Traffic Light Control System using fuzzy Control Rules

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Abstract

Traffic congestion is a severe problem in many modern cities around the world. This system presents the simulation model of traffic light control for the four sets of traffic lights at the traffic crossing at junctions. The real time feedback parameters, traffic density and queue length are obtained from simulation model which will generate cars for the traffic at a specific arrival rate based on the simulation setting parameters. The on and off timing for green, red and amber lights are adjusted as per the actual road conditions. A fuzzy rule is defined as a conditional statement in the form of IF THEN. Fuzzy logic is used to determine optimum traffic light phase split based on the traffic information from the traffic information units. The defuzzification of the combined results is done for the condition where there is more than one rule satisfied. Java programming will be used to implement the simulation system. In the implementation of simulation, java threading and timer controls are used to generate cars and control the traffic light in the graphical interface.