

DIGITAL IC TESTER

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ABSTRACT

IC's, the main component of each and every electronic circuit can be used for wide variety of purposes and functions. But sometime due to faulty ICs the circuit doesn't work. Indeed it is lot tedious work to debug the circuit and confirm whether the circuiting is creating problem or the IC itself is dead. So to come up with these sorts of problems we intend to make a project which would confirm whether the IC under consideration is working properly or not.

I. INTRODUCTION

We completed our project by going through these steps,

- We made a USB to Serial Programmer ,
- We did the basic circuit on breadboard and Tried with few basic ICs on it.
- We developed the circuit which can put on PCB and can be used for all the ICs.
- To make the project user friendly, we worked to make the keypad and LCD interface.

II. WORKING:

The IC to be tested is inserted in the base. The user enters the IC number through keypad which is simultaneously displayed on the LCD. The IC number is communicated to other MCU which basically test the ICs for few sets of input which is given through the MCU and corresponding output. The result is again communicated to the first MCU confirming it to be either correct or faulty which is displayed on the LCD.If the IC tested is ok "IC TESTED OK is displayed on the LCD.Otherwise "IC TESTED FAILED" is displayed.

For example if we want to check shift register(74194) the following steps has to be followed

1. IC i.e. is 74194 is inserted in the base.
2. IC number i.e. 74194 is typed using the keypad
3. Enter key is then pressed
4. if IC is ok,"IC TESTED OK" is displayed on the screen otherwise "IC TESTING FAILED" is displayed.

We also have the reset key.If by mistake a wrong IC number is typed,it can be reseted using the reset key and then correct IC number can be typed.

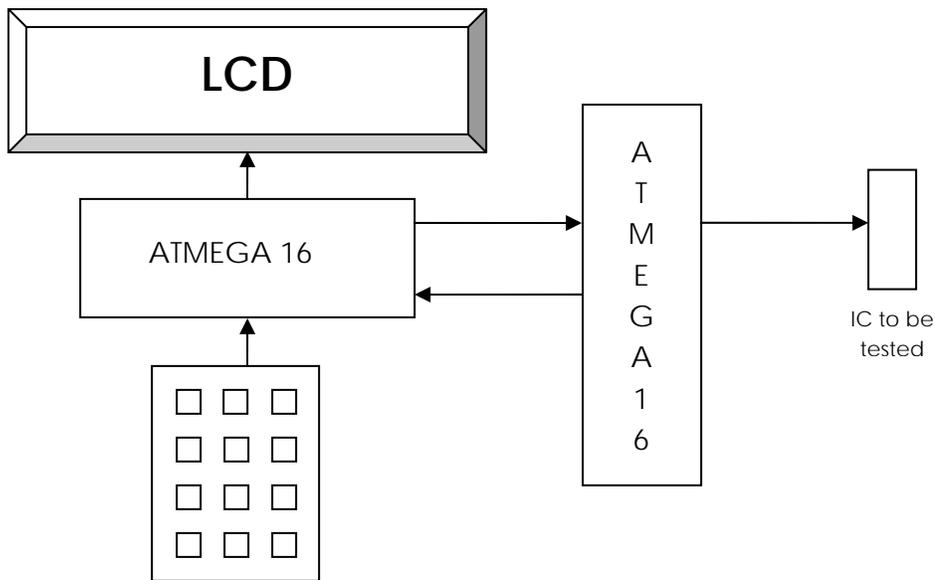


Fig. Block Diagram

III. ICs THAT CAN BE TESTED

- 4069-Hex Inverter (NOT Gate)
- 4081- Quad 2-Input AND Gate
- 4071- Quad 2-Input OR Gate
- 4001- Quad 2-Input NOR Gate
- 4011- Quad 2-Input NAND Gate
- 4070- Quad 2-Input Exclusive OR Gate
- 7266- Quad 2-Input Exclusive NOR Gate
- 4073- Triple 3-Input AND Gate
- 4075- Triple 3-Input OR Gate
- 4029- Up Down Counter
- 4052- 4 X 2 Multiplexer
- 4051- 8 X 1 Multiplexer
- 7485- 4 bit binary comparator
- 4013- Dual Delay Flip Flop
- 74194- 4 bit bidirectional Shift Register

IV. PROBLEMS FACED

1. Circuiting on breadboard was not firm enough. It was unreliable so we remade our circuit on PCB.
2. With the help of internal clock, it was hard to synchronize the ICs which require clock so we created manual clock.

V. FUTURE EXTENSIONS

The project can be extended as following:

- 1) It Can be extended for more than 16 pin ic's by changing some hardware and coding.
- 2) It Can be extended to analog IC's

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VII. REFERENCES

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