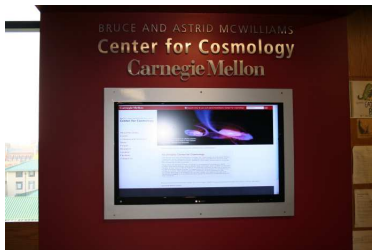


Notice boards: Past



- **Static, Cluttered, Waste of paper.**
- Shift: Paper-based notice boards to ...

Electronic notice boards: Present



Interactive notice boards: Future

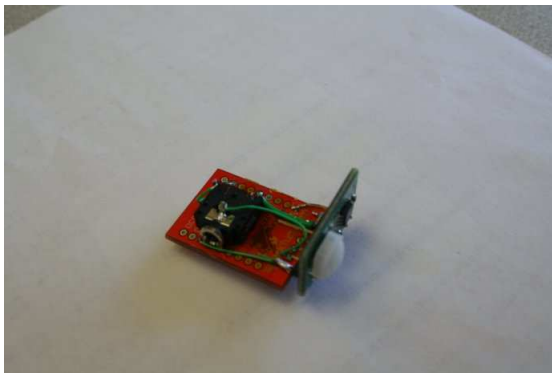


- LCD Screen, Projector based displays
- Dynamic content, Interactive, maybe even personalized!
- Power hungry – 300W

The Wall-D Approach

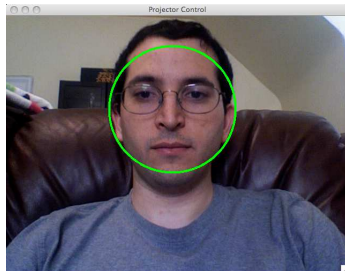
- Save power by turning device off when not in use (when no one is viewing the notice board)
 - Motion detection
 - Face recognition
- Efficient lighting when in use
 - LED array – 35Watts for 2000 Lumens output

Sensing: PIR For Motion Detection



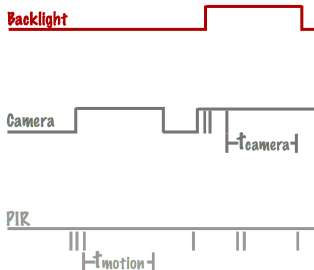
- Passive IR: detects movement of warm objects
- 5m range, 60° beam angle
- Serial interface (via USB)

Sensing: Face Recognition using OpenCV



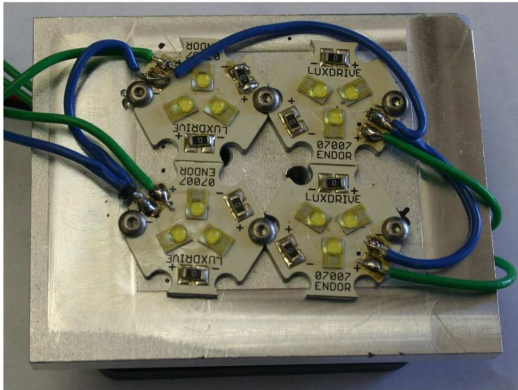
- Built-in iSight webcam
- OpenCV using Haar cascade detector
- Trained on forward view of faces
- 50% CPU load on 4 yr old laptop (10 samples/sec)

Sensor Fusion Algorithm



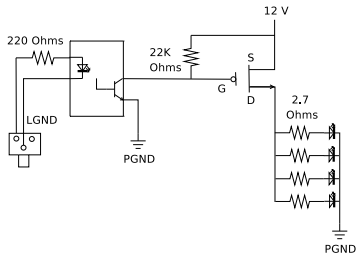
- PIR sensor is always active
- Camera activated by motion
- Camera remains active until t_{motion} seconds after last face or motion event
- Backlight activated by face detection
- Backlight remains active until t_{camera} seconds after last face detection

LED Backlighting



- 12 Luxeon Cool White LEDs
- 1920 Lumens @ 2800 mA
- Heatsink and Fan for cooling

Circuit Overview



- ATX power supply : for circuit and fan
- Opto-isolator used to decouple control circuit from laptop
- Power resistors for current limiting are inefficient: dissipate 3W

Power Consumption

	LCD Projector	Overhead Projector	LCD TV	LED Projector
Startup	260	260	30	35
Black	250	253	30	35
White	250	253	280	35
Sleep	13	NA	0	6

Extensions and Future Work

- Increase light output to drive LCD panel
 - Demo parts ...
 - 4000 to 5000 Lumens to light-up LCD surface
- Increase efficiency of power supply
- Sensor Fusion Algorithm: Adaptive

LCD Display with Presence Detection

Nanao to Release LCD Monitor with Human Presence Sensor

Apr 22, 2009 18:49

Masaru Yoshida, Nikkei Electronics

Eizo Nanao Corp will release a color wide LCD monitor equipped with a presence sensor.

Designed for use in offices, the monitor detects the presence of a person with an infrared sensor. And it shifts to the power saving mode when it finds the user leaving his or her desk and automatically resumes normal operation when the user returns.

The product comes in two types, the FlexScan EV2023W-H and the FlexScan EV2303W-T. The former is a 20-inch model with a resolution of 1,600 x 900, and the latter is a 23-inch model with 1,920 x 1,080 resolution.

The typical power consumption of the former model is 25W, and that of the latter model is 18W. In the power saving mode, the power consumption of the both models is 0.7W or lower.

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The 20-inch model "FlexScan EV2023W-H" adopts the "FlexStand" mechanism with a 225mm height adjustment range.



