An introduction to Visible Light Communication

Visible Light Communication (VLC), sometimes also referred to as “Li-Fi”, uses standard off-the-shelf visible light LEDs to transmit data using the visible light spectrum.

VLC is one of the ground-breaking technologies that IMDEA Networks researchers are working on. A research team led by Dr. Domenico Giustiniano is carrying out an important research project called OpenVLC. But, how does it work? The idea is very simple: VLC combines light with data transmission. The light emitted by standard LED luminaries is modulated to transmit data at such high speed that the human eye cannot perceive light changes.

In this video, Ander Galisteo, PhD Student at IMDEA Networks and Universidad Carlos III de Madrid and an awardee of a La Caixa scholarship, provides a simple explanation of the great potential of VLC, a technology in the area of telecommunications that is still in an experimental phase.

Galisteo also explains the benefits of using OpenVLC, the first open-source, software-defined, flexible, low-cost Visible Light Communication platform, which has been designed by IMDEA Networks researchers. At this moment, the research group is looking into scientific problems related to VLC. “We have developed a localization system for cars that only uses light, we have helped to set up and study realistic VLC deployments in other countries and we are measuring the behavior of this technology in dynamic scenarios”, said Galisteo.
Watch the video on YouTube.

About Us

IMDEA Networks Institute is a research organization on computer and communication networks whose multinational team is engaged in cutting-edge fundamental science and technology. As a growing, English-speaking institute located in Madrid, Spain, IMDEA Networks offers a unique opportunity for pioneering scientists to develop their ideas. IMDEA Networks has established itself internationally at the forefront in the development of future network principles and technologies. Our team of highly-reputed researchers is designing and creating today the networks of tomorrow.

Some keywords that define us: 5G, Big Data, blockchains and distributed ledgers, cloud computing, content-delivery networks, data analytics, energy-efficient networks, fog and edge computing, indoor positioning, Internet of Things (IoT), machine learning, millimeter-wave communication, mobile computing, network economics, network measurements, network security, networked systems, network protocols and algorithms, network virtualization (software defined networks – SDN and network function virtualization – NFV), privacy, social networks, underwater networks, vehicular networks, wireless networks and more...

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