

Re: Flashing LEDs proportion to Servo position

Source: <http://sci.tech--archive.net/Archive/sci.electronics.basics/2005-07/msg00507.html>

- *From:* "Andrew Holme" <ajholme@xxxxxxxxxxxxx>
 - *Date:* 22 Jul 2005 03:10:04 -0700
-

upgrdman@xxxxxxxxxxxxx wrote:

- > I have a LED array already made, complete with resistors and 9.2V
- > battery pack. I would like to be able to flash the LED's, with the
- > speed of the flashing based upon the position of a servo. At 0 degrees,
- > it would be on all the time without flashing, all the way to 90 degrees
- > with it flashing 15 or 20 times a second.
- >
- > To make things harder, this is using the throttle servo from my RC car,
- > which also controls the brakes. At 0 degrees full brakes are applied,
- > and at around 15 degrees I think, brakes are not applied and the engine
- > just sits there idleing. If it's just idleing at 15 degrees it would be
- > awesome if i could get it to flash for about 2/3rd's of a second
- > (2/3rd's on, 2/3rd's off) and then when accelorating from there go up
- > to the 15 or 20 flashes a second. But when applying any amount of
- > brakes (from zero to 15 degrees) I would like it to be on the entire
- > time. Does this sound to complicated for an amature like me to do? If
- > so then a linear change in blinking speed would be OK.
- >
- > I googled around, and found out that the signal wire for servos sends
- > the angle information via pulses. 1.25ms for 0 degrees, up to 1.75ms
- > for 180 degrees, according to:
- >
- > <http://www.seattlerobotics.org/guide/servos.html>
- >
- > However, since my servo is set up with some custom trim levels, is
- > there any way to find out what the pulse lengths are at various stages
- > (full brakes, idleing, full throttle) so I don't have to just guess and
- > check over and over?
- >
- > I'm fairly new to electronics, and have no idea where to even start to
- > make this fancy "switch" for my LEDs. I was looking at my old 75-in-One
- > Electronic Project Lab that I got for my 12th birthday, and the closest
- > I found was a variable strobe light, which used a transistor,
- > transformer, some resistors, and a pot, to blink a LED at different
- > intervals depending on the rotation of the pot.
- >
- > But that did it based upon the resistance, not pulses, so I am back to

Re: Flashing LEDs proportion to Servo position

> the beginning :(
>
> I would like to learn as much as possible as I make this variable
> switch, so if it is possible, please dumb things down, so I can at
> least partially comprehend your idea/point, and google for more info as
> needed.
>
> Thanks,
> --Farrell F.
>
> P.S. In case this information helps:
>
> I'm using 32 LED's, wired in a series-parallel configuration. 2 LEDs +
> resistor in series, with 16 strings wired in parallel. The LEDs are
> spec'd for FV 3.0-3.4V, so aiming for 3.2V, I went with 160 ohm
> resistors since my power source is 9.6V. Each LED draws ~20mA, so all
> 32 LEDs draw ~640mA. Perhaps this information effects the components I
> should select to make this fancy switch?

Two options spring to mind:

1. Convert the pulse width to a voltage using an RC filter. Then, generate the variable flash rate using a voltage controlled oscillator.
2. Use a PIC Micro-controller. This requires fewer components because everything is done in software. The PIC measures the pulse width and generates the output pulses.

You can measure the pulse widths using an oscilloscope. However you decide to tackle it, you'll need a 'scope for a project like this.

.

• **References:**

- ◆ **[Flashing LEDs proportion to Servo position](#)**
◇ From: upgrdman
- Prev by Date: **[Re: 600-ohm to 600-ohm line transformer](#)**
- Next by Date: **[Re: DataSheet Search Site....](#)**
- Previous by thread: **[Flashing LEDs proportion to Servo position](#)**
- Next by thread: **[Re: Flashing LEDs proportion to Servo position](#)**
- Index(es):
 - ◆ **[Date](#)**
 - ◆ **[Thread](#)**