

ABSTRACT

The growth of transportation and the progress of the current era, traffic jam becomes a major problem especially for large cities. The traffic light as a tool to regulate traffic at this point has not worked maximal. It needs a system of traffic lights that the flash of cycle time can be adjusted for the actual intersection. Thus it can help the authorities to regulate the traffic.

In this thesis, the system developed to regulate the traffic lights green long to adjust to the flow of traffic at the time. For determine the effective green time is used the Webster and Cobbe method. This system requires a number of vehicles to be able to set the cycle time of traffic lights where the number of vehicles entered through the PS2 keyboard. The results were modeled with the design of programming languages VHDL (Very High Speed Integrated Circuit Description Language) and synthesized and implemented using Xilinx ISE 13.2 in the form of LED lights.

This device can be implemented on an FPGA device with the XC3S1000 Spartan-3 board. Block traffic light controller can be simulated on the FPGA to set the timing and counter. From the results of modeling and simulation obtained number of vehicles that entered through the keyboard and producing LED lights red, yellow, green lights alternately. The accuracy is the lights by 69% compared to simulation on MS.Excel.

Keywords: Traffic Light, PS2 keyboard, VHDL, FPGA.