Abstract Details

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Title: Implementation of Environmental Setup for Optical Computers

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Abstract: An optical computer (also called a photonic computer) is a device that uses the photons in visible light or infrared (IR) beams, rather than electric current, to perform digital computations. An electric current flows at only about 10 percent of the speed of light. This limits the rate at which data can be exchanged over long distances, and is one of the factors that led to the evolution of optical fiber. By applying some of the advantages of visible and/or IR networks at the device and component scale, a computer might someday be developed that can perform operations 10 or more times faster than a conventional electronic computer. Visible-light and IR beams, unlike electric currents, pass through each other without interacting. Several (or many) laser beams can be shone so their paths intersect, but there is no interference among the beams, even when they are confined essentially to two dimensions. Electric currents must be guided around each other, and this makes three-dimensional wiring necessary. Thus, an optical computer, besides being much faster than an electronic one, might also be smaller. Broadly speaking, an optical computer is a computer in which light is used somewhere. This can means fiber optical connections between electronic components, free space connections, or one in which light functions as a mechanism for storage of data, logic or arithmetic. Instead of electrons in silicon integrated circuits, the digital optical computers will be based on photons. Optical technology promises massive upgrades in the efficiency and speed of computers, as well as significant shrinkage in their size and cost. An optical desktop computer could be capable of processing data up to 100,000 times faster than current models because multiple operations can be performed simultaneously.

Keywords: Optical Computers, Environmental Setup, Optical Processors Classical Architectures.