
Project: IEEE P802.15 Interest Group for Wireless Personal Area Networks (WPANs)

Submission Title: Advantages of MIMO-OOK scheme in Draft D2 document

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Re:

Abstract: Advantages of MIMO-OOK based RoI signaling for Optical IoT system

Purpose: To introduce the advantages of MIMO-OOK based RoI signaling for Optical IoT

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Advantages of MIMO-OOK scheme in Draft D2 document

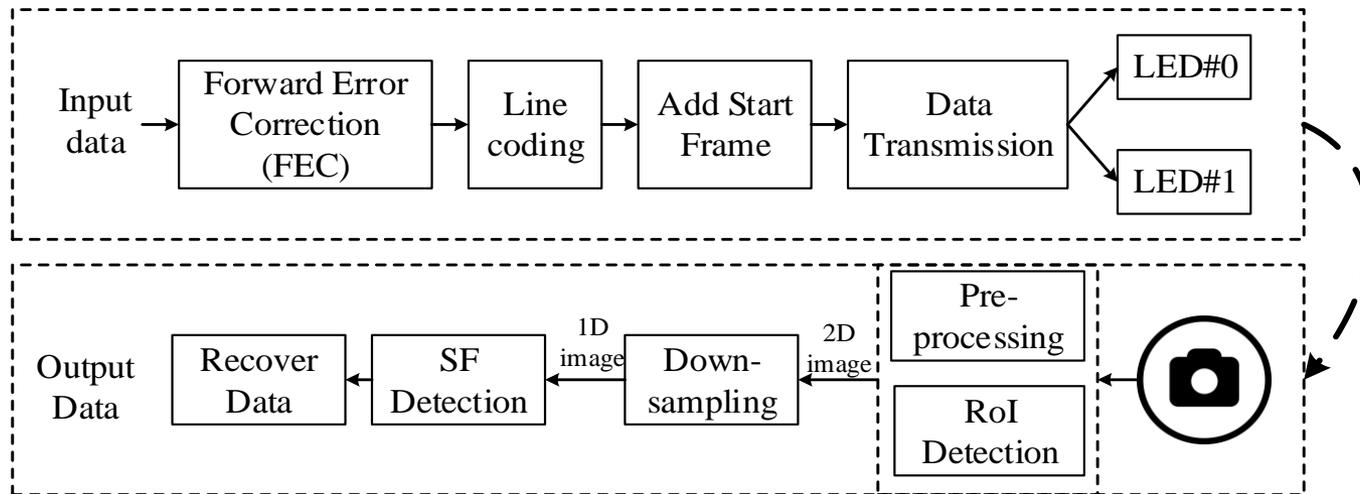
Introduction

- ❑ On-Off keying (OOK) scheme is known as the simplest form of amplitude-shift keying modulation by using two statuses: ON/OFF to transmit data

- ❑ Even though RoI-signaling mode has a very low data rate, it is indispensable to the OCC system operating.

- ❑ MIMO-OOK based RoI signaling will be proposed in this this document for Optical IoT system.

Architecture of MIMO-OOK based RoI signaling for Optical IoT system

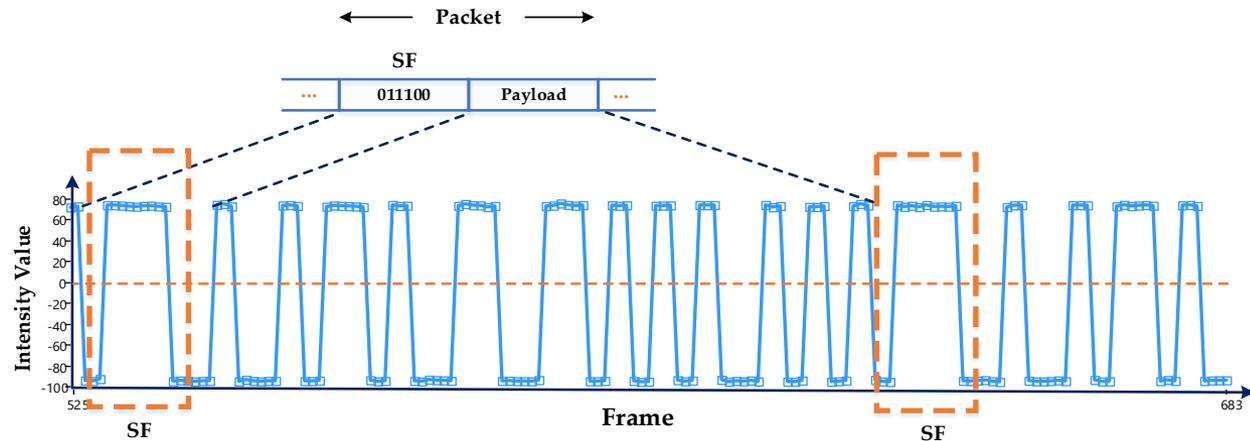


Reference architecture of MIMO-OOK based RoI signaling for Optical IoT system

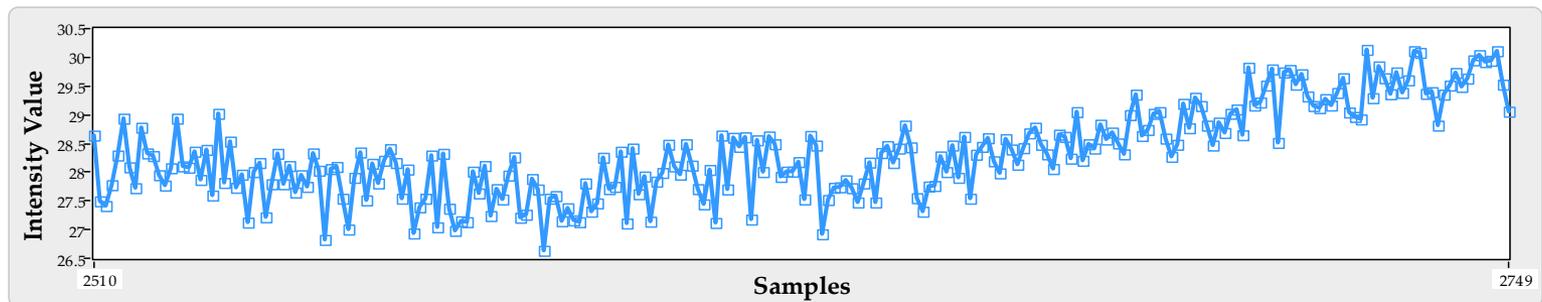
- Provide OCC system for massive small LEDs
- Provide advanced RoI technique compare to CV (Computer Vision)
- RoI signaling techniques support the OCC system has already been presented in IEEE 802.15.7-2018.
- Kookmin University has contributed to this concept, during meetings of the IEEE 802.15.7-2018

Architecture of Hybrid Rolling Shutter signal for Optical Camera Communication

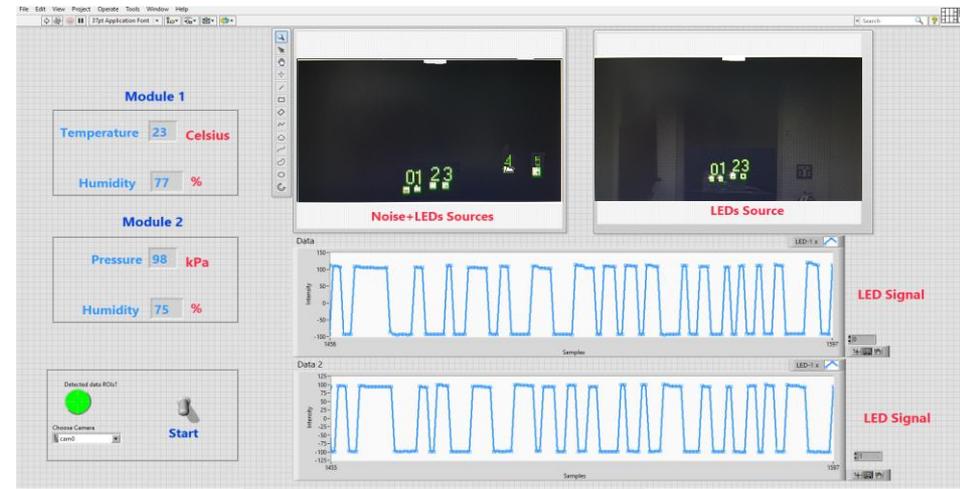
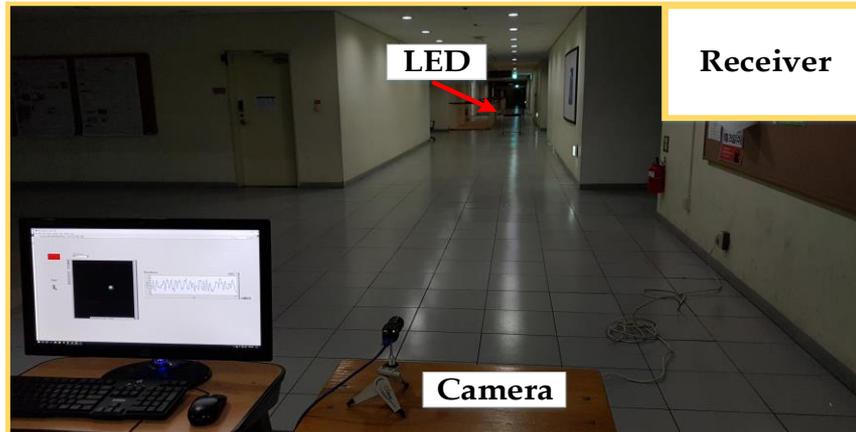
<LED signal >



< Noise signal >



Architecture of MIMO-OOK based RoI signaling for Optical IoT system



Advantages of MIMO-OOK scheme

- Long distance
- Support multi-LEDs
- Simple transceiver design