

Switch debouncing

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For one of my projects I decided to use a momentary switch (where its held on as long as you push it in and when you release it will disconnect... I think its called momentary switch). The switch basically selects presets and I will have a couple of them. The idea is like the buttons on a blender where you press one and it mechanically turns off all the others. I'm trying to do the same thing digitally. i.e., if I press button A it will turn off all the others (only one will be on ofcourse). I do this by basicaly using toggle FF's.

The main issue I have, I think, is the switch debouncing part of it. I've look on some web sites and they basicaly give a few methods such as a simple filter circuit (which I think won't work on mine because of the switch type) and an monostable vibrator. Anways, I feel that I can do this with just some resistors and capactiors. By looking at the idea for a monoastable vibrator where they used a capacitor to "slow the change" I figure I can sorta do the same.

Basicaly the way I see it is that when the switch bounces it will discharge a capacitor... the more bouncing the more discharge. By setting the capacitor to slowly charge but discharge quickly when the switch is pressed the voltage across the capacitor is 0... any bouncing will discharge the capacitor as it slowly charges. By using a schmitt trigger then I can get a high only after the capacitor has charged enough. By setting the time constant one should be able to get rid of the bouncing (its effect is to length the time it takes to charge).

The circuit is

```
---- Schmitt Trigger - Out
|
V --- R1 ---+--- Switch --- R2 --- GND
|
---- C1 --- GND
```

What I'm wondering is if this is an effective circuit (i.e., if its practical). I can simulate it and it seems like it would work but I have no

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idea if it will work in the real world (and I have no components to test it but will order some soon after I get a general idea what I need).

I figure the only problem is that if the person pushing the button pushes it too fast then it will increase the time the button is "activated" and it won't change anything... not sure if one could get the time constant down enough so that the bouncing is fixed but not part of the button pressing of the user.

Here's a link to the a pic:

http://www.geocities.com/abstract_dissonance/SDBC1.JPG

the green is of course the charge on the capacitor (well, voltage) and the red is my "output". Whenever I hit the switch the capacitor discharges (drop on the green line) rather quickly and tries to "recover". Each successful time I hit the switch I try to hit it several more times a row to simulate the bouncing. Note at the last time there are two red "boxes" next to each other which would be a problem I think... I think this can be fixed with setting the appropriate resistor and capacitor values though.

Any ideas?

Thanks,
AD

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