MACHINE TO MACHINE COMMUNICATION (M2M) BASED ON VISIBLE LIGHT COMMUNICATION (VLC)
APPLICATION CASE FOR LIGHT-FIDELITY (LI-FI) SYSTEMS

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Product Description

Lumink is a single client wireless access point that utilizes visible light, instead of radio waves for data transmission.

Background

Radio wave spectrum used for data transmission is already too crowded

Wireless access point that uses radio waves poses security threats

Visible light spectrum which have an enormous bandwidth has not been used for data transmission

Product Features

- Speed up to 500 kb/s
- Reception range up to 110 cm
- Minimal flickering effect on lighting
- Supports almost every common internet services, notably seamless experience on 144p YouTube video streaming
- Minimal setup requirement for every device. (only requires static IP assignment on your PC)

Technical Specification

Digital

> Built on ZYBO Zynq-7000 APSoC (650 MHz Dual Core Cortex-A9 ARM + Artix-7 Equivalent FPGA)
> IPs Clocked at 100 MHz, Output at 2 MHz
> ARM running Xilinx
> Multithreaded Network & Data Link Program written in C
> Supports ARQ & NAT
> Supports ICMP, UDP, and TCP IPv4 Protocol
> VPPM Modulation
> Reed Solomon FEC (64,32)
> CRC-16 for Header Check Sequence
> Run Length Limited 4B6B
> Based on IEEE 802.15.7

Analog

> 2 MHz TX / RX
> OSRAM 6 Watt Yellowish White LED
> 3 mm IR LED
> OSRAM BPX61 Silicon PIN Photodiode (20 ns Switching Time)
> Supply : +/- 15 V, 5 V, and 3.3 V
> LME49720 OpAmp (55 MHz GBW)
> LM119 Comparator (80 ns Response Time)
> 74HC14 Schmitt Trigger