Abstract

With the rapid advancement in semiconductor technology and wireless links, indoor lighting sources are prevalently getting dominance of white light emitting diodes (LEDs) over incandescent and fluorescent bulbs over the years. This trend leads to energy efficiency along with less carbon emission with a support of multi functionalities such as data transmission along with illumination. As multiple LEDs are there at ceiling for uniform lighting, those LEDs can be used to get location information of user with smartphone having photosensor for more accurate indoor positioning in comparison with standard GPS system. User location based data transmission ensures authentication and access control over data. Data getting streamed through visible light remain confidential within a physical confinement as light cannot penetrate through walls. Moreover, once authentication based on location information and device ID is done, data streaming through visible light commences and no adversary can modify data. This ensures data integrity as well. Hence sensor based applications especially healthcare system that needs interference free real-time data streaming maintaining privacy of patients’ health data, may demand immensely for such low overhead secure wireless communication using
visible light.

References


Index Terms

Computer Science  Communications
Keywords

Secret key exchange, Visible light communication, security, low overhead, confidentiality, integrity etc.