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## Offline Payments Using Printed QR Codes

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## Offline Payments Using Printed QR Codes

### ABSTRACT

Mobile payment applications cannot be used to make payments if a person does not have a mobile device or if no data connectivity is available. This disclosure describes techniques to enable a user to make a payment even if the user does not have a mobile device or if their device does not have data connectivity. Per the techniques, a user can carry a printed QR code that includes information about the user's payment account, e.g., a payment wallet, a bank account, etc. that serves as the source of payment. The code can be scanned by a merchant (or other user) that is to receive payment from the user using a merchant device. After the merchant scans the code using their device, the user can enter credentials on the merchant device to authenticate and approve the transfer.

### KEYWORDS

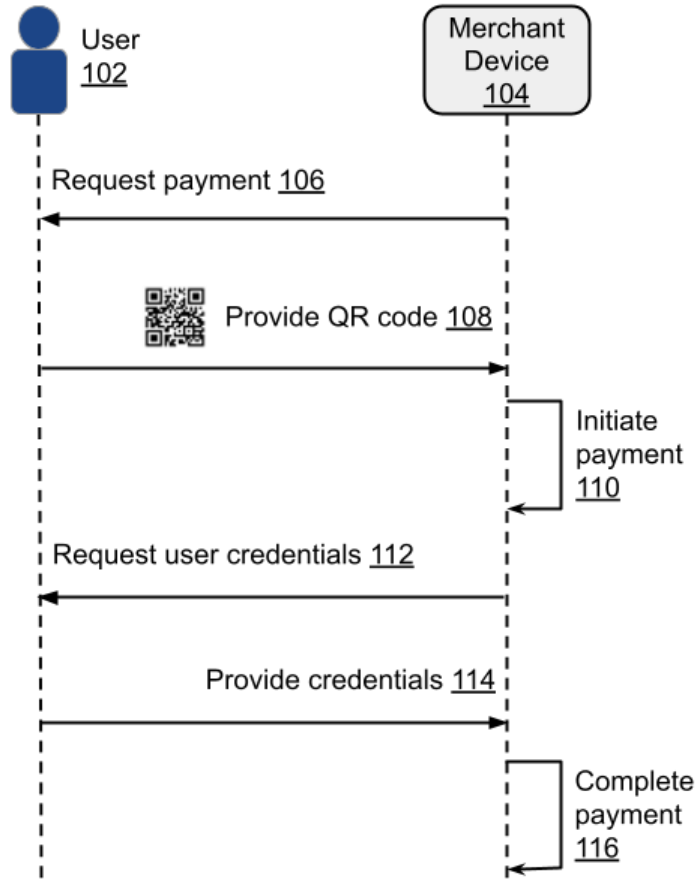
- Offline payment
- Digital payment
- QR code
- Payment app
- Money transfer

## BACKGROUND

Mobile payment applications enable a user to pay other users or merchants from their mobile device, without the need to carry a physical card (credit or debit card) or cash. For example, the user can scan a quick response (QR) code associated with a recipient to obtain their payment information and then make a transfer. However, such payment applications require the user to carry their mobile device and that the mobile device has data connectivity available at the time of making a payment. If the user doesn't have their device (e.g., forgets their smartphone at home) or if the device does not have data connectivity (e.g., due to being out of data coverage area, or not having a data plan) such payment applications cannot be used to make payments.

## DESCRIPTION

This disclosure describes techniques to enable a user to make a payment even if the user does not have a mobile device or if their device does not have data connectivity. Per the techniques, a user can carry a printed QR code. The QR code includes information about the user's payment account, e.g., a payment wallet, a bank account, etc. that serves as the source of payment. The code can be scanned by a merchant (or other user) that is to receive payment from the user. After the merchant scans the code using their device, the user can enter credentials on the merchant device to perform the transfer.



**Fig. 1: Offline payment mechanism**

Fig. 1 illustrates an example process flow for offline payment, per techniques of this disclosure. A user (102) is near a merchant device (104). The merchant requests payment (106) from the user, e.g., via a payment application on the merchant device. To request payment, the merchant can start the device camera. The user then provides a QR code (108) that is scanned by the merchant device. The QR code can include payment information associated with the user, e.g., their payment wallet, bank account, etc.

The merchant initiates payment (110) for a particular amount using the user's payment information. After initiation, the merchant device requests user credentials (112) from the user to authorize the payment. After the user provides credentials (114), the merchant device completes payment using its own data connectivity.

Enabling a user to make a payment in this manner is convenient and viable even in situations when the user does not have a device with mobile connectivity. For example, if the user's device is out of battery or data coverage, the user can still make a payment, since merchants typically have devices that have battery or mains power and also have data connectivity. The QR code can have a transaction limit such that the total amount that is transferred is capped. This provides safety. Also, payments made via the QR code can be grouped to enable tracking expenses. For example, such QR codes can be used by children or other users who do not have devices.

The described techniques enable merchants to serve customers that do not have a device with data connectivity. The techniques can be implemented with any payment application. Since no device is required to be carried by the user, the described techniques can extend digital payments to a large group of users that may now have access to a mobile device capable of digital payments.

## CONCLUSION

Mobile payment applications cannot be used to make payments if a person does not have a mobile device or if no data connectivity is available. This disclosure describes techniques to enable a user to make a payment even if the user does not have a mobile device or if their device does not have data connectivity. Per the techniques, a user can carry a printed QR code that includes information about the user's payment account, e.g., a payment wallet, a bank account, etc. that serves as the source of payment. The code can be scanned by a merchant (or other user) that is to receive payment from the user using a merchant device. After the merchant scans the code using their device, the user can enter credentials on the merchant device to authenticate and approve the transfer.