Implementation of T Flip-Flop using 7474 IC

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1 Abstract

This manual shows Implementation of T flip-flop using 7474 IC

2 Components

Component	Value	Quantity
Bread board	-	1
Arduino	Uno	1
LED	-	2
IC	7474	1
Jumper Wires	-	20

Table 1:

3 Procedure

1.consider four digital pins 13,7,2,4,7 as input and 2,4 as ouputs .
2.here D13 acts as clock signal
3.connect 7474(1,4:VCC) to deactivate them otherwise they will interrupt in output
4.connect 7474(7:GND 14:VCC)
5.connect 7474(2:7,5:4) and take slider switch as toggle input connect it to D2.

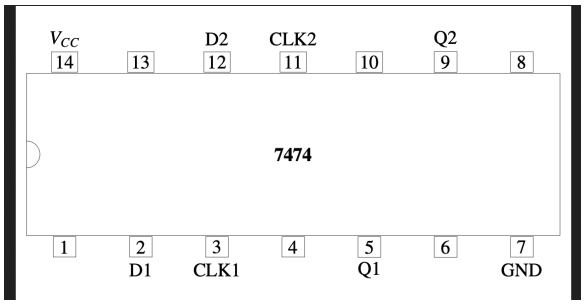

Figure 1: 7474

6.D=T!Q —— !TQ.
7.Connect another LED + to the 5 (Q) pin of the IC 7474 and GND the other terminal.
8.Change the D2 pin in the Arduino from VCC to GND and observe the outputs.

4 Code

Execute the following code using the below provided link

https://github.com/chandana531/cchandana$_f$wc/blob/main/assignment1$_a$ssembly/codes/ide.ino

5 Conversion table

Input	**Intermediate Inputs**			**Outputs**	
T	Qn	!Qn	T=D xor Qn	Qn	!Qn
0	0	1	0	0	1
0	1	0	1	1	0
1	0	1	1	1	0
1	1	0	0	0	1

Table 2:

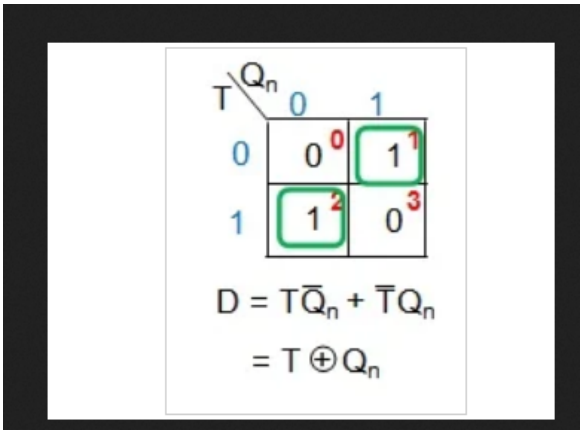

Figure 2: kmap

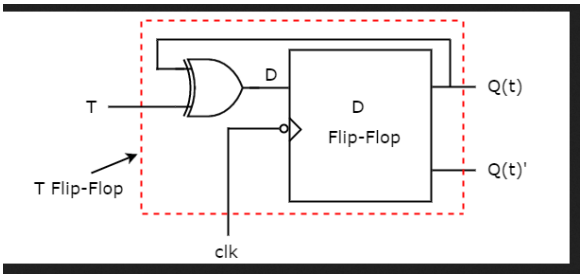

Figure 3: Circuit Diagram