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

**Submission Title: MIMO-OOK based RoI Signaling for Optical IoT System**

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**Re:**

**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

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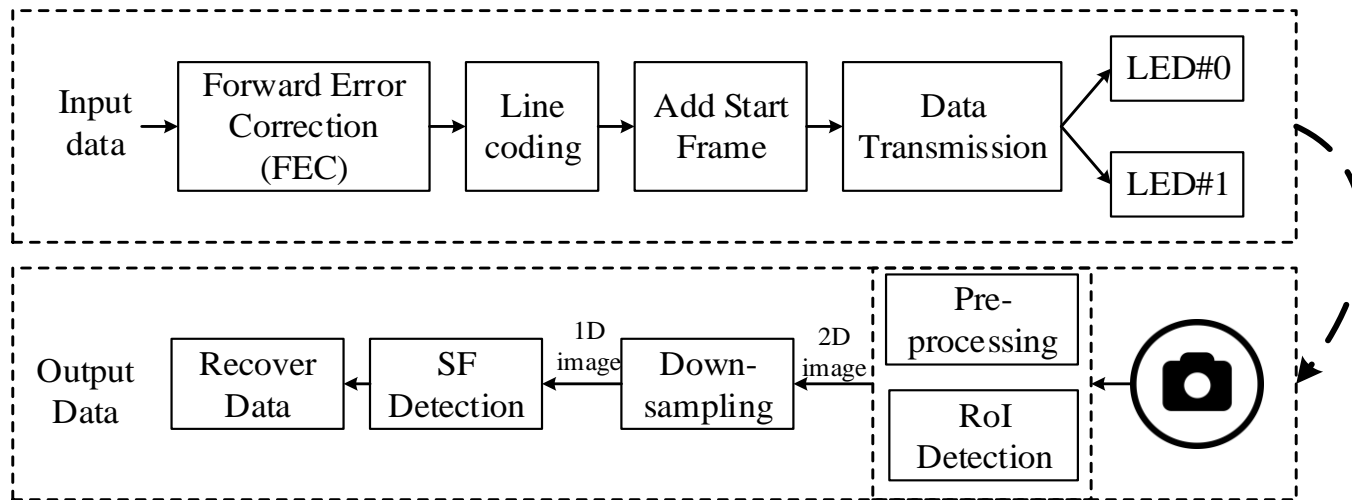
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# MIMO-OOK based RoI signaling for Optical IoT system

# 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

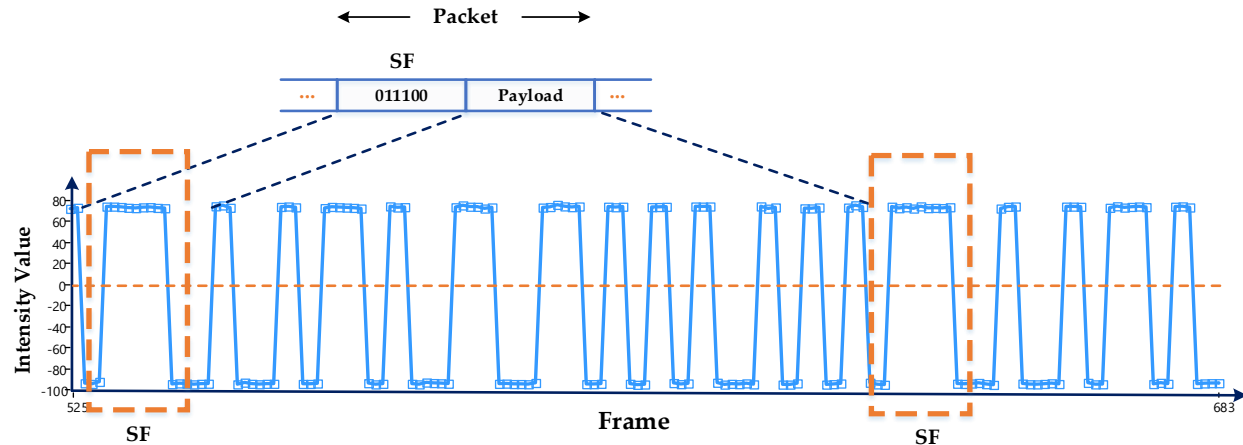


Reference architecture of MIMO-OOK based RoI signaling for Optical IoT system

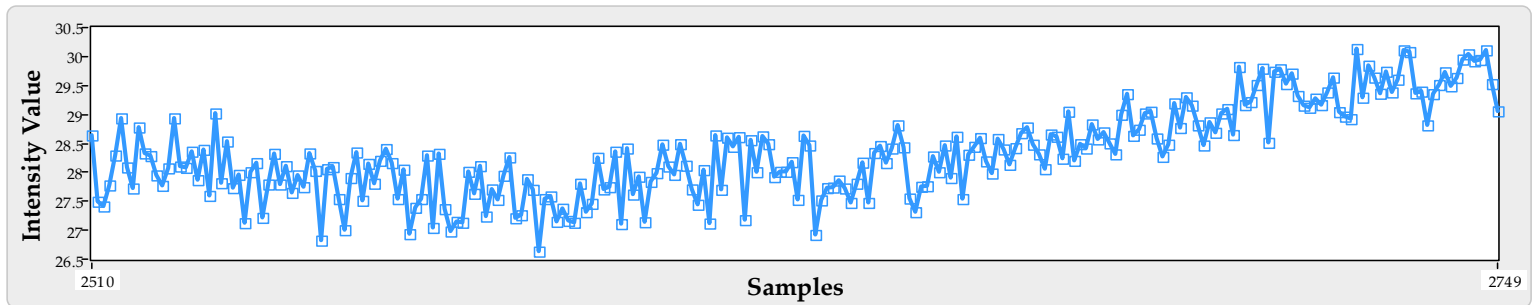
- Provide OCC system for massive small LEDs
- Provide advanced RoI technique compare to CV ( Computer Vision)
- RoI signaling techniques support the OCC system has already been presented in IEEE 802.15.7-2018.
- Kookmin University has contributed to this concept, during meetings of the IEEE 802.15.7-2018

# Architecture of Hybrid Rolling Shutter signal for Optical Camera Communication

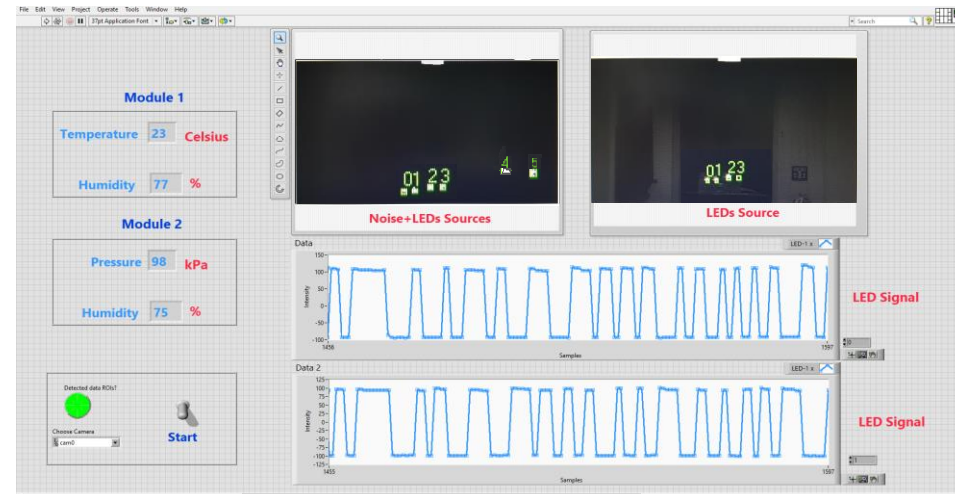
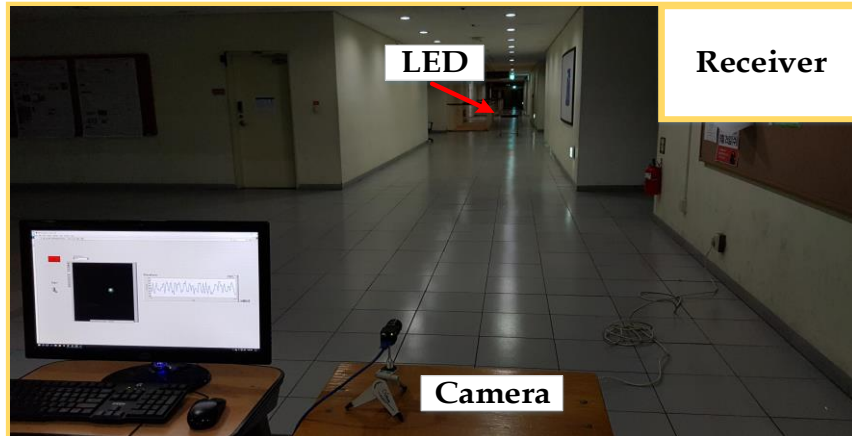
<LED signal >



< Noise signal >



# Architecture of Hybrid Rolling Shutter signal for Optical Camera Communication



# Demonstration of MIMO-OOK scheme

