Payment Via Mobile Phones

Description of the System/Application:

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The system provides online payment service. And the requirements for this system are: i) App on the Mobile phone ii) A bank account to link user credentials to the mobile payment account. Iii) Both the client and the Merchant need to have accounts provided by the payment system.

The Online payment service will act as a middleman and will validate, verify and do the transactions.

Server

6

1

5

4

2

Gateway

Android App

3

1 – The user sends the request through the android app regarding the product he wants to buy.

2 – The user makes the payment through a gateway (can be either third party or implemented in the same server)

3 – The gateway, upon successful processing of the payment, sends back a response message to the android app.

4 - The android app then sends a verification message to the server.

5 - The server then verifies the payment with the gateway.

6 – The gateway then sends the reply message back to the server.

NOTE: The gateway can be implemented in the same server too.

All the exchanges among the various modules of the system will be encrypted using appropriate encryption algorithms. User passwords will be encrypted using a hash function (sha 256). Key exchange and digital signatures will also be implemented in verifying the confidentiality and peer authentication.

Preliminary References:

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[3] Avinash Gannamaneni, Jan Ondrus, Kalle Lyytinen, “A Post-Failure Analysis of Mobile Payment Platforms”, 2015 48th Hawaii International Conference on System Sciences.

[4] Pascal Urien, Xavier Aghina, “Secure Mobile Payments Based on Cloud Services : Concepts And Experiments”, 2016 IEEE 2nd International Conference on Big Data Security on Cloud, IEEE International Conference on High Performance and Smart Computing, IEEE International Conference on Intelligent Data and Security.

[5] Yong Wang, Christen Hahn and Kruttika Sutrave, “Mobile Payment Security, Threats, and Challenges”,

[6] Sandbox Test Accounts, <https://developer.paypal.com/developer/accounts/>.

[7] Configuring the SDK for Sandbox, <https://github.com/paypal/sdk-core-php/wiki/Configuring-the-SDK>.

[8] Paypal Sandbox Testing Guide <https://developer.paypal.com/docs/classic/lifecycle/ug_sandbox/>.