

ABSTRACT

As the increasing of the necessity, there are several new problems occur during the Water Piping Network, the problem is about the way to save the cost in making the Water Pipe Network development and management. It can be realized by optimizing the pipe diameter which will be set in the network, so we will not just gain cost with the most minimize price but also fulfilling the demand.

This thesis developed a system which will find the way to save the cost in Water pipe Network with Genetic Algorithm. The saving could be gain by combining the best pipe diameter so we could fulfill the demand into the society. In the system, we will find the combination within several pipe diameters which has the minimum cost. To solve the problem, we use the genetic algorithm because this algorithm could solve the most complex problem which hard to solve with the conventional methods.

The development of the system used Borland Delphi 7.0 and Epanet 2.0. Based on the testing that has been done, the test result has a significant cost saving in network.

Keywords : *cost, demand, genetic algorithm, optimization*