भारतीय प्रौद्योगिकी संस्थान हैदराबाद
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Platformio Assignment

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I. ABSTRACT

This document analyzes an asynchronous counter built with two JK flip-flops. The counter's sequence and the impact of the asynchronous design are examined.

What are the counting states (Q1,Q2) for the counter shown in the figure 1

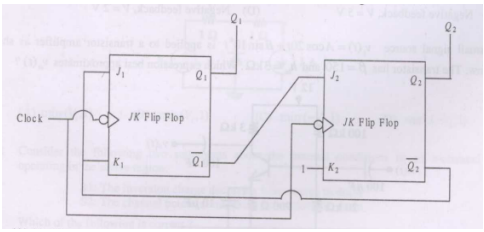

Fig. 1.

II. COMPONENTS

Components	Value	Quantity
LEDs		2
Arduino	UNO	1
Jumper Wires		10
Breadboard		1

TABLE I

III. PROCEDURE

- **Power Supply:** Connect the Arduino board to a 5V power supply.
- **Clock Input:** Connect one end of a push button to digital pin 2 (clockPin) and the other end to +5V.
- **Q1 Output:** Connect the anode (longer leg) of an LED to digital pin 12 (Q1). Connect the cathode (shorter leg) of the LED to a 220-ohm resistor, and then to ground.
- **Q2 Output:** Connect the anode of another LED to digital pin 13 (Q2). Connect the cathode to a 220-ohm resistor, and then to ground.

IV. RESULT

The Arduino code successfully implements a JK flip-flop using software. The circuit generates a specific sequence of outputs based on the clock input.

Download the code given in the link below and execute them to see the output as shown in Fig.2
https://github.com/patnamkeerthi4545/Fwc/blob/main/Platformio/main.cpp

Present state		Present input				Next state	
Q1	Q2	J1	K1	J2	K2	$Q1^+$	$Q2^+$
0	0	1	1	1	1	1	1
1	1	0	0	0	1	1	0
1	0	1	1	0	1	0	0
0	0	1	1	1	1	1	1

Fig. 2.

V. CONCLUSION

The provided Arduino code successfully implements a JK flip-flop using software. The circuit utilizes two flip-flops, $Q1$

and $Q2$, to generate a specific sequence of outputs based on a clock input.