AMENDED CLAIMS

1. A method of conducting electronic payments to a payment acquirer using a credit payment unit (201), comprising a smart card (203), card reader device (202), a mobile phone (204) and a personal identification number (PIN) entry device (219), and a payment server (208), said method comprising:
   - initializing (201) said credit payment unit by establishing communication (304) between said smart card (203) and said card reader device (202), establishing communication between said card reader device (202) and said mobile phone (204)
   - starting a dedicated software application in said mobile phone (204);
   - said software application establishing communication between said mobile phone (204) and said PIN entry device (219);
   - said software application establishing communication (310) between said credit payment unit (201) and said payment server (208) using said mobile phone (204);
   - said software application communicating a reader serial number stored in said card reader device (202) via said mobile phone (204) to said payment server (208);
   - communicating a PIN serial number stored in said PIN entry device (219) to said payment server (208);
   - deriving a reader key, used in said card reader device (202) for encrypting information, in said payment server (208) based on said communicated reader serial number and a master reader key stored in said payment server (208);
   - deriving a PIN key, used in said PIN entry device (219) for encrypting PIN information, in said payment server (208) based on said communicated PIN serial number and a PIN master key stored in said payment server (208);
   - reading, in said card reader device (202), smart card information from said smart card (203), and encrypting said smart card information using said reader key;

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- receiving user inputted payment details (410) and a user inputted signature (412) in said mobile phone (208);
- receiving user inputted PIN information (412) in said PIN entry device (219), encrypting said PIN information using said PIN key and communicating said encrypted PIN information to said payment server (208);
- communicating, using said mobile phone (204), said encrypted smart card information from said card reader device (202), said payment details, and said signature to said payment server (208);
- decrypting and verifying (314) said encrypted smart card information and said encrypted PIN information in said payment server (208); and
- communicating said payment details and said signature from said payment server (208) to said payment acquirer server (214), and thereby completing an electronic payment (434).

2. The method according to claim 1, wherein said encrypted PIN information is communicated to said payment server (208) via the mobile phone (204).

3. The method according to claim 1, wherein said encrypted PIN information is communicated wirelessly to said payment server (208).

4. The method according to claim 1, wherein said encrypted PIN information is communicated wirelessly to said payment acquirer server (214).

5. The method according to any of claims 1 –4, wherein said decrypted encrypted PIN information is communicated from said payment server (208) to said payment acquirer server (214) for verification (418) .

6. The method according to any of claims 1 – 5, wherein said communication between said credit payment unit (201) and said payment server (208), using said mobile phone (204), is encrypted using the Transport Layer Security protocol or the Secure Sockets Layer protocol, and wherein said communication between said smart card (203) and said card reader device (202) is encrypted using said reader key in said card reader device (202).

7. The method according to any of claims 1 - 6, wherein said communicating of said payment details (414) from said payment server (208) to said payment acquirer server (214) is encrypted.

8. The method according to any of claims 1 – 7, further comprise:
   - receiving, in said payment server (208), an acknowledgement from said payment acquirer server (214) that said electronic credit payment has been completed (434);
   - generating a receipt (434) of said electronic credit payment in said payment server (208);
   - communicating said receipt (434) to said credit payment unit (201);
   - displaying said receipt in said mobile phone (204); and
   - storing (436) said receipt and said signature in a log (218).

9. The method according to any of claims 1 - 8, wherein said electronic credit payment complies with an EMV payment system specification.

10. A payment unit (201) adapted to communicate with a payment server (208) for making electronic payments, comprising:
   - a smart card (203) containing smart card information;
   - a card reader device (202) containing a unique reader serial number and a unique reader key, wherein said card reader device (202) is adapted to read said smart card information and to encrypt said smart card information using said reader key;
   - a PIN entry device (219) containing a unique PIN serial number and a unique PIN key, wherein said PIN entry device (219) is adapted to receive user inputted PIN information and encrypt said PIN information using said PIN key, and communicate said encrypted PIN information to said payment server (208);
   - a mobile phone (204), comprising a dedicated software application adapted to, when started, setup the communication between said mobile phone (204) and said PIN entry device (219), and between said mobile payment unit and said payment server (208), wherein

said mobile phone (208) is further adapted to receive said reader serial number and said encrypted smart card information from said card reader device (202), wherein said mobile phone is further adapted to receive user inputted payment details and a user inputted signature, and wherein said mobile phone is further adapted to communicate said reader serial number, encrypted smart card information, payment details and signature to said payment server (208) for completing a secure credit payment.

11. The payment unit according to claim 10, wherein said mobile phone (204) is adapted to receive a receipt from said payment server (208) and to display said receipt on a display in said mobile phone (204).

12. The payment unit according to any of claims 10 - 11, wherein said mobile phone (204) is adapted to receive said inputted payment details via a touch sensitive display.

13. The payment unit according to any of claims 10 - 12, wherein said mobile phone (204) is further adapted to receive said PIN serial number and said encrypted PIN information from said PIN entry device (219), and communicate said received PIN serial number and said encrypted PIN information to said payment server (208).

14. The payment unit according to any of claims 10 - 12, wherein said PIN entry device (219) is adapted to communicate said PIN serial number and said encrypted PIN information to either said payment server (208) or to a payment acquirer server (214).

15. A system for conducting electronic credit payments to a payment acquirer using a credit payment unit according to claims 10 to 14, and wherein the system adapted to perform the method according to claims 1 to 9.

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CLAIMS

1. A method of conducting EMV compliant electronic payments to a payment acquirer using a credit payment unit, comprising a smart card, card reader device comprising electrical and physical interfaces required to fulfil EMV level 1, a mobile phone and a personal identification number (PIN) entry device, and a payment server comprising processing logic and data required to process a smart card application in order to perform an EMV transaction fulfilling EMV level 2, wherein said method comprising:
    - initializing said credit payment unit by establishing communication between said smart card and said card reader device, establishing communication between said card reader device and said mobile phone, and establishing communication between said mobile phone and said PIN entry device and initiating a payment software in the mobile phone which begins setting up communication with the card reader device, the PIN entry device and also begins setting up communication over the internet with the payment server via a wireless or wired link;
    - communicating a reader serial number stored in said card reader device via said mobile phone to said payment server;
    - communicating a PIN serial number stored in said PIN entry device to said payment server;
    - deriving a reader key, used in said card reader device for encrypting information, in said payment server based on said communicated reader serial number and a master reader key stored in said payment server;
    - deriving a PIN key, used in said PIN entry device for encrypting PIN information, in said payment server based on said communicated PIN serial number and a PIN master key stored in said payment server;
    - said card reader device reading, smart card information from said smart card, and encrypting said smart card information using said reader key;
    - receiving user inputted payment details in said mobile phone;

- receiving user inputted PIN information in said PIN entry device, encrypting said PIN information using said PIN key and communicating said encrypted PIN information to said payment server;
- communicating, using said mobile phone, said encrypted smart card information from said card reader device, said payment details to said payment server;
- decrypting and verifying said encrypted smart card information and said encrypted PIN information in said payment server; and
- communicating said payment details from said payment server to said payment acquirer server, and thereby completing an electronic payment.

2. The method according to claim 1, wherein said encrypted PIN information is communicated to said payment server via the mobile phone.

3. The method according to claim 1, wherein said encrypted PIN information is communicated wirelessly to said payment server.

4. The method according to claim 1, wherein said encrypted PIN information is communicated wirelessly to said payment acquirer server.

5. The method according to any of claims 1 – 4, wherein said decrypted encrypted PIN information is communicated from said payment server to said payment acquirer server for verification.

6. The method according to any of claims 1 – 5, wherein said communication between said credit payment unit and said payment server, using said mobile phone, is encrypted using the Transport Layer Security protocol or the Secure Sockets Layer protocol, and wherein said communication between said smart card and said card reader device is encrypted using said reader key in said card reader device.

7. The method according to any of claims 1 - 6, wherein said communicating of said payment details from said payment server to said payment acquirer server is encrypted.

8. The method according to any of claims 1 – 7, further comprise:
   - receiving, in said payment server, an acknowledgement from said payment acquirer server that said electronic credit payment has been completed;
   - generating a receipt of said electronic credit payment in said payment server;
   - communicating said receipt to said credit payment unit;
   - displaying said receipt in said mobile phone; and
   - storing said receipt in a log.

9. A payment unit adapted to communicate with a payment server for making electronic payments, the payment server comprising processing logic and data required to process a smart card application in order to perform an EMV transaction fulfilling EMV level 2, the payment unit comprising:
   - a smart card containing smart card information;
   - a card reader device comprising electrical and physical interfaces required to fulfil EMV level 1, wherein the a card reader device contains a unique reader serial number and a unique reader key, wherein said card reader device is adapted to read said smart card information and to encrypt said smart card information using said reader key;
   - a PIN entry device containing a unique PIN serial number and a unique PIN key, wherein said PIN entry device is adapted to receive user inputted PIN information and encrypt said PIN information using said PIN key, and communicate said encrypted PIN information to said payment server;
   - a mobile phone adapted to initiate a payment software in the mobile phone which begins setting up the communication with the card reader device, the PIN entry device and also begins setting up

communication over the internet with a payment server via a wireless or wired link, wherein said mobile phone is further adapted to receive said reader serial number and said encrypted smart card information from said card reader device, wherein said mobile phone is further adapted to receive user inputted payment details, and wherein said mobile phone is further adapted to communicate said reader serial number, encrypted smart card information, payment details to said payment server to verify the smartcard information in the payment server fulfilling EMV Level 2 security measures for completing a secure credit payment in the payment server.

10. The payment unit according to claim 9, wherein said mobile phone is adapted to receive a receipt from said payment server and to display said receipt on a display in said mobile phone.

11. The payment unit according to any of claims 9 - 10, wherein said mobile phone is adapted to receive said inputted payment details via a touch sensitive display.

12. The payment unit according to any of claims 9 - 11, wherein said mobile phone is further adapted to receive said PIN serial number and said encrypted PIN information from said PIN entry device, and communicate said received PIN serial number and said encrypted PIN information to said payment server.

13. The payment unit according to any of claims 9 - 11, wherein said PIN entry device is adapted to communicate said PIN serial number and said encrypted PIN information to either said payment server or to a payment acquirer server.

14. A system for conducting electronic credit payments to a payment acquirer using a credit payment unit according to claims 9 to 13, and wherein the system adapted to perform the method according to claims 1 to 8.