[PATCH 1/11] LED Class Documentation

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- *Date*: Tue, 31 Jan 2006 13:41:25 +0000

Add some brief documentation of the design decisions behind the LED
class and how it appears to users.

Signed−off−by Richard Purdie <rpurdie@xxxxxxxxx>

Index: linux−2.6.15/Documentation/leds−class.txt
```
===================================================================
−−− /dev/null 1970−01−01 00:00:00.000000000 +0000
+++ linux−2.6.15/Documentation/leds−class.txt 2006−01−31 12:42:59.000000000 +0000
@@ −0,0 +1,71 @@
+LED handling under Linux
+========================
+
+If you're reading this and thinking about keyboard leds, these are
+handled by the input subsystem and the led class is *not* needed.
+
+In its simplest form, the LED class just allows control of LEDs from
+userspace. LEDs appear in /sys/class/leds/. The brightness file will
+set the brightness of the LED (taking a value 0−255). Most LEDs don't
+have hardware brightness support so will just be turned on for none zero
+brightness settings.
+
+The class also introduces the optional concept of an LED trigger. A trigger
+is a kernel based source of led events. Triggers can either be simple or
+complex. A simple trigger isn't configurable and is designed to slot into
+existing subsystems with minimal additional code. Examples are the ide−disk,
+nand−disk and sharpsl−charge triggers. With led triggers disabled, the code
+optimises away.
+
+Complex triggers whilst available to all LEDs have LED specific
+parameters and work on a per LED basis. The timer trigger is an example.
+
+You can change triggers in a similar manner to the way an IO scheduler
+is chosen (via /sys/class/leds/<device>/trigger). Trigger specific
+parameters can appear in /sys/class/leds/<device> once a given trigger is
+selected.
+
+
+Design Philosophy
```

```
+=================
+
+The underlying design philosophy is simplicity. LEDs are simple devices
+and the aim is to keep a small amount of code giving as much functionality
+as possible. Please keep this in mind when suggesting enhancements.
+
+
+LED Device Naming
+=================
+
+Is currently of the form:
+
+"devicename:colour"
+
+There have been calls for LED properties such as colour to be exported as
+individual led class attributes. As a solution which doesn't incur as much
+overhead, I suggest these become part of the device name. The naming scheme
+above leaves scope for further attributes should they be needed.
+
+
+Known Issues
+============
+
+The LED Trigger core cannot be a module as the simple trigger functions
+would cause nightmare dependency issues. I see this as a minor issue
+compared to the benefits the simple trigger functionality brings. The
+rest of the LED subsystem can be modular.
+
+Some leds can be programmed to flash in hardware. As this isn't a generic
+LED device property, this should be exported as a device specific sysfs
+attribute rather than part of the class if this functionality is required.
+
+
+Future Development
+==================
+
+At the moment, a trigger can't be created specifically for a single LED.
+There are a number of cases where a trigger might only be mappable to a
+particular LED (ACPI?). The addition of triggers provided by the LED driver
+should cover this option and be possible to add without breaking the
+current interface.
+



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