

Research on the use of LiFi and its incorporation in Everyday Life

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Introduction

As time goes on, the demand for better wireless communication technology increases more and more. The current technology (WiFi) is an excellent form of wireless communication but, as time goes on we consume more wireless data which will inevitably lead to WiFi not being able to keep up with the demand for wireless data. The answer to this demand will be LiFi. LiFi is a wireless communication technology that uses the infrared and visible light spectrum for high speed data communication (Haas 2017).

Background

The concept of LiFi was first introduced by a man named Harald Haas at a 2011 TED talk. Here Haas broke down LiFi's core uses, and he elaborated on why the current use of WiFi is inefficient and slowly coming to the point where it needs a replacement. As stated before LiFi utilizes the visible light spectrum of the EM spectrum. This use of visible light expands the amount of data that can be transferred between devices since the spectrum is 10,000 times that of radio waves (Haas 2011). The integration of LiFi into our daily lives would also be more efficient since LiFi could be transferred through the lights we use in buildings every day.

LiFi Vs. WiFi

One of the most notable differences between LiFi and WiFi would be their general makeup. WiFi is comprised of radio waves while LiFi is comprised of visible light. Because of this key difference LiFi is much faster. LiFi has reached peak speeds of 224 gigabits per second whereas WiFi has only obtained speeds of 433 megabits per second (Crew 2015). LiFi even has

the capabilities to achieve approximately 1000 times the data density of WiFi offering more data per square meter (Banham 2018). Furthermore, LiFi is also more secure than WiFi. This can be said because for data transmission to take place the device in use has to be directly under the light providing the LiFi. This makes it so that to truly intercept the connection you would have to also be directly in the light. Though LiFi may have all these advantages over WiFi that doesn't exactly make WiFi obsolete yet. Something that still puts WiFi ahead of LiFi is its area of effect. While LiFi may be able to provide a room in a building with high speed internet, WiFi can cover a whole building with decent internet compared to LiFi. Another thing that would hinder LiFi from completely replacing WiFi is the cost. The fact that LiFi only covers a small area means you would need multiple lights and receivers. This would most certainly cost more than having a single router that can work across a wide area.

LiFi in present day

Currently LiFi is reaching the stages where it can start being incorporated into everyday use. Because of LiFi's unique properties, it can work in a multitude of places where WiFi wouldn't. An example of a few of those places could be in a hospital where radio frequencies would mess with equipment, or underground where WiFi just won't work all together (Rockway 2018). One place where I believe LiFi can be incorporated is out in the street. In some situations, people need to quickly look up something but don't have the data or service to do it. If anything, setting up street lights that distribute LiFi could allow for more people to have access to the internet when they out and about. This could be especially good for city festivals and other events that may go on.

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