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

Submission Title: MIMO-OOK based RoI signaling for Optical IoT system.

Date Submitted: May 2021
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Abstract: Design of MIMO-OOK based RoI signaling for Optical IoT system

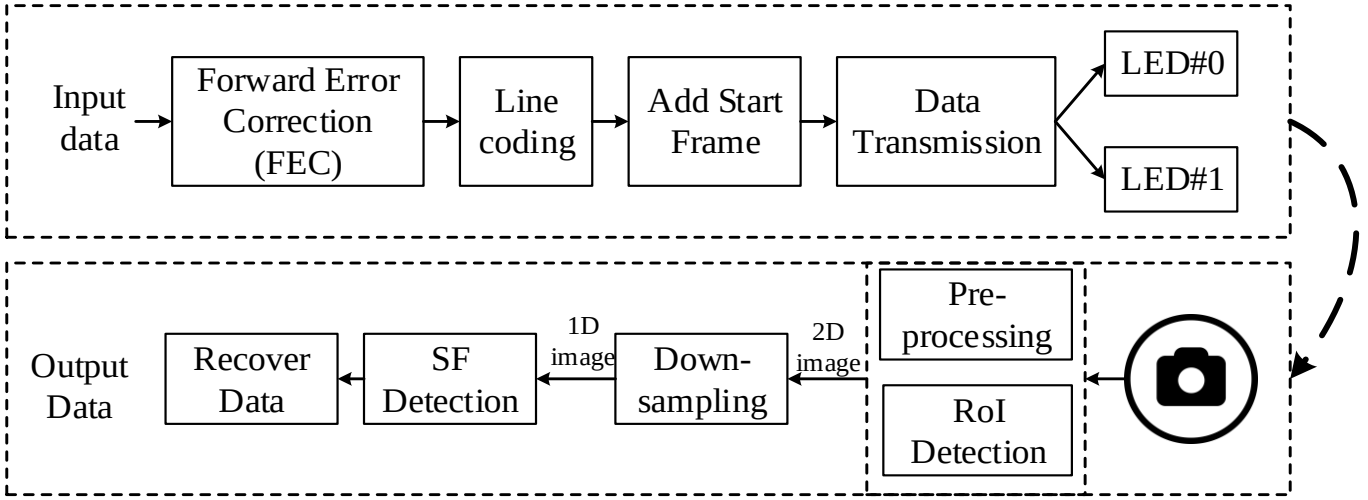
Purpose: To introduce the feasibility of MIMO-OOK based RoI signaling for Optical IoT

MIMO-OOK based RoI signaling for Optical IoT system

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

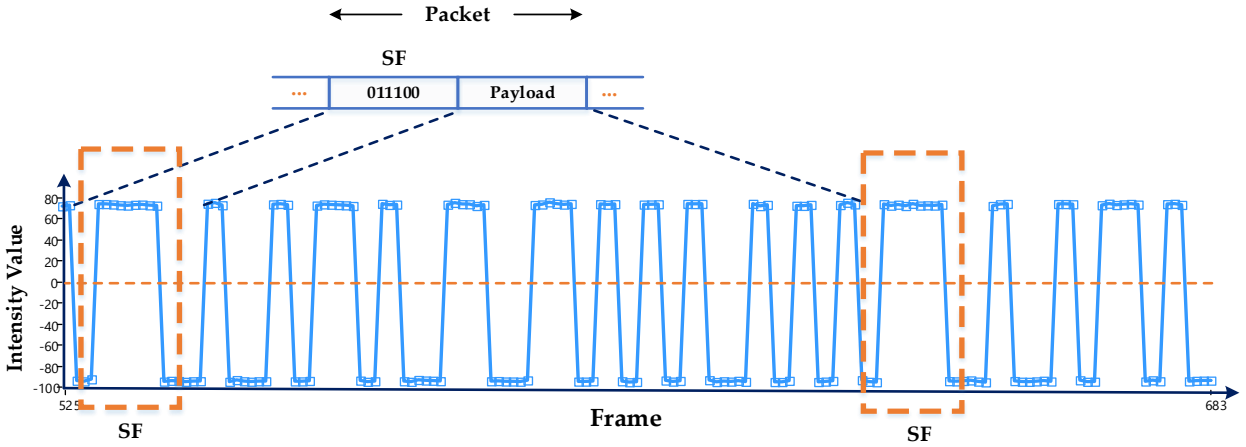


Reference architecture of MIMO-OOK based RoI signaling for Optical IoT system

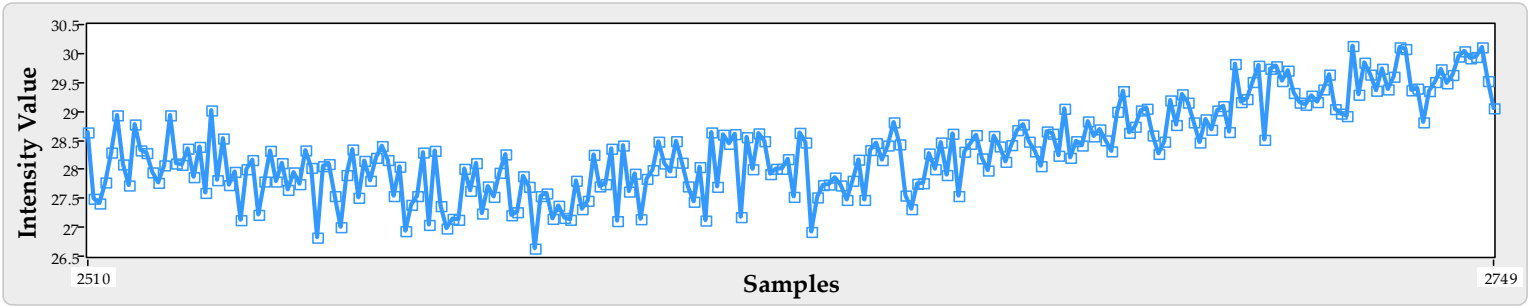
- Provide OCC system for massive small LEDs
- Provide advanced RoI technique compare to CV (Computer Vision)
- RoI signaling techniques support the OCC system has already been presented in IEEE 802.15.7-2018.
- Kookmin University has contributed to this concept, during meetings of the IEEE 802.15.7-2018

Architecture of Hybrid Rolling Shutter signal for Optical Camera Communication

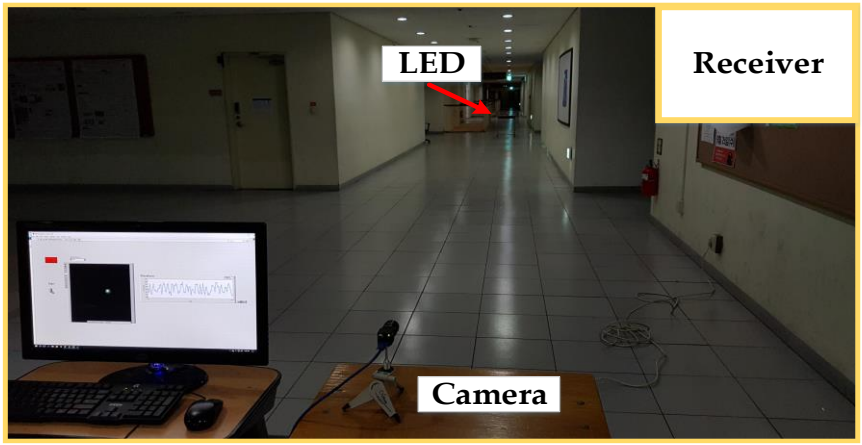
<LED signal >

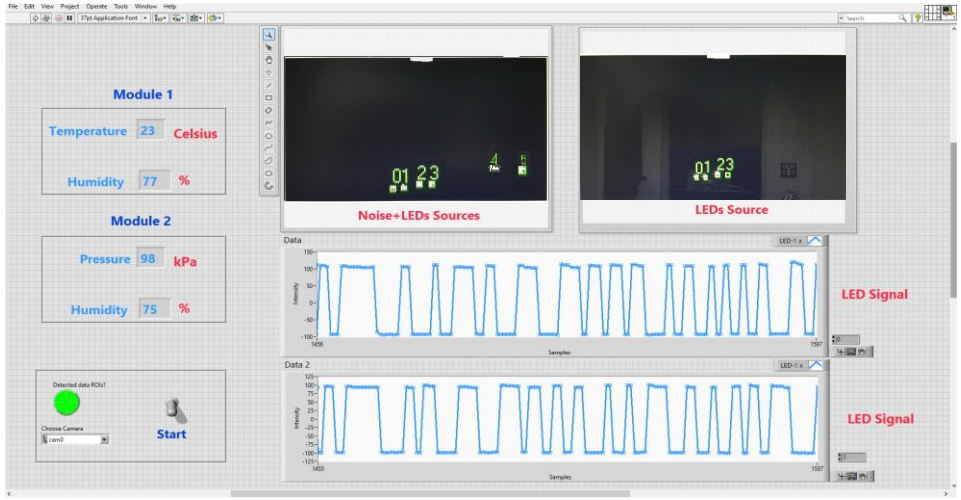


< Noise signal >



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





Demonstration of MIMO-OOK scheme