

7447 BCD - Seven segment Display Decoder Assignment

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I. ABSTRACT

This paper shows how to use the 7447 BCD-Seven segment Display Decoder to learn Boolean logic using Arduino Uno.

II. COMPONENTS

The required components list is given in Table: I, and the seven-segment display is shown in Fig. 2. The IC 7447 diagram is shown in Fig. 1.

| Components | Value | Quantity |
|-----------------------|-------|----------|
| IC | 7447 | 1 |
| Seven segment display | | 1 |
| Arduino | UNO | 1 |
| Jumper Wires | | 10 |
| Breadboard | | 1 |

TABLE I
COMPONENTS LIST



Fig. 1. IC 7447

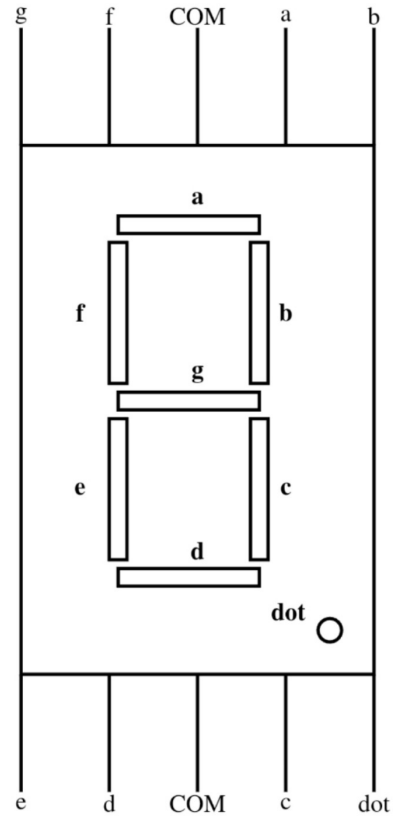


Fig. 2. Seven Segment Display

III. PROCEDURE

- 1) Make the connections of 7447 IC and the seven-segment display as shown in Fig. 3.
- 2) Make the connections of 7447 IC and Arduino Uno as shown in Fig. 4.

| 7447 | \bar{a} | \bar{b} | \bar{c} | \bar{d} | \bar{e} | \bar{f} | \bar{g} |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Display | a | b | c | d | e | f | g |

Fig. 3. Circuit Setup 1

| D | C | B | A | Decimal |
|---|---|---|---|---------|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | 1 |

Fig. 4. Circuit Setup 2

- 3) Truth table for incrementing from 0 to 9 in the seven-segment display is shown in Table II.

| Z | Y | X | W | D | C | B | A |
|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| ... | ... | ... | ... | ... | ... | ... | ... |

TABLE II
TRUTH TABLE FOR SEVEN-SEGMENT DISPLAY

- 4) Execute the Arduino code without any errors.
- 5) Upload the code into the hardware setup using Arduino IDE.

IV. RESULTS

- 1) Download the code from the link below and execute it to see the output as shown in Fig. 5.
- 2) <https://github.com/Madhuyadav012/fwc/tree/main/7447>

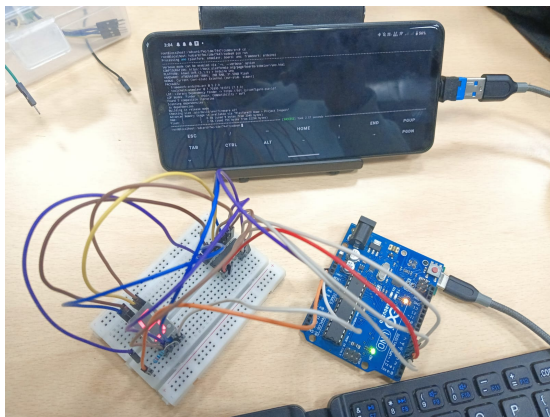


Fig. 5. Output Example

V. CONCLUSION

Hence, the implementation of the 7447 IC and Seven-segment display using Arduino UNO is complete.