EECE 2306-06 Digital Systems Engineering I

2-Digit Seven-Segment Binary Converter

1. Project Overview

The purpose of this project is to design and implement a binary-to-decimal converter that displays a 2-digit decimal number (00-99) using two seven-segment displays. The input will be an 8-bit binary number, which will be converted to its decimal equivalent and displayed on the seven-segment displays. The design must be implemented using only combinational logic components such as logic gates, multiplexers, demultiplexers, encoders, and decoders. Microcontrollers and programmable devices are not allowed.

2. System Requirements

A functional and complete project must comply with the following requirements:

- The system must accept an 8-bit binary input (0 to 255).
- The system must convert the binary input into its decimal equivalent.
- The system must display the least significant two decimal digits (00-99) on two seven-segment displays.
- The display must be updated in real-time when the binary input changes.
- Combinational logic circuits using logic gates, multiplexers, demultiplexers, encoders, and decoders. No microcontrollers, FPGAs, or any programmable devices may be used.
- Two seven-segment displays (common anode or common cathode).
- Binary input provided using DIP switches or push buttons.
- Power supply (typically 5V for logic circuits and display operation).
- No microcontrollers, FPGAs, or any programmable devices may be used.

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- ① Introduction
- ① Definition of Main Concepts
- ⑦-⑩ Development
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