

ABSTRACT

Fixed time traffic signal is considered less effective in reducing congestion. With the automatic traffic light system that already exists, it could reduce the congestion. But because the price is quite expensive, automatic traffic light system that already exists can not be applied to every intersection.

In this final project, the prototype of an automatic traffic light system using sensor LDR as a recipient of a laser light beam is created. Sensors are installed in each lane and it arranged in arrays. If the vehicle is blocking the light beam from the laser to the LDR, the microcontroller will detect the presence of vehicles. Microcontroller ATmega32 that are used in this final project is using fuzzy logic for the processing of the input signal. The logic is used to calculate the time of green lighting on track 'west-east' and 'north-south' interchangeably. The duration of the green light will be displayed on the LCD.

With a length of track on each lane approximately 25 cm with the scale 1: 100, the system can detect approximately 5 vehicles along the 4 cm. If the number of vehicles in each lane is 'high' then the duration of green lighting is 'long', if the number of vehicles in each lane is 'normal' then duration of the green lighting is 'normal', if the number of vehicle in each lane is 'low', then the duration of the green lighting is 'short' .

Keywords: Prototype, Traffic Light, Fuzzy Logic, Microcontroller, ATmega32, Laser, Light Dependent Resistor