

Abstract

Since the radio frequency spectrum is becoming crowded and an alternative means of wireless communication is necessary to accommodate the exponentially increasing wireless traffic demand, while serving the global green agenda and resolving the issues of scalability, availability and security. Visible light communication is a perfect candidate that has a plus of providing illumination simultaneously while communicating.

A VLC system has been studied and a practical implementation has been developed to demonstrate the functionality of the system. The focus was on designing of a VLC system that can be used without having to make major changes to the present infrastructure; two computers has been interfaced allowing transmission of data through visible light from one PC to another in VLC low-cost networks with LEDs-to-phototransistor communicating over a very short distances. The results of the process have been described in details. An enhanced design of the VLC system has been simulated focusing on increasing the data rate and system throughput over a longer distance using Manchester encoding and OOK modulation technique paving the road for VLC to become the future of Internet.