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## Touch-Triggered Payment Using A Wearable Device

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## **TOUCH-TRIGGERED PAYMENT USING A WEARABLE DEVICE**

### **ABSTRACT**

A system and method is disclosed that triggers touch enabled payment using a wearable device. The system includes a wearable such as a wrist or finger worn device and a point of sale terminal ("PoS" below) configured for touch payment. The wearable includes a low-power wireless transmission device and a metallic contact that connects its antenna to the wearer's body. The PoS has a contact zone that is similarly connected to its antenna. During payment, the wireless transmission device on the PoS sends a discovery signal. When the user touches the contact point on the PoS, the wearable device matches impedance with the receiver on the PoS to establish communication. The PoS switches to transaction mode. The transaction is securely authenticated and the user is then notified.

### **BACKGROUND**

At present, most point-of-sale terminals use a "contactless" method for payment. The common modes of payment are NFC, RFID, or an optical scan of a 2D barcode. These modes of payment require the user to twist their arm and wrist when paying, using a wrist-worn device. This results in an awkward position of the user to enable a smooth contactless transaction.

### **DESCRIPTION**

A system and method are disclosed that triggers touch enabled payment using a wearable device. The wearable device may include a wrist worn device, a finger ring and so on. The system includes a wearable device with a touch-triggered point of sales terminal as shown in FIG. 1. The wearable device in turn has a) a low-power wireless transmission device such as a communication radio (radio), a typical Bluetooth low energy radio (e.g. 2.4GHz), NFC, ZigBee or any other kind of wireless transmission device, and b) a metallic or semi-metallic contact on

the body of the device that electrically connects the antenna of the radio to the wearer's body.

The point-of-sale terminal (PoS) includes a) a wireless transmission device and b) a metallic or semi-metallic contact on the body of the device that electrically connects the antenna of the radio in the PoS to the user's finger, when the user touches the zone of contact.

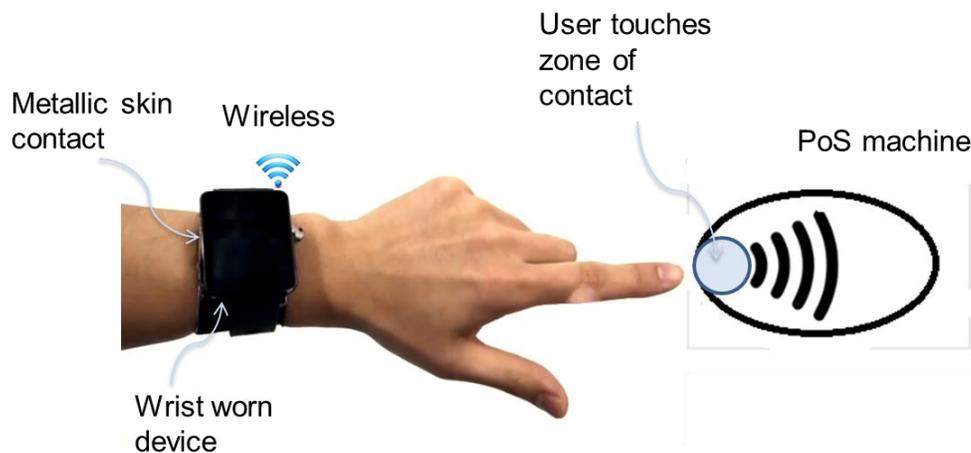


FIG. 1: Touch-triggered payment enabled wearable device

The method of working of the system is depicted in FIG. 2. The radio on the PoS begins sending discovery packets, when the PoS is ready to accept a payment. When the user touches the contact on the PoS device, the wireless transmission device inside the wearable device may use a switched capacitor network or other means of impedance matching to match the impedance between the wireless transmission devices on the wearable device and PoS terminal, in order to maximize signal strength. The transmitter on the wearable device receives the discovery signal and sends a response to the PoS terminal. On receipt of a response from the wearable device, the PoS terminal switches from a "discovery" mode to a "transaction" mode. During the transaction mode, both devices exchange information as appropriate to securely authenticate the transaction through any payment authentication systems. After the occurrence of transaction, either wearable device or the PoS terminal may notify the user regarding the status of the transaction. The status

whether failed or succeeded, is notified to the user through an appropriate modality to the device such as light, sound, speed, tactile, and so on.

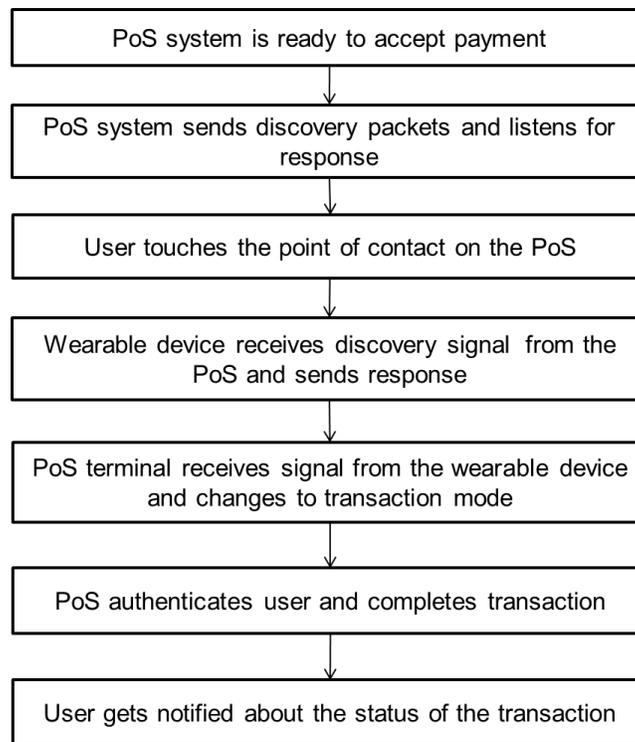


FIG. 2: Method of touch-triggered payment using a wearable device

The system may also be augmented with a fingerprint sensor as the "metallic or semi-metallic contact" on the PoS system to effect two-factor authentication.

The touch-triggered payment using the system and method disclosed makes payments simple, intuitive, and embodied while wearing a wearable device.