

Reading and writing to a single digital pin

GoForSmoke Old And In The Way

févr. '13 #32

Don't forget Charlieplexing.

system 

févr. '13 #33

Don't forget Charlieplexing.

will make the circuit more complex and wiring even more difficult.. and if 1 led or so might fail it could be very hard debug... Anyways nice thought though... never thought about it myself :)

I've thought from the beginning that using one pin for input and output would not work.

So I guess this a dead end then... :(Really hoped to get it working this way... Back to the usual method now... Thank you everyone for your valuable inputs :)

system 

févr. '13 #34

I believe that it will work the way you have said you want it to, if you follow PeterH's suggestions.

If it is not, check your wiring and pin assignments? What exactly is it doing/not doing?

```
// "When a button is pressed, Latch it's own LED on and turn off all the others"

buttonState_1 = digitalRead(button_1);
buttonState_2 = digitalRead(button_2);

if(buttonState_1 == 0) // Button 1 is pressed. Switch shorted with ground
{
    // "turn off all the others"
    pinMode(button_2, INPUT);
    digitalWrite(button_2, HIGH); // note active LOW, so this turns Led2 off

    // "turn my own led on"
    digitalWrite(button_1, LOW); // active LOW to enable led1
    pinMode(button_1, OUTPUT); // turn it on
}

if(buttonState_2 == 0) // Button 2 is pressed. Switch shorted with ground
{
    // "turn off all the others"
    pinMode(button_1, INPUT);
    digitalWrite(button_1, HIGH);

    // "turn my own led on"
    digitalWrite(button_2, LOW);
    pinMode(button_2, OUTPUT);
}
```

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févr. '13 #35

@johncc Wiring and pin assignments are correct... Please Check

<http://arduino.cc/forum/index.php/topic,148314.msg1116872.html#msg1116872>
for the issues I face

system 

févr. '13 #36

Ok, I see. You have never said though, what does your serial output show? Is it tracking properly with your button presses? You might want to slow your loop down, e.g. delay(500) instead of delay(50). Also you could put serial.prints within your if statements like "Turning 1 on", "Turning 2 on". And maybe even a delay(250) in between the two if statements. All together this may allow you to see what's going on. E.g. are you sure you don't have a sticking switch, etc.

Cheers, John

i.e. pseudocode read both buttons print button values if button1 print "Turning 1 on" turn 1 on, 2 off endif delay 250 if button2 print "Turning 2 on" turn 2 on, 1 off endif

delay 500

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févr. '13 #37

The symptoms seem consistent with switch 2 sticking on. Have you actually confirmed it's a momentary switch and not a latching one? Can you print out the switch state transitions that your sketch sees to confirm that the switch inputs are giving you the values you expect?

I don't think the approach you're taking is very sensible (it feels like a complex solution to a simple problem) but it is feasible and I can't see any reason why it couldn't be made to work.

system 

févr. '13 #38

but it is feasible and I can't see any reason why it couldn't be made to work.

I'm not understanding how. If the pin starts in INPUT mode, then reading the switch makes sense. If the pin is then switched to OUTPUT mode, and written HIGH or LOW, future readings of that pin will only return the state that the pin was last written to, not the state of the switch that is attached to the pin.

system 

févr. '13 #39

Yes, good point. He should [u]avoid[/u] reading the one that has already been latched on - and only read the other ones. That is the problem with his current code.

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févr. '13 #40

@000

I think your approach is interesting and am looking forward to seeing it work.

You need to [u]avoid[/u] reading the button/led that you have already turned on.

Maybe something like this (compiled but not tested)

```
/*
   "Radio Buttons"
   When a button is pressed, Latch its own LED on, and turn all the others c
*/
const int nButtons=3;
int buttons[]={ 7, 12, 14 }; // each "button" is a button/led pair
int currentOn = 0;

void latch( int onPin)
{
    // turn onPin on,
    digitalWrite( onPin, LOW);
    pinMode( onPin, OUTPUT);

    // if there is an other pin on, turn it off
    if (currentOn > 0)
    {
        pinMode( currentOn, INPUT);
        digitalWrite( currentOn, HIGH); // pullup
    }
}
```

```

}

void loop()
{
  for (int i=0; i< nButtons; i++)
  {
    // read all but the currently-on button
    if ( buttons[i] != currentOn && digitalRead( buttons[i])== LOW) // act
    {
      latch( buttons[i]);
      currentOn = buttons[i];
      break;
    }
  }
}

```

Cheers, John

GoForSmoke Old And In The Way

févr. '13 #41

000:

Don't forget Charlieplexing.

will make the circuit more complex and wiring even more difficult.. and if 1 led or so might fail it could be very hard debug... Anyways nice thought though... never thought about it myself :)

Now try just understanding that there are ways and apps that use multi-state pins as opposed to advice to "use Charlieplexing".

Oh BTW you can you turn the led off long enough to read the switch? Who would notice?

system

févr. '13 #42

@johncc @peterH I had tried that earlier by stopping the reading when it was LED was on. but it didnt work...

But your code actually works... Thanks :) So I guess mine was a coding error.

Sorry will write up a detailed reply tomorrow. got to prepare for a test for tomorrow... Thank you again will get back to you guys tomorrow

Docedison

févr. '13 #43

Perhaps out of line considering the previous discussion... But OP did I think mention turning a LED on for a specific time on button stimulus Why not use PCF8574's?. IIC but easily chained, read the registers, write those that have changed state whether by input or timeout.

Bob

[PCF8574.pdf](#) (133 KB)

system

févr. '13 #44

Back... 😊

Yes, good point. He should avoid reading the one that has already been latched on-- and only read the other ones. That is the problem with his current code.

Believe it or not I had tried this with flags but I was getting the same results so I quit trying(it was one late night) rather than thinking it could be a coding error. I think I coded it badly that day because my algorithm was exactly same as @johncc

Anyways I got it working with johncc code. 😊 Thank you so very much. 😊
So its actually possible to do it.

So for completion if someone ever faces this same problem. I have attached the code I used for 10 Ledpairs and and the schematic of one.
All thanks to johncc and PeterH 😊

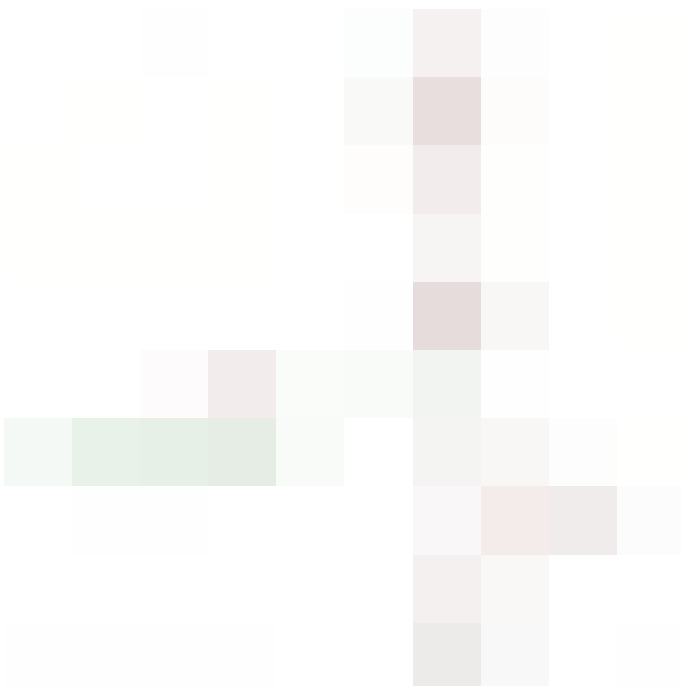
```
const int nButtons=10; // Number of buttons
int ledButtons[]= {
  2, 3, 4, 5, 6, 7, 8, 9, 10, 11 }; // Enter all the LED/Button pair pins or
int currentOn = -1;

void turnLedOn( int onPin)
{
  // Turn the particular LED pin on,
  digitalWrite(onPin, LOW);
  pinMode(onPin, OUTPUT);

  // if there is an other pin on, turn it off
  if (currentOn > -1)
  {
    pinMode( currentOn, INPUT_PULLUP); // Enable pullup and turn off other l
  }
}

void setup()
{
  for(int i=0; i<nButtons; i++)
  {
    pinMode(ledButtons[i],INPUT_PULLUP); // Enabling internal pullups
  }
}

void loop()
{
  for (int i=0; i< nButtons; i++)
  {
    // read all but the currently-on button
    if (ledButtons[i] != currentOn && digitalRead( ledButtons[i])== LOW) //
    {
      turnLedOn(ledButtons[i]);
      currentOn = ledButtons[i];
      break;
    }
  }
}
```



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