

A Cupful of Light

This artefact presents programmable lighting in water-filled cups positioned on a rack, as a means of illustrating some characteristics of light. When the light travels from air to water (in the cup), light refraction occurs. As a result, visual impairment can be observed when objects are seen in the two different media. Objects in the water seem to radically change position as we look at them from different viewpoints of the cup. Various types of light emitting diodes (LEDs) are installed in the cups to demonstrate that light consists of different wavelengths, which are perceived as different colours. Shadows can be observed on the white panel of the rack as the light from the LED is blocked by opaque objects in the cup. The water is initially filled in one cup at the top level and it flows from one cup to another via the tube until the last cup at the bottom level. The luminosity effect can be seen in the cup due to the water which disperses the light in all directions through refraction. The water flow is maintained by the water pump to allow consistent propagation of light in the water. With the aid of electronics circuit and a programmable circuit board, the light emitted from LEDs can be programmed as have been widely used in many applications such as signage, decoration, vehicle message signs, etc.

Makhfudzah Mokhtar, Taiwo Ambali, Zamili Mohamed, Sathzura Saidin, Siti Noradhlia Mohamad Tukijan and Mumtaz Mokhtar





