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Button Debouncing

The diagram illustrates a button debouncing circuit using a 555 timer configured as a monostable multivibrator. The circuit includes the following components and connections:

- 555 Timer (U1):** Labeled "555BistableSwitch1".
 - Pin 1 (GROUND) is connected to GROUND.
 - Pin 2 (TRIG_BI) is connected to the TRIG_BI input of the pushbutton.
 - Pin 3 (OUT_BI) is connected to GROUND.
 - Pin 4 (RESET_BI) is connected to GROUND.
 - Pin 5 (CTRL_BI) is connected to a network of a 10k resistor (R10) and a 10nF capacitor (U6) to GROUND.
 - Pin 6 (GROUND) is connected to GROUND.
 - Pin 7 (Output) is connected to the TRIG_BI input of the pushbutton via a 1k resistor (R12).
 - Pin 8 (5V) is connected to the 5V supply.
- Pushbutton (XKB7070-Z):** A momentary contact switch with four pins:
 - Pin 1 (TRIG_BI) is connected to the TRIG_BI input of the 555 timer.
 - Pin 2 (GROUND) is connected to GROUND.
 - Pin 3 (RESET_BI) is connected to GROUND.
 - Pin 4 (TRIG_BI) is connected to the TRIG_BI input of the 555 timer.
 - Pin 5 (GROUND) is connected to GROUND.
 - Pin 6 (RESET_BI) is connected to GROUND.
- Resistors:**
 - R12 (1k): Connects the 5V supply to the TRIG_BI input of the pushbutton.
 - R10 (1k): Connects the 5V supply to the CTRL_BI input of the 555 timer.
- Capacitor:**
 - U6 (10nF): Connects the CTRL_BI input of the 555 timer to GROUND.

The circuit ensures that a single button press results in a single, clean output pulse from the 555 timer, effectively debouncing the mechanical switch.

Step by Step Clock

5V

TRIG_PUSH

R5
1k

555MonoStablePush1

GROUND

TRIG_PUSH

OUT_PUSH

5V

8

7

6

5

5V

DIS_THR_PUSH

DIS_THR_PUSH

DIS_THR_PUSH

CTRL_PUSH

R9
1M

5V

DIS_THR_PUSH

C1SmoothingCapacitor2
100nF

GROUND

4 KEY1 3

GROUND

1 2


TRIG_PUSH

B3F-4055

U5
10nF

CTRL_PUSH

GROUND

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