Digital System Project proposal

20003197 Gu hyukmo

Project Title: Signal System Using Logic Gates

Project Description:

This project aims to design a signal system using basic logic gates. The signal system will produce different outputs based on specific input conditions, which can be applied to traffic lights. The project will involve designing digital circuits to implement the signal system.

Required Components:

1. Logic gates : Basic component of digital system

2. Flip-Flops : Memorize the previous state(light’s collor)

3. Counter : Traffic light changes specific cycle. Counter serves to calculate a particular period.

4. Clock pulse : clock pulse

Key-Features:

1. Sequential Light Control : The system will control the traffic lights in a sequence. Previous state(traffic lights’s color) will be input to obtain output. Use Flip-Flops to hold the current state of traffic lighs.

2. Timing Mechanism : Stable clock pulse generate the timing pulses. The clock pulses will be input of counter which counts the pulses.

3. Counting Mechanism : The component of the counter is Flip-Flop(maybe T Flip-Flop). Flip-Flops will be connected in series.

4. Display : Promotion will run on Logisim, not on the breadboard.

System Logic:

Clock pulse and previous state(traffic light color) will be input of this system.  
Counter counts the clock pulse. And when the output of the counter reaches a certain value, Change the color of the traffic light.