

Mara University of Technology

Project TWO

DIGI TEACHER

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ABSTRACT

Digi Teacher is very useful as a teaching aid for the students of digital electronics. It uses only 4 switches for obtaining 8 functions IC's such as Quadruple 2 – input NOR gates (7402), Hex Inverter (7404) and the Light Emitter Diode (LED). Rotary switch are used.

After being through IC's NOR gates (7402) and INVERTER (7404) this Digi Teacher can show us a various output by move the switch (S4a and S4b) from the original position. In the NORMAL side, we can get outputs like (IINVERTER, OR, AND and EX – OR) but after move the switch to another side, means invert the switch (NOT) the gate will give us the different types of output (Buffer, NOR, NAND and EX – NOR)

As a conclusion by moving the switch (S4a and S4b) from NORMAL side to the NOT side, the user can immediately get negation of the function. It will facilitate to the user to understand the relationship between the various gates.

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May God bless you all. Amin.

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INTRODUCTION

The unit was developed as a teaching aid, which can test all the gates of digital electronics. Digital electronics is simply a collection of switching circuits combined in such a way as to allow certain outputs with certain inputs. These are called gates as they allow only certain functions to pass through.

OR, AND, EX-OR and NOT (inverter) are some popular gates. There are also gates called NOR (meaning NOT OR), NAND (meaning NOT AND) and EX-NOR (meaning NOT EX-OR) where the outputs are inverted equivalents of OR, AND, EX-OR functions respectively. The latter gates will be frequently used in circuits in preference to their universal equivalents, in order to save the number of gates used. A NAND or NOR gate can be used to derived the functions of the other gates. In this circuit NOR and INVERTER gates are used to minimize the number of ICs. The circuit is quite simple as shown in fig. 1

