AUDIO AND VIDEO STREAMING USING LI-FI

ABSTRACT

Li-Fi is a label for wireless-communication systems using light as a carrier instead of traditional radio frequencies, as in Wi-Fi. The voice, speech, video data information can be transmitted using Li-Fi technology with high data rates. This technology is named as Li-Fi transmission which stands for Light Fidelity. This invention can produce data rates faster than 10 MegaBits per second which is much more than that of an average broadband speed of Wi-Fi connection and Bluetooth. Wireless communication has become a basic utility in personal and business life such that it becomes a fundamental of our lives, and this type of communication theory uses the radio spectrum for data transfer. There are limitations in using the radio spectrum i.e. capacity, efficiency, availability and security. The defects of Wi-Fi technology gave birth to the concept of Li-Fi (Light Fidelity) technology. Li-Fi can be defined as a light-based Wi-Fi. This technology mainly serves the purpose of transmitting data using retrofitting of LED bulbs that has high efficiency, durability and reliability. With the increasing popularity of solid state lighting devices, Visible Light Communication (VLC) properly known and Light Fidelity (Li-Fi) technology is globally recognized as an advanced and promising technology to realize short-range, high speed as well as large capacity wireless data transmission. In this project, prototype of real-time audio and video broadcast system using inexpensive commercially available light emitting diode (LED) lamps is being implemented, and also with LED arrays is capable in supporting light illumination, data broadcast as well as video and audio streaming. Lighting model within room environment is designed and simulated, which indicates close relationship between layout of light sources and distribution of illuminance. Later, after the implementation of audio on the hardware setup is done, the video streaming is done using the MATLAB software for streaming it using the available LED block in Simulink. The final objective of Li-Fi development is the application of off-the-shelf LEDs in home environment wireless network to satisfy the needs of both illumination and data transmission.