Flash interface

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2011-03-14

Problem area

- Cameras with flash
  - Flash controller
  - The actual flash
- Types of flash
  - LED
  - Xenon

LED flash

- Controllers are typically connected to I^2C bus
- Controllers typically provide two modes: torch and flash
- LEDs used in flashes in flash mode literally burn if used in flash current for too long
  - The flash controllers implement a time to avoid this
- Torch mode can be used for extended periods of time

LED flash, continued

- Some hardware supports strobe signal connected to sensor
  - The sensor strobes the flash when the exposure of the frame starts
  - Strobing the flash is possible using I^2C as well
    - No hardware strobe signal
    - Flash use not connected to sensor exposure

Privacy light

- Controlled by the flash controller
- Typically a small reddish led
- Much less powerful than the actual flash

Xenon flash

- A somewhat more difficult to control than a LED flash
- Strobe signal from sensor mandatory in practice
- Requires extra hardware (capacitors etc.)
- Common in high end devices
- LED flash intensity tends to improve over time

Example: ADP1653

- Used on the Nokia N900
- http://www.analog.com/static/imported-files/data_sheets/ADP1653.pdf
- LED flash in flash and torch modes, privacy light
  - independently selectable power for both leds
- I^2C or hardware strobe
- Faults: short circuit, over temperature, timeout and over voltage
  - Interrupt pin