

Closed Loop Traffic Control System Using PLC

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Abstract : The project is all about development of a close loop traffic light control system using PLC (Programmable Logic Controller). This project is divided into two parts which are hardware and software. The hardware part for this project is a model of four way junction of a traffic light. Three indicator lamps (Red, Yellow and Green) are installed at each lane for represents as traffic light signal. This traffic control model is a replica of actuated traffic control. Actuated traffic control system is a close loop traffic control system which controls the timing of the indicator lamps depending on the fluidity of traffic for a particular lane. To make it autonomous, in each lane three IR sensors are placed which helps to sense the percentage of traffic present on any particular lane. The IR Sensors and Indicator lamps are connected to LG PLC XGB series. The PLC controls every signal which is coming from the inputs (IR Sensors) to software and display to the outputs (Indicator lamps). Default timing for the indicator lamps is 30 seconds for each lane. But depending on the percentage of traffic present, if the traffic is nearly 30-35%, green lamp will be on for 10 seconds, for 65-70% traffic it will be 20 seconds, for full 100% traffic it will be on for full 30 seconds. The software part that operates with LG PLC is "XG 5000" Programmer. Using this software, the ladder logic diagram is programmed to control the traffic light base on the flow chart. At the end of this project, the traffic light system is actuated successfully by PLC.

Keywords : close loop, IR sensor, PLC, light control system

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