

Abstract

Mariam M. Galal

Smartphones for Payments and Withdrawals Utilizing Embedded LED Flashlight for High Speed Data Transmission

In this paper, we experimentally transmit the required information to the automatic teller machine (ATM) or card readers over a visible light communication channel employing mobile smartphones LED flashlight at high data rates. Due to the dependence of users on their personal digital assistants and smartphones to perform almost everyday tasks including payments and banking transactions, it is of great interest to use such phones to replace the magnetic cards. This paper encodes the LED camera flashlight embedded in almost every smartphone with the required information with no additional hardware on the receiver end. However, a small sized non-expensive module is added to ATMs and card readers to detect and decode the received data. The proposed unidirectional optical link offers secure transmission with a speed up to 500 bps with no error detected.