

SELF-ORGANIZING URBAN TRAFFIC CONTROL ARCHITECTURE WITH SWARM-SELF ORGANIZING MAP IN JAKARTA: SIGNAL CONTROL SYSTEM AND SIMULATOR

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Abstract- Urban traffic control is the main factor that contributes to traffic jam. Approach in distributed Urban traffic control has been developed in several research, but the coordinating controller factor is basically a quite complicated task to tackle, because between intersection have dependency, so required a method of distributed control system capable for synchronizing between intersections. In this paper we present architecture of decentralized self-organizing traffic control with swarm-self organizing map in real situation even on non-structure intersections like in Jakarta (Indonesia). Based on the proposed architecture we have been implemented Traffic Signal Control System for controlling traffic lights in which the coordination between the intersections is implemented using distributed swarm self-organizing map. Traffic Signal Control System were tested in a simulated real-road scenario of Jakarta. By means of the computer simulation, the application of distributed swarm signal self-organizing control is proved effective in urban traffic.

Index terms: Traffic Control , Swarm-self Organizing Map, Distributed Traffic Control.