

Re: how to control LED array?

Source: <http://sci.tech--archive.net/Archive/sci.electronics.basics/2005-04/msg01299.html>

- *From:* "Lord Garth" <LGarth@xxxxxxxxxxxxx>
 - *Date:* Tue, 26 Apr 2005 15:20:10 GMT
-

"Anthony Fremont" <spam@xxxxxxxxxxxxx> wrote in message
[news:KKsbe.26582\\$AE6.19084@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:KKsbe.26582$AE6.19084@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx)
>
> "Lord Garth" <LGarth@xxxxxxxxxxxxx> wrote in message
> [news:9psbe.423\\$gd5.117@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:9psbe.423$gd5.117@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx)
>>
>> "Anthony Fremont" <spam@xxxxxxxxxxxxx> wrote in message
>> [news:f1qbe.26530\\$AE6.26160@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:f1qbe.26530$AE6.26160@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx)
>>>
>>> "John Fields" <jfields@xxxxxxxxxxxxxxxxxxxxxxxxx> wrote in message
>>>
>>> <snip for brevity>
>>>
>>>> The display will need to be multiplexed, and the most efficient
> way to
>>>> do that would be to broadcast data, a byte at a time, into the row
>>>> drivers and then to scan the columns. If you want to make a
>>>> non-flickering display, then the pixel update rate should be
> somewhat
>>>> higher than 30Hz, say 50Hz just to make sure. That means that
> since
>>>>
>>>> I disagree on the refresh rate. Having just experimented with PWM
> on
>>>> some RGB LEDs, I can attest to the fact that 40Hz refresh is easily
>>>> visible as flicker at very low duty cycles. You will see the
> annoying
>>>> flickering. I suggest using at least 80Hz for completely flicker
> free
>>>> operation. Before you get all upset, I know it seems awfully high
>>>> compared to what's acceptable for TV and movies, but I assure you
> that
>>>> the flicker is much more visible on the LEDs. There is plenty of
> advice
>>>> on the net about using refresh rates around 100Hz for this very
> reason.
>>>> Just commenting for the benefit of the OP.
>>>>

Re: how to control LED array?

>>> Of course if the OP doesn't need low intensity levels, then a slower
>>> refresh may be fine.
>>>
>>
>> I was just thinking that a column multiplexing scheme as opposed to
>> a row multiplexing scheme would be more likely to show strobing
>> as one drove by. Is this indeed the case? (not that this is at all a
>> concern
>> to the OP and his 8x8 array)
>
> I don't know if that would make any difference. My experiments were
> with only one LED and flickering was clearly visible at >40Hz refresh
> combined with low duty cycles. [I was using a software based 8 bit PWM
> routine (~25mS period with ~100uS resolution)] When I upped the clock
> speed to 8Mhz so that the period was ~12.5mS with ~50uS resolution the
> flicker was not visible to me even with a 1/256 duty cycle. I was also
> surprised by the brightness of the LED at 1/256 duty cycle, it was
> clearly visible.
>
> Disclaimer: I know that a linear duty cycle is not the most appropriate
> method of PWM driving an LED, but it was easy to implement. With the
> ISR running every 50uS, you don't have allot of time to jack around.
> ;-)
>
> Using an 8Mhz internally clocked 16F88, I was able to achieve my goal of
> imperceptibly varying the colors of an RGB LED, in a rainbow like
> fashion, without generating shades of grey, or taking a week to cycle
> thru all 16 million combinations. No biggy, but it looks allot better
> than those cheesy things with the built in color sequencer. ;-)
> My 10
> month old daughter really likes the effect and IMO it's going to look
> really good on my scooter as full-color, adjustable accent lighting.
> 8-)
>

Remember that certain color lights are illegal on personal
vehicles...regulations
vary however.

• *References:*

- ◆ ***how to control LED array?***
 ◇ *From: Michael Noone*
- ◆ ***Re: how to control LED array?***
 ◇ *From: John Fields*
- ◆ ***Re: how to control LED array?***
 ◇ *From: Michael Noone*

Re: how to control LED array?

◆ **[Re: how to control LED array?](#)**

◇ *From:* John Fields

◆ **[Re: how to control LED array?](#)**

◇ *From:* Anthony Fremont

◆ **[Re: how to control LED array?](#)**

◇ *From:* Lord Garth

◆ **[Re: how to control LED array?](#)**

◇ *From:* Anthony Fremont

• Prev by Date: **[Re: How to take "bounce" out of switch ??](#)**

• Next by Date: **[RS232 connection information](#)**

• Previous by thread: **[Re: how to control LED array?](#)**

• Next by thread: **[Re: how to control LED array?](#)**

• Index(es):

◆ **[Date](#)**

◆ **[Thread](#)**