Decade Counter through 7474

G V V Sharma*

CONTENTS

1 Components 1

2 Decade Counter 1

***Abstract*—This manual shows how to use the 7474 D-Flip Flop ICs in a sequential circuit to realize a decade counter.**

1 Components

Component	Value	Quantity
Breadboard		1
Resistor	$\geq 220\Omega$	1
Arduino	Uno	1
Seven Segment Display	Common Anode	1
Decoder	7447	1
Flip Flop	7474	2
Jumper Wires		20

TABLE 1.0

2 Decade Counter

Problem 2.1. Generate the CLOCK signal using the **blink** program.

Problem 2.2. Connect the Arduino, 7447 and the two 7474 ICs according to Table 2.2 and Fig. 2.3. The ping diagram for 7474 is available in Fig. 2.2

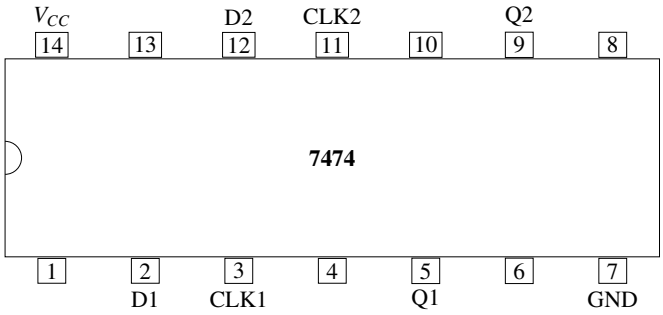

Fig. 2.2

Problem 2.3. Intelligently use the codes in

```
wget https://raw.githubusercontent.com/gadepall/arduino/master/7447/codes/inc_dec/inc_dec.ino
```

and

```
wget https://raw.githubusercontent.com/gadepall/arduino/master/7447/codes/ip_inc_dec/ip_inc_dec.ino
```

to realize the decade counter in Fig. 2.3.

*The author is with the Department of Electrical Engineering, Indian Institute of Technology, Hyderabad 502285 India e-mail: gadepall@iith.ac.in.

	INPUT				OUTPUT				CLOCK		5V			
	W	X	Y	Z	A	B	C	D						
Arduino	D6	D7	D8	D9	D2	D3	D4	D5	D13					
7474	5	9			2	12			CLK1	CLK2	1	4	10	13
7474			5	9			2	12	CLK1	CLK2	1	4	10	13
7447					7	1	2	6			16			

TABLE 2.2

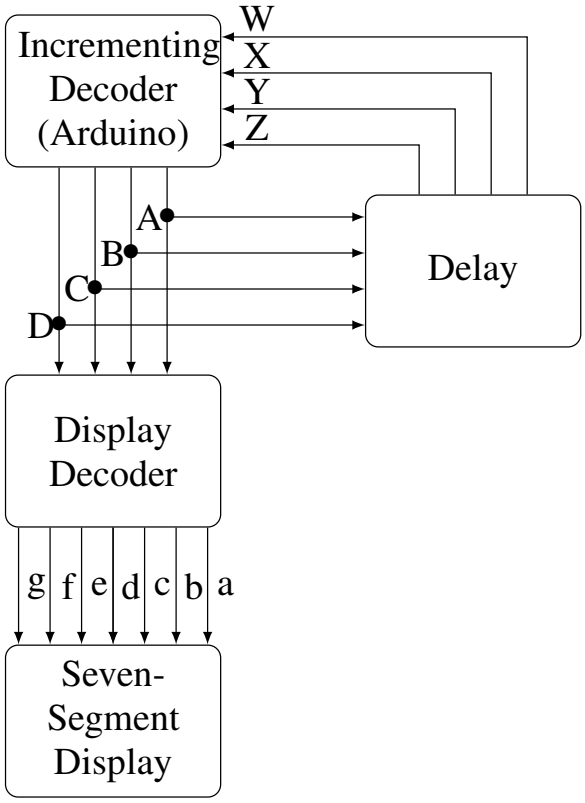

Fig. 2.3