Comp209 grey literature research

1. It provides design techniques for analyzing and designing prism systems. The chapter explains the purpose of the various optical components and the limitations of a simplistic design approach. The thin lens layout is an ideal point in the synthesis of the design for the designes to confirm that they have provided sufficient space for fold mirrors and prisms, that any windows or filters will not be uneconomically large, and a variety of other fundamental considerations. The materials that can be used for lenses and prisms are determined by the wavelength to be used. Lenses and prisms for the infrared and ultraviolet are generally made from crystals and data for them are tabulated in the design programs. Clean prisms have almost zero loss at their total-internal-reflection faces, while rear surface mirrors suffer absorption losses caused by the metal–glass interface. [1]
2. However, in other experiments, such as the photoelectric effect, light appeared to behave as if particles. The photoelectric effect was observed in some metals when exposed to a beam of light. But only shorter wavelengths would produce a photocurrent in the metal, whereas longer wavelength (red) light—even at high intensity—would not produce a photocurrent. This curious observation strongly supported the quantum theory of radiation. Some German physicists theorized that a single photon (particle of light) has a quantum energy *Q*ν that is directly proportional to the frequency *f* (sometimes symbolized by the Greek letter, *ν*) of the wave:

*Q*ν=*h* × *f*,

where *h* is known as ‘Planck’s Constant.’ This led to the concept of ‘wave–particle duality.’

Physicists eventually reached a consensus that light could be characterized simultaneously as both a stream of particles and a wave. [2]

1. <https://youtu.be/py60HPnyNjQ>
2. In early design, instrumenting an object with touch sensing capability, especially one with complex surface geometry, can be problematic. In this paper, we show how resistive graph patterns--or resigraphs--can be used to quickly fabricate multi-touch sensors tailored to an object's shape. In very early ideation, resigraphs can be drawn using conductive ink. In later refinements they can be silk-screened or laser cut from off-the-shelf materials. A resigraph uses a commonly available microprocessor (e.g. Arduino), re-quires only three wires, and enables touch input on non-planar and non-developable surfaces. [3]
3. Passive IR (PIR) sensors are excellent devices for wireless sensor networks (WSN), being low-cost, low-power, and presenting a small form factor. PIR sensors are widely used as a simple, but reliable, presence trigger for alarms, and automatic lighting systems. However, the output of a PIR sensor depends on several aspects beyond simple people presence, as, e.g., distance of the body from the sensor, direction of movement, and presence of multiple people. In this paper, we present a feature extraction and sensor fusion technique that exploits a set of wireless nodes equipped with PIR sensors to track people moving in a hallway. Our approach has reduced computational and memory requirements, thus it is well suited for digital systems with limited resources, such as those available in sensor nodes. [4]

# Bibliography

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