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Hybrid Lifi And Wifi Communication System

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HYBRID LIFI AND WIFI COMMUNICATION SYSTEM

ABSTRACT

A system and method are proposed that may transfer information between devices using both LiFi and the WiFi technologies. The hybrid system may use LiFi for downlink traffic and WiFi for uplink traffic. The system may include a LiFi receiver/transmitter and also a WiFi receiver/transmitter in the devices. When a device tries to communicate with a network, the data is uploaded from the device to the router connected to the network through WiFi. The device receives response from the network via the router through LiFi. The disclosed hybrid system incorporates the high download speed of LiFi (up to 4 Gbps), while maintaining the reliability of WiFi (upload speed up to 0.443 Gbps).

BACKGROUND

LiFi technology uses light generated by LED to transmit and receive data instead of using radio waves as in WiFi technology. However, there are a lot of challenges before it can be widely adopted. One of the challenges is that it is difficult to uplink data in LiFi. The downlink is fairly easy because light carries great power for illumination purposes, and when information is carried with the same power it can be easily detected by the receiver device. To do the uplink, the transmitting device has to generate sufficient power for the information to be detected by the receiver on the LED lamp.

DESCRIPTION

A system and method are proposed that may transfer information between devices using both LiFi and WiFi technologies. The hybrid system may use LiFi for downlink traffic and WiFi for uplink traffic. The system as shown in FIG. 1 may include a LiFi receiver/transmitter and also a WiFi receiver/transmitter in the devices. The LiFi might use an

LED as a light source. When a device tries to communicate with a router connected with a network, the request is first sent from the device to the router through WiFi. The response from the satellite is received by the system through LiFi. The disclosed hybrid system incorporates the super-fast download speed of LiFi, while maintaining the reliability of WiFi for upload. The downlink speed for the system is theoretically as high as 4 Gbps and the uplink speed for a single antenna device is as high as 0.443 Gbps.

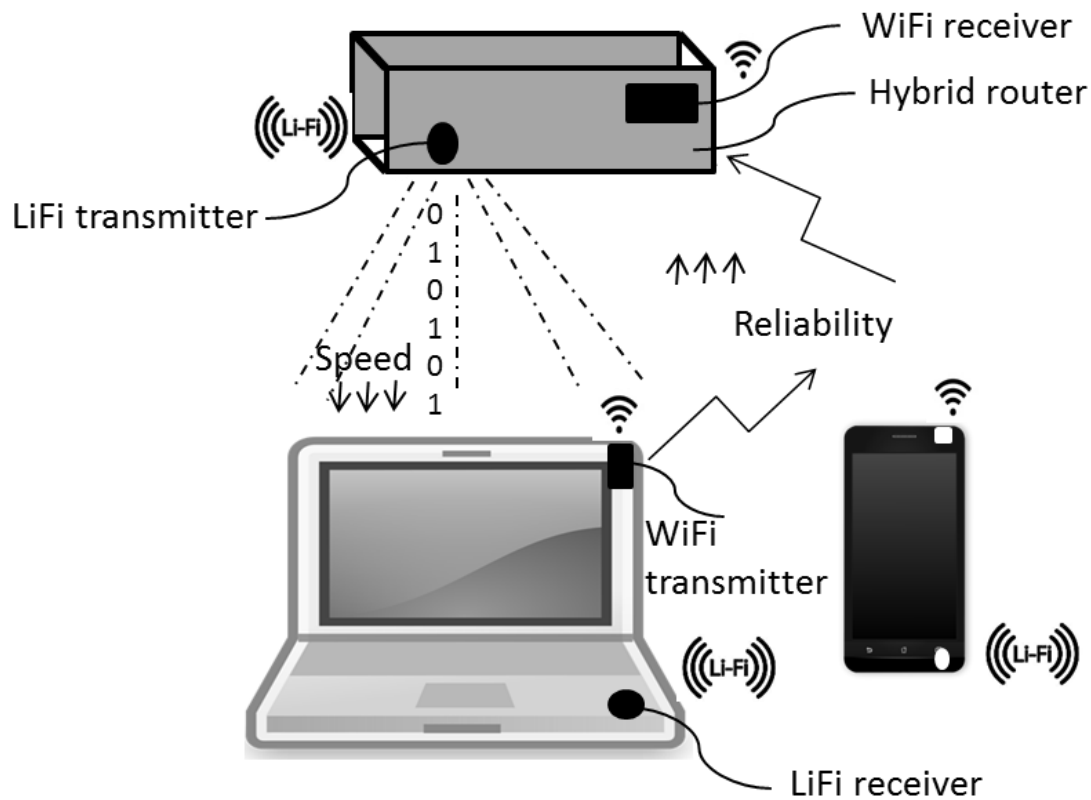


FIG.1: Hybrid LiFi and WiFi communication system