Patents by Inventor Kerry D. Brown http://patents.justia.com/inventor/kerry-d-brown

MAGNETIC EMISSIVE USE OF PRELOADED PAYMENT CARD ACCOUNT NUMBERS

Application number: 20150186877

Abstract: A thin-client access card has a card body with partial or fully emissive magnetic data tracks. An emissive element is disposed in the card body under the location of the legacy magnetic data tracks. An electronic signal conditioner converts audio signals from a mobile device into magnetic data applied to the emissive element. A swipe sensor detects when the thin-client access card is being swiped by a legacy card reader, and triggers an output of magnetic data from the emissive element while proximal to the POS reader head. A cable attaches the thin-client access card as a peripheral to the mobile device with an audio output jack.

Type: Application

Filed: March 4, 2015

Issued: July 2, 2015

Inventor: Kerry D. Brown

Optical contact loaded magnetic card

Patent number: 9010646

Abstract: A magnetic interface card appears to be a payment card conventionally provided with an electromagnetic stripe and magnetic data tracks. A magnetic emissive element is disposed in the magnetic interface card body under the magnetic data tracks that can emit a variety of ISO-7813 track-2 data strings. A photo-sensor is included to receive a series of optically encoded flashes from a personal trusted device (PTD) smartphone screen that securely communicate one-time-use account information and operational parameters from a financial transaction server. The large installed base of legacy point-of-sale magnetic card readers can continue to be used without any hardware or software modifications, and card security is improved by the change to one-time-use access numbers.

Type: Grant

Filed: September 2, 2011

Issued: April 21, 2015

Assignee: Coin, Inc.

Inventor: Kerry D. Brown

Magnetic emissive use of preloaded payment card account numbers

Patent number: 8998096

Abstract: A thin-client access card has a card body with partial or fully emissive magnetic data tracks. An emissive element is disposed in the card body under the location of the legacy magnetic data tracks. An electronic signal conditioner converts audio signals from a mobile device into magnetic data applied to the emissive element. A swipe

sensor detects when the thin-client access card is being swiped by a legacy card reader, and triggers an output of magnetic data from the emissive element while proximal to the POS reader head. A cable attaches the thin-client access card as a peripheral to the mobile device with an audio output jack.

Type: Grant

Filed: April 1, 2010

Issued: April 7, 2015

Assignee: Coin, Inc.

Inventor: Kerry D. Brown

MOBILE-TO-MOBILE TRANSACTIONS

Application number: 20150019441

Abstract: A mobile-to-mobile transaction method allows two mobile smartphones to engage in a private transaction between themselves. The two share the same transaction server using prearranged individual enrollments. These build a dynamic digital image of a colorgram with a selected shape that defines a colorgram matrix boundary. Authentication codes, merchant coupons, product advertisements, and browser uniform resource locator (URL) links for product information and ordering, one-time-password (OTP) seeds, initialization vectors, individual enrollment passwords, or password seeds are embedded and encrypted in each colorgram. The colorgram is sent to a first one of the mobile smartphones for its display to a collocated second one of the mobile smartphones. A transaction is authenticated between users based on a calculated expectation of what should be returned when it provides its own digital image of the colorgram displayed by the first mobile smartphone.

Type: Application

Filed: September 26, 2014

Issued: January 15, 2015

Assignee: CRYPTITE, LLC

Inventors: Kerry D. Brown, Ronald P. Knapp

MOBILE PEER-TO-PEER AUTHENTICATED TRANSFERS

Application number: 20150012444

Abstract: A peer-to-peer transaction security method includes authentication and identification steps for pushing an encrypted colorgram from a transaction server to a first personal trusted device. Such provides a visual key for user authentication. Persona descriptors may be included for user identification. A decryption of the colorgram is displayed on the first personal trusted device to be optically captured by a second personal trusted device. The image captured from the second personal trusted device is encrypted and uploaded to the transaction server. In some cases, the persona descriptors alone are used to build a composite rendering for identification of the first user by the second user. The second user clicks and returns an acceptance if they recognize the composite drawing as a reasonable persona of the first user.

Type: Application

Filed: September 26, 2014

Issued: January 8, 2015

Assignee: Cryptite, LLC

Inventors: Kerry D. Brown, Ronald P. Knapp

Characteristically shaped colorgram tokens in mobile transactions

Patent number: 8868902

Abstract: A transaction security process includes authentication and identification parts for pushing an encrypted colorgram for user authentication and persona descriptors for user identification from a transaction server to a first personal trusted device. A decryption of the colorgram is displayed on the first personal trusted device. An image is captured by a second personal trusted device. An encryption of the image captured from the second personal trusted device is uploaded to the transaction server. The persona descriptors are used to build a composite rendering for identification of the first user to the second user. The second user clicks “OK” if they recognize the composite drawing as a reasonable persona of the first user.

Type: Grant

Filed: July 1, 2013

Issued: October 21, 2014

Assignee: Cryptite LLC

Inventors: Kerry D. Brown, Ronald P. Knapp

SMARTPHONE VIRTUAL PAYMENT CARD

Application number: 20140100973

Abstract: A payment device presents a matrix barcode on a smartphone display screen for scanning by a merchant at a point-of-sale terminal. The consumer authenticates with their payment processor by logging in with their smartphone through a back channel. A successful log-in is rewarded with a matrix barcode the consumer can allow the merchant to scan if the particulars and price of the proposed transaction are acceptable. A transaction summary and request for approval arrive back at the consumer's smartphone through the back channel. Approval can be indicated by the entry of a user PIN code, and the transaction is complete.

Type: Application

Filed: December 6, 2013

Issued: April 10, 2014

Assignee: CRYPTITE, LLC

Inventors: Kerry D. Brown, RONALD P. KNAPP, RICHARD B. MAIN

Mobile transaction methods and devices with three-dimensional colorgram tokens

Patent number: 8478990

Abstract: A transaction security process includes authentication and identification parts for pushing an encrypted colorgram for user authentication and persona descriptors for user identification from a transaction server to a first personal trusted device. A decryption of the colorgram is displayed on the first personal trusted device. An image is captured by a second personal trusted device. An encryption of the image captured from the second personal trusted device is uploaded to the transaction server. The persona descriptors are used to build a composite rendering for identification of the first user to the second user. The second user clicks “OK” if they recognize the composite drawing as a reasonable persona of the first user.

Type: Grant

Filed: June 2, 2011

Issued: July 2, 2013

Assignee: Cryptite LLC

Inventors: Kerry D. Brown, Michael Keith Bond, Ronald P. Knapp, Peter Landrock

Mobile Transaction Methods and Devices With Three-Dimensional Colorgram Tokens

Application number: 20120311320

Abstract: A transaction security process includes authentication and identification parts for pushing an encrypted colorgram for user authentication and persona descriptors for user identification from a transaction server to a first personal trusted device. A decryption of the colorgram is displayed on the first personal trusted device. An image is captured by a second personal trusted device. An encryption of the image captured from the second personal trusted device is uploaded to the transaction server. The persona descriptors are used to build a composite rendering for identification of the first user to the second user. The second user clicks “OK” if they recognize the composite drawing as a reasonable persona of the first user.

Type: Application

Filed: June 2, 2011

Issued: December 6, 2012

Inventors: Kerry D. Brown, Michael Keith Bond, Ronald P. Knapp, Peter Landrock

TRACEABLE AND NON-REPUTABLE TRANSACTION DEVICES AND METHODS

Application number: 20120278241

Abstract: Data and financial transactions are secured on a mobile electronics device for traceability and non-repudiation. A mobile personal trusted device (PTD) is needed to communicate over a network to a transaction server. Characteristic abstracts of objects carried by users have distinctive features that can be associated with and registered to a particular user and are recorded. An abstract contemporaneously obtained during a secure transaction

is sent to a server for use as an authenticator for comparison to an abstract previously obtained and registered to said user. A traceable transaction record is rendered that is highly identifiable and substantially indisputable.

Type: Application

Filed: July 14, 2012

Issued: November 1, 2012

Inventors: Kerry D. Brown, Peter Landrock, Ronald P. Knapp

Payment card manufacturing technology

Patent number: 8267327

Abstract: A payment card manufacturing process glues a thin battery and an autonomously reprogrammable magnetic device to the inside surface of one of two outer front and rear laminate sheets. The magnetic device is pressed through a precisely cut rectangular hole provided for it in the rear laminate sheet, and is sealed with a gasket bead. Such magnetic device is critically placed flush in a magnetic stripe area, and the end gaps are such that they will minimize adverse magnetic transitions seen by a reader between the magnetic stripe field and the autonomously reprogrammable magnetic device. The surfaces of the battery, electronics, and laminate sheets, are plasma treated to promote adhesion. These are then all sandwiched together inside a heated mold that is tilted or vibrated just before a two-part polyurethane is injected. Each of the two polyurethane parts is temperature adjusted to match viscosities and thus improve mixing.

Type: Grant

Filed: October 12, 2007

Issued: September 18, 2012

Assignee: Qsecure, Inc.

Inventors: Paul Tsao, Kerry D. Brown

Encoded colorgram for mobile device security

Patent number: 8224293

Abstract: A security system includes a software application running in a user's smartphone and a separately carried visual key that the user can image at will with the smartphone's camera. An effective visual key would typically comprise digital data encoded in a series of colored cells arranged in a colorgram. Such digital data is treated as a what-you-have security factor, and is concatenated with other security factors so users can authenticate themselves to websites, internet services, and even within the smartphone device itself or its applications. In one aspect, when users authenticate themselves to a server, the server returns a short-term supply of one-time-passwords or account numbers for use in secure access and financial transactions on other systems.

Type: Grant

Filed: December 31, 2010

Issued: July 17, 2012

Inventors: Ronald P. Knapp, Kerry D. Brown, Peter Landrock

ENCODED COLORGRAM FOR MOBILE DEVICE SECURITY

Application number: 20120171997

Abstract: A security system includes a software application running in a user's smartphone and a separately carried visual key that the user can image at will with the smartphone's camera. An effective visual key would typically comprise digital data encoded in a series of colored cells arranged in a colorgram. Such digital data is treated as a what-you-have security factor, and is concatenated with other security factors so users can authenticate themselves to websites, internet services, and even within the smartphone device itself or its applications. In one aspect, when users authenticate themselves to a server, the server returns a short-term supply of one-time-passwords or account numbers for use in secure access and financial transactions on other systems.

Type: Application

Filed: December 31, 2010

Issued: July 5, 2012

Inventors: Ronald P. Knapp, Kerry D. Brown, Peter Landrock

Auto-sequencing financial payment display card

Patent number: 8201747

Abstract: A payment card comprises a store of issuer-defined pre-generated cryptograms that are loaded only once into the Card by a perso-bureau or issuer. An on-board and autonomous electronic display of the personal account number (PAN), card verification value (CVV), or expiration date (EXP) is auto-sequenced through the stored cryptograms. Each value displayed to the user is unique, and useful in a financial transaction only once. The Card thus requires no changes in behavior on the part of the User, because the existing merchant infrastructure is already equipped to collect PAN+CVV+EXP data for user verification and transaction authorization.

Type: Grant

Filed: November 26, 2008

Issued: June 19, 2012

Assignee: QSecure, Inc.

Inventors: Kerry D. Brown, Daniel Chatelain

Display payment card with fraud and location detection

Patent number: 8104679

Abstract: A payment card comprises a display to support card-not-present transactions where no card reader is available to automate the transaction, and an account number retrieval method for dynamic, one-time use virtual account numbers whose use can assist authorities in rapid fraud and location detection. The account number generator is able to produce a sequence of virtual account numbers over its life that are predictable by the issuing

bank and useful in authenticating transactions. A server for the issuing bank logs the merchant locations associated with each use or attempted use, and provides real-time detection of fraudulent attempts to use a virtual account number outside the predicted set. Fraud identification efforts can then be directed in a timely and useful way.

Type: Grant

Filed: June 8, 2009

Issued: January 31, 2012

Assignee: Qsecure, Inc.

Inventor: Kerry D. Brown

OPTICAL CONTACT LOADED MAGNETIC CARD

Application number: 20110320314

Abstract: A magnetic interface card appears to be a payment card conventionally provided with an electromagnetic stripe and magnetic data tracks. A magnetic emissive element is disposed in the magnetic interface card body under the magnetic data tracks that can emit a variety of ISO-7813 track-2 data strings. A photo-sensor is included to receive a series of optically encoded flashes from a personal trusted device (PTD) smartphone screen that securely communicate one-time-use account information and operational parameters from a financial transaction server. The large installed base of legacy point-of-sale magnetic card readers can continue to be used without any hardware or software modifications, and card security is improved by the change to one-time-use access numbers.

Type: Application

Filed: September 2, 2011

Issued: December 29, 2011

Inventor: Kerry D. Brown

MAGNETIC EMISSIVE USE OF PRELOADED SECRET-KEY ENCRYPTED USE-ONCE PAYMENT CARD ACCOUNT NUMBERS

Application number: 20110240745

Abstract: A thin-client access card has a card body with partial or fully emissive magnetic data tracks. An emissive element is disposed in the card body under the location of the legacy magnetic data tracks. An electronic signal conditioner converts audio signals from a mobile device into magnetic data applied to the emissive element. A swipe sensor detects when the thin-client access card is being swiped by a legacy card reader, and triggers an output of magnetic data from the emissive element while proximal to the POS reader head. A cable attaches the thin-client access card as a peripheral to the mobile device with an audio output jack.

Type: Application

Filed: April 1, 2010

Issued: October 6, 2011

Inventor: Kerry D. Brown

VIRTUALIZATION OF AUTHENTICATION TOKEN FOR SECURE APPLICATIONS

Application number: 20110161232

Abstract: Data and financial transactions are secured on a mobile electronics device, with three downloadable modules. A first module provides for the mobile electronics device and a network server to interactively register a cryptographic abstract of an object usually carried by the user. These objects represent physical passwords from which processing can derive characterizing information. A second module is invoked by a transaction and signals the mobile electronics device to collect a new sample of the physical password. A cryptographic abstract of it is distilled and compared to preregistered cryptographic abstracts. A third module is a key recovery process for use when the preregistered physical password sound or object is no longer available to the user.

Type: Application

Filed: December 28, 2009

Issued: June 30, 2011

Inventor: Kerry D. Brown

Auto-sequencing financial payment display card

Application number: 20100127083

Abstract: A payment card comprises a store of issuer-defined pre-generated cryptograms that are loaded only once into the Card by a perso-bureau or issuer. An on-board and autonomous electronic display of the personal account number (PAN), card verification value (CVV), or expiration date (EXP) is auto-sequenced through the stored cryptograms. Each value displayed to the user is unique, and useful in a financial transaction only once. The Card thus requires no changes in behavior on the part of the User, because the existing merchant infrastructure is already equipped to collect PAN+CVV+EXP data for user verification and transaction authorization.

Type: Application

Filed: November 26, 2008

Issued: May 27, 2010

Inventors: Kerry D. Brown, Daniel Chatelain

Magnetic data recording device

Patent number: 7641124

Abstract: A Q-Chip MEMS magnetic device comprises a thin-film electronic circuit for implantation in the Track-2 area of a magnetic stripe on the back of a credit card. The Q-Chip MEMS magnetic device periodically self-generates new sub-sets of magnetic data that are to be read in combination with other magnetic data that is permanently recorded in the surrounding surface of the magnetic stripe. A collocated battery and microcontroller provide operating power and new data for magnetic bit updates. A swipe sensor triggers such updates by sensing electrical contact with a legacy card reader. Several thin-film coils of wire are wound end-to-end around a common, flat, ferrous core. These

are driven by the microcontroller. In one instance, such core comprises “hard” magnetic material with a coercivity of 200-300 Oersteds. Magnetic data written from the corresponding adjacent coils will persist for later readings by a legacy card reader.

Type: Grant

Filed: June 30, 2006

Issued: January 5, 2010

Assignee: Qsecure, Inc.

Inventors: Kerry D. Brown, David K. Pariseau, Weidong Li, Edgar M. Williams, Joyce Thompson

Payment card financial validation processing center

Patent number: 7631804

Abstract: A method for validating a payment card financial transaction includes receiving a financial transaction approval request message derived from a payment card that is able to change its magnetic card data as elicited by a card reader. Out-of-sequence transactions encoded in a dynamic number included in said magnetic card data are detected. The dynamic number is compared with a last valid number that was previously stored in a database. An approval message is issued to enable the completion of a financial transaction with the payment card.

Type: Grant

Filed: October 20, 2007

Issued: December 15, 2009

Assignee: Qsecure, Inc.

Inventor: Kerry D. Brown

THREE-LEGACY MODE PAYMENT CARD WITH PARAMETRIC AUTHENTICATION AND DATA INPUT ELEMENTS

Application number: 20090255996

Abstract: A payment card comprises a plastic card and operates with three different legacy payment systems. A magnetic stripe with user account data allows card use in traditional point-of-sale magnetic card readers. A dual-input crypto-processor embedded in the card provides for contact/contactless smart card operation. A user input provides for user authentication by the crypto-processor. Internal to the plastic card, and behind the magnetic stripe, a magnetic array includes a number of fixed-position magnetic write heads that allow the user account data to be automatically modified by the crypto-processor.

Type: Application

Filed: June 23, 2009

Issued: October 15, 2009

Inventors: Kerry D. Brown, Daniel Chatelain

DISPLAY PAYMENT CARD WITH FRAUD AND LOCATION DETECTION

Application number: 20090248581

Abstract: A payment card comprises a display to support card-not-present transactions where no card reader is available to automate the transaction, and an account number retrieval method for dynamic, one-time use virtual account numbers whose use can assist authorities in rapid fraud and location detection. The account number generator is able to produce a sequence of virtual account numbers over its life that are predictable by the issuing bank and useful in authenticating transactions. A server for the issuing bank logs the merchant locations associated with each use or attempted use, and provides real-time detection of fraudulent attempts to use a virtual account number outside the predicted set. Fraud identification efforts can then be directed in a timely and useful way.

Type: Application

Filed: June 8, 2009

Issued: October 1, 2009

Inventor: Kerry D. Brown

Financial transactions with dynamic card verification values

Patent number: 7584153

Abstract: A payment card comprises an internal dynamic card verification value (CVV) generator and a user display for card-not-present transactions. Card-present transactions with merchant card readers are enabled by a dynamic magnetic array internally associated with the card's magnetic stripe. The user display and a timer are triggered by the user when the user needs to see the card verification value and/or begin a new transaction. A new card verification value is provided for each new transaction according to a cryptographic process, but the timer limits how soon a next new card verification value can be generated.

Type: Grant

Filed: December 30, 2006

Issued: September 1, 2009

Assignee: Qsecure, Inc.

Inventors: Kerry D. Brown, David Kevin Pariseau

Financial transactions with dynamic personal account numbers

Patent number: 7580898

Abstract: A method for securing financial transactions involving payment cards includes associating a sixteen-digit personal account number (PAN) with a particular payment card and user, wherein are included fields for a system number, a bank/product number, a user account number, and a check digit. A four-digit expiration date (MMYY) associated with the PAN. A magnetic stripe on the payment card is encoded with the PAN for periodic reading by a magnetic card reader during a financial transaction. A table of cryptographic values associated with the PAN and the MMYY is stored on each user's payment card during personalization by an issuing bank. A next financial transaction

being commenced with the payment card is sensed. A cryptographic value from the table of cryptographic values is selected for inclusion as a dynamic portion of the user account number with the PAN when a next financial transaction is sensed.

Type: Grant

Filed: December 30, 2006

Issued: August 25, 2009

Assignee: Qsecure, Inc.

Inventors: Kerry D. Brown, David Kevin Pariseau

SECURE FINANCIAL TRANSACTION NETWORK

Application number: 20090187507

Abstract: A secure financial transaction network works with payment cards that includes a magnetic device readable by a legacy card reader that presents dynamic magnetic data such that each use of an individual card produces a cryptographic series of variations of a respective user access code according to an encryption program seeded with secret encryption keys or initialization vectors. Data processing generates a cryptographic series of variations of respective user access codes for each and all of the plurality of payment cards, to transmit to third parties for payment card manufacturing only tables of said cryptographic series of variations of respective user access code and not said secret encryption keys or initialization vectors, and to authorize financial transaction requests from a payments processor if a user access code it receives in a transaction request is a member of said cryptographic series of variations of respective user access codes for the particular one of the plurality of payment cards.

Type: Application

Filed: February 24, 2009

Issued: July 23, 2009

Inventor: Kerry D. Brown

METHOD OF MAKING SECURE PAYMENT CARDS

Application number: 20090164381

Abstract: A method of making secure payment cards for financial transactions over networks includes building payment card blanks by integrating plastic, circuit, battery, semiconductor chips, magnetic stripe, magnetic MEMS device, and other components into a debit/credit card format conforming to ISO industry standards, all in response to an order from an issuing bank. Then personalizing each payment card blank with a personal account number (PAN) of which a portion is variable according to an encryption processor and secret encryption key kept by said issuing bank, and only computed results are loaded in embedded crypto-tables for presentation during financial transactions by said magnetic MEMS device. A population of secure payment cards is produced which can be circulated for use in the commercial markets.

Type: Application

Filed: February 24, 2009

Issued: June 25, 2009

Inventor: Kerry D. Brown

FINANCIAL TRANSACTION NETWORK

Application number: 20090164380

Abstract: The manufacture and control of payment cards used in consumer financial transactions circulates a population of payments cards with user identification and account access codes. Each use of an individual card produces a variation of its user access code according to an encryption program seeded with encryption keys or initialization vectors. A portion of the magnetic stripe is made dynamic with a Q-Chip magnetic MEMS device. The job of personalizing payment cards with the user identification and account access codes is outsourced to a personalization company. The encryption keys and initialization vectors are kept private from the personalization company by using the encryption program to generate tables of computed results. Respective ones of the tables of computed results are sent for loading by the personalization company into new members of the population of payments cards. New payment cards are manufactured and distributed that include and operate with the tables of computed results.

Type: Application

Filed: February 24, 2009

Issued: June 25, 2009

Inventor: Kerry D. Brown

Automated payment card fraud detection and location

Patent number: 7543739

Abstract: A payment card fraud detection business model comprises an internal virtual account number generator and a user display for Card-Not-Present transactions. Card-Present transactions with merchant card readers are enabled by a magnetic array internally associated with the card's magnetic stripe. The internal virtual account number generator is able to reprogram some of the magnetic bits encoded in the magnetic stripe to reflect the latest virtual account number. The internal virtual account number generator produces a sequence of virtual numbers that can be predicted and approved by the issuing bank. Once a number is used, such is discarded and put on an exclusion list or reserved for a specific merchant until the expiration date. A server for the issuing bank logs the merchant locations associated with each use or attempted use, and provides real-time detection of fraudulent attempts to use a virtual account number on the exclusion list.

Type: Grant

Filed: April 14, 2006

Issued: June 9, 2009

Assignee: QSecure, Inc.

Inventors: Kerry D. Brown, David Kevin Pariseau, Daniel Chatelain

FINANCIAL TRANSACTION PAYMENT PROCESSOR

Application number: 20090006262

Abstract: A financial transaction payment processor includes an account access request processor for receiving dynamic swipe data from a payment card through a merchant infrastructure. A fraud detection processor is connected to analyze a dynamic data obtained by the account access request processor that should agree with values pre-loaded in a Crypto-Table by a card manufacturer. A payment authorization processor is connected to receive a message from the fraud detection processor and to then forward a response to the merchant infrastructure.

Type: Application

Filed: October 20, 2007

Issued: January 1, 2009

Inventors: Kerry D. Brown, David Pariseau

PAYMENT CARD FINANCIAL VALIDATION PROCESSING CENTER

Application number: 20080319901

Abstract: A method for validating a payment card financial transaction includes receiving a financial transaction approval request message derived from a payment card that is able to change its magnetic card data as elicited by a card reader. Out-of-sequence transactions encoded in a dynamic number included in said magnetic card data are detected. The dynamic number is compared with a last valid number that was previously stored in a database. An approval message is issued to enable the completion of a financial transaction with the payment card.

Type: Application

Filed: October 20, 2007

Issued: December 25, 2008

Inventor: Kerry D. Brown

PAYMENT CARD FINANCIAL TRANSACTION AUTHENTICATOR

Application number: 20080201264

Abstract: A payment card financial transaction authenticates for providing overall financial network security computes a number of results from a cryptographic key that match values that were selectively used to personalize individual payment cards with their individual user identification and account access codes. An account access code is later presented daring a financial transaction involving at least one of those individual payment cards. A dynamic portion is included in a merchant's magnetic reading of the payment card. Then authenication can proceed by matching it with values computed from the cryptographic key.

Type: Application

Filed: October 20, 2007

Issued: August 21, 2008

Inventors: Kerry D. Brown, Daniel Chatelain

PAYMENT CARD MANUFACTURING TECHNOLOGY

Application number: 20080197533

Abstract: A payment card manufacturing process glues a thin battery and an autonomously reprogrammable magnetic device to the inside surface of one of two outer front and rear laminate sheets. The magnetic device is pressed through a precisely cut rectangular hole provided for it in the rear laminate sheet, and is sealed with a gasket bead. Such magnetic device is critically placed flush in a magnetic stripe area, and the end gaps are such that they will minimize adverse magnetic transitions seen by a reader between the magnetic stripe field and the autonomously reprogrammable magnetic device. The surfaces of the battery, electronics, and laminate sheets, are plasma treated to promote adhesion. These are then all sandwiched together inside a heated mold that is tilted or vibrated just before a two-part polyurethane is injected. Each of the two polyurethane parts is temperature adjusted to match viscosities and thus improve mixing.

Type: Application

Filed: October 12, 2007

Issued: August 21, 2008

Inventors: Paul Tsao, Kerry D. Brown

Payment card preloaded with unique numbers

Patent number: 7380710

Abstract: A conventional looking payment card comprises a plastic card with a legacy card reader compatible magnetic stripe for dynamic user account data. Internal to the plastic card, and behind the magnetic stripe, a number of fixed-position magnetic write heads allow the user account data to be modified autonomously. Electronics within the card are pre-loaded with many unique numbers that are selected for one-time use in financial transactions. A payment processing center keeps track of the unique numbers used, and knows which numbers to expect in future transactions. It will not authorize transaction requests if the unique number read during a magnetic card swipe is not as expected. A card-swipe detector embedded in the plastic card detects each use in a scanner, so changes can be made to the data bits sent to the write heads.

Type: Grant

Filed: June 25, 2007

Issued: June 3, 2008

Assignee: Qsecure, Inc.

Inventor: Kerry D. Brown

Q-chip MEMS magnetic device

Application number: 20070241201

Abstract: A Q-Chip MEMS magnetic device comprises a thin-film electronic circuit for implantation in the Track-2 area of a magnetic stripe on the back of a credit card. The Q-Chip MEMS magnetic device periodically self-generates new sub-sets of magnetic data that are to be read in combination with other magnetic data that is permanently recorded in the surrounding surface of the magnetic stripe. A collocated battery and microcontroller provide operating power and new data for magnetic bit updates. A swipe sensor triggers such updates by sensing electrical contact with a legacy card reader. Several thin-film coils of wire are wound end-to-end around a common, flat, ferrous core. These are driven by the microcontroller. In one instance, such core comprises “hard” magnetic material with a coercivity of 200-300 Oersteds. Magnetic data written from the corresponding adjacent coils will persist for later readings by a legacy card reader.

Type: Application

Filed: June 30, 2006

Issued: October 18, 2007

Inventors: Kerry D. Brown, David K. Pariseau, Weidong Li, Edgar M. Williams, Joyce Thompson

PIN-SECURED DYNAMIC MAGNETIC STRIPE PAYMENT CARD

Application number: 20070241183

Abstract: A payment card comprises an internal dynamic PIN code generator and a user display for card-not-present transactions. Card-present transactions with merchant card readers are enabled by a dynamic magnetic array internally associated with the card's magnetic stripe. The user display and a timer are triggered by the user or automatically when the user needs to see the PIN code and/or begin a new transaction. A new PIN code is provided for each new transaction according to a cryptographic process, but the timer limits how soon a next new PIN code can be generated and displayed.

Type: Application

Filed: February 17, 2007

Issued: October 18, 2007

Inventors: Kerry D. Brown, Daniel Chatelain

Payment card with a full pan display

Patent number: D562888

Type: Grant

Filed: August 16, 2006

Issued: February 26, 2008

Inventor: Kerry D. Brown

Payment card with a 4DBC display

Patent number: D565095

Type: Grant

Filed: August 16, 2006

Issued: March 25, 2008

Inventor: Kerry D. Brown

Payment card with a 3CVV display

Patent number: D565096

Type: Grant

Filed: August 16, 2006

Issued: March 25, 2008

Inventor: Kerry D. Brown

Payment card with partial PAN display

Patent number: D565097

Type: Grant

Filed: August 16, 2006

Issued: March 25, 2008

Inventor: Kerry D. Brown

Adaptor for magnetic stripe card reader

Patent number: 7252232

Abstract: An adaptor allows a magnetic stripe card reader to receive information from other media such as wireless proximity chip cards while maintaining the ability to receive a magnetic stripe card. In accordance with one embodiment, the adaptor includes a simulacrum structure of sufficiently narrow width to fit substantially permanently within the slot of the magnetic stripe reading device, while providing sufficient room for a magnetic stripe card to also be concurrently accommodated within the slot and read by the reader head. The simulacrum structure may be in electronic communication with one or more transceivers of wireless communications such as RF and IR.

Type: Grant

Filed: February 15, 2006

Issued: August 7, 2007

Assignee: VIVOtech, Inc.

Inventors: Jorge M. Fernandes, Mohammad A. Khan, Kerry D. Brown

Micropayment financial transaction process utilizing wireless network processing

Patent number: 7127236

Abstract: A MicroAdapter device enables payment transactions to be effected through a purchaser's personal trusted device (PTD) without relying upon tokens or prepayment cards. In one embodiment, the MicroAdapter includes a transceiver configured to receive a purchase signal from the PTD including order and payment information. In response, the MicroAdapter communicates via wireless telephony with a transaction authorizer to receive authorization for effectuating the purchase transaction. The MicroAdapter may be particularly suited to effectuate micropayment transactions authorized by a Billing On Behalf of Others (BOBO) program administered through a wireless carrier/ISP or third party.

Type: Grant

Filed: December 18, 2002

Issued: October 24, 2006

Assignee: VIVOtech, Inc.

Inventors: Mohammad A. Khan, Jorge M. Fernandes, Kerry D. Brown

Adaptor for magnetic stripe card reader

Patent number: 7051932

Abstract: An adaptor allows a magnetic stripe card reader to receive information from other media such as wireless proximity chip cards while maintaining the ability to receive a magnetic stripe card. In accordance with one embodiment, the adaptor includes a simulacrum structure of sufficiently narrow width to fit substantially permanently within the slot of the magnetic stripe reading device, while providing sufficient room for a magnetic stripe card to also be concurrently accommodated within the slot and read by the reader head. The simulacrum structure may be in electronic communication with one or more transceivers of wireless communications such as RF and IR.

Type: Grant

Filed: November 27, 2002

Issued: May 30, 2006

Assignee: VIVOtech, Inc.

Inventors: Jorge M. Fernandes, Mohammad A. Khan, Kerry D. Brown

Adaptor for magnetic stripe card reader

Patent number: 7028897

Abstract: An adaptor allows a magnetic stripe card reader to receive information from other media such as wireless proximity chip cards while maintaining the ability to receive a magnetic stripe card. In accordance with one embodiment, the adaptor includes a simulacrum structure of sufficiently narrow width to fit substantially permanently within the slot of the magnetic stripe reading device, while providing

sufficient room for a magnetic stripe card to also be concurrently accommodated within the slot and read by the reader head. The simulacrum structure may be in electronic communication with one or more transceivers of wireless communications such as RF and IR.

Type: Grant

Filed: December 19, 2002

Issued: April 18, 2006

Assignee: VIVOtech, Inc.

Inventors: Jorge M. Fernandes, Mohammad A. Khan, Kerry D. Brown

Method and apparatus for secure import of information into data aggregation program hosted by personal trusted device

Application number: 20040159700

Abstract: Embodiments in accordance with the present invention allow financial or other confidential information to be securely imported in electronic form into a PTD. The information to be imported is first encrypted. The encrypted information is then transmitted from a source to the PTD. The encrypted information is then stored by the PTD. A decryption key is sent to the PTD user in a manner establishing a strong non-repudiation scheme. For example, the decryption key could be sent from a second device, or through a second communication channel separate and distinct from the first communication channel. Utilizing the decryption key delivered through the second communication channel, the user is able to decrypt and access the information in the PTD for transactional purposes.

Type: Application

Filed: May 2, 2003

Issued: August 19, 2004

Assignee: VIVOtech, Inc.

Inventors: Mohammad A. Khan, Jorge M. Fernandes, Kerry D. Brown, Stan J. Simon

Adaptor for magnetic stripe card reader

Application number: 20040094624

Abstract: An adaptor allows a magnetic stripe card reader to receive information from other media such as wireless proximity chip cards while maintaining the ability to receive a magnetic stripe card. In accordance with one embodiment, the adaptor includes a simulacrum structure of sufficiently narrow width to fit substantially permanently within the slot of the magnetic stripe reading device, while providing sufficient room for a magnetic stripe card to also be concurrently accommodated within the slot and read by the reader head. The simulacrum structure may be in electronic communication with one or more transceivers of wireless communications such as RF and IR.

Type: Application

Filed: December 19, 2002

Issued: May 20, 2004

Assignee: VIVOtech, Inc.

Inventors: Jorge M. Fernandes, Mohammad A. Khan, Kerry D. Brown

Micropayment financial transaction process utilizing wireless network processing

Application number: 20040029569

Abstract: A MicroAdapter device enables payment transactions to be effected through a purchaser's personal trusted device (PTD) without relying upon tokens or prepayment cards. In one embodiment, the MicroAdapter includes a transceiver configured to receive a purchase signal from the PTD including order and payment information. In response, the MicroAdapter communicates via wireless telephony with a transaction authorizer to receive authorization for effectuating the purchase transaction. The MicroAdapter may be particularly suited to effectuate micropayment transactions authorized by a Billing On Behalf of Others (BOBO) program administered through a wireless carrier/ISP or third party.

Type: Application

Filed: December 18, 2002

Issued: February 12, 2004

Assignee: VIVOtech, Inc.

Inventors: Mohammad A. Khan, Jorge M. Fernandes, Kerry D. Brown

Adaptor for magnetic stripe card reader

Application number: 20030218066

Abstract: An adaptor allows a magnetic stripe card reader to receive information from other media such as wireless proximity chip cards while maintaining the ability to receive a magnetic stripe card. In accordance with one embodiment, the adaptor includes a simulacrum structure of sufficiently narrow width to fit substantially permanently within the slot of the magnetic stripe reading device, while providing sufficient room for a magnetic stripe card to also be concurrently accommodated within the slot and read by the reader head. The simulacrum structure may be in electronic communication with one or more transceivers of wireless communications such as RF and IR.

Type: Application

Filed: November 27, 2002

Issued: November 27, 2003

Assignee: VIVOtech, Inc.

Inventors: Jorge M. Fernandes, Mohammad A. Khan, Kerry D. Brown

Proximity interface for transaction acceptance systems

Patent number: D490840

Type: Grant

Filed: October 30, 2002

Issued: June 1, 2004

Assignee: VIVOtech, Inc.

Inventors: James S. Arakaki, Mohammad A. Khan, David Kevin Pariseau, Jorge M. Fernandes, Marcelo Alves Bezerra De Lima, Ahmer Ali Khan, Kerry D. Brown