

## Stable vibration-based communication scheme using multi-step ASK and PPM techniques

### ABSTRACT

In the information-oriented society, there are increasing needs to conduct data communication with nearby devices/people. In this light, vibration-based communication method was proposed as one of possible communication means between adjacent devices. This method has been expected to provide an intuitive and safe communication by propagating vibration to a receiver device. This study proposes two types of techniques, which are multi-step ASK (Amplitude Shift Keying) with pseudo clock and PPM (Pulse Position Modulation), to achieve a stable vibration-based communication simply using smart device functions. These proposed techniques are then evaluated through some experiments using several types of smart devices. In addition, the effectiveness of the proposed methods is discussed based on the experimental results.

**Keyword:** Smartphone; Communication method; Vibration motor; Acceleration sensor