the existing rule.

This project is about an optimal routing system which is compatible with Ant Colony Optimization Algorithm (ACO), this project uses a mobile (Android) based from Java program language. Ant Colony Algorithm is one of Optimization Algorithm. Ant Colony Optimization algorithm is an Algorithm which is adapted from ant’s habits. Every walking ant will leave pheromones. If more ants pass through that track, the more pheromones will be contained at that road. Pheromones are used to be a trail for the other ants. The ants prefer a track which contains a lot of pheromones.

Same with the habits of the ants, this program will generate the most optimum route based from the ant’s instinct.

Keywords: Ant Colony Algorithm (ACO), Route, Optimization
PREFACE

The report of this project contains 6 chapter. First chapter is an introduction about the background history of the making of this project, scope, and objective.

The second chapter contains literature study about data structure and the used algorithm. This literature contains about the function of Ant Colony Optimization (ACO) algorithm and also 2 Dimensional array (matrix) with the example from the ACO algorithm and the data structure.

The third chapter is about the project planning, from the beginning of the project making until finishing the project.

The fourth chapter contains analyzing and the project design. Start from the diagram class and then GUI design. Class diagram contains about the program running and also the classes’ function. GUI design is divided become 3 frames, they are first frame, second frame, and third frame. The first and the second frame is functioned to input the data from the user. The third frame is functioned to show the program output.

The content from the fourth chapter will be a base for application development in the fifth chapter. The fifth chapter is about algorithm implementation and data structure that is used into the program. Also the result of the test after the user uses the program.

The final chapter contains the conclusion of the whole project that already made and also the needed suggestion for the program if someone wants to use it someday.
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