Title: SYSTEM AND METHOD FOR MONITORING TRANSACTIONS

Abstract: A portable identification means arranged, to enable storage of an amount of tax paid by a person or company associated with the portable identification means as part of a transaction in a first database under an identification number identifying the associated person or company, and to enable retrieval of the information stored in the first database under the identification number.
SYSTEM AND METHOD FOR MONITORING TRANSACTIONS

Field of the Invention

The present invention relates to a system and method for monitoring transactions, particularly, but not exclusively, for the purpose of facilitating tax processing. Particularly, but not exclusively, the present invention relates to a system and method for monitoring and storing a tax amount associated with a transaction.

Background of the Invention

Record keeping for tax purposes is a cumbersome procedure, involving keeping receipts and the like as "proof" documentation.

The relevant information must typically be manually extracted from the receipts when e.g. preparing tax return documentation. Errors can occur during the manual extraction and it is a time consuming process, particularly where it is repeated for checking purposes to minimise the likelihood of errors.

The record keeping for tax purposes is particularly important where goods and services taxes (GST) apply. E.g. overseas tourists can claim a refund of the GST upon departure from a country, and receipts are kept for that purpose.

Persons which both pay and receive GST as part of transactions also require a detailed record keeping, as the tax amounts paid will be offset against the tax amounts received to determine the overall GST payable or refund entitlement for financial period, e.g. quarterly, at the end of the financial year.

Further, when providing a tax return, a person will usually have a number of items to claim tax benefits against. The person therefore needs to maintain records for transactions associated with these items. Again, this is normally done manually by collecting receipts.
Summary of the Invention

In accordance with a first aspect of the present invention there is provided an identification means arranged to enable storage of a tax value paid by a person associated with the identification means as part of a transaction, in a first database under an identification token identifying the associated person, and to enable retrieval of the information stored in the first database under the identification token.

The identification means preferably is further arranged to enable storage of a tax value received by the associated person as part of a transaction in a second database under the identification token and to enable retrieval of the information stored in the second database under the identification token.

The identification means is preferably a portable identification means. It is preferably a portable memory device, such as a CD ROM, DVD, or more preferably a smart card.

The first and/or second databases may be databases external to the identification means.

Alternatively, where the portable identification means is a portable memory device, such as a smart card, the first and second databases may be formed by the portable memory device.

The portable identification means may enable storage of the tax values utilising a device comprising a card reader (or other portable memory device type readers) and a data interface for inputting transaction data.

The data interface may comprise an interface connected to a funds transfer device utilised for the transaction and arranged to automatically extract the transaction data.

The funds transfer device may comprise an electronic funds transfer device.

Alternatively, the data interface may comprise a user interface for manually inputting the transaction data.
The identification token may comprise a tax file number of the person or company.

In accordance with a second aspect of the present invention, there is provided a system for monitoring tax transactions, comprising a computing means arranged to effect storage of a tax value amount paid by a person associated with an identification means into a first database under an identification token.

The identification means may have any or all of the features of the identification means discussed above.

The computing means which is arranged to effect the storage may be a point of sale device, such as an electronic cash till. If the identification means is a portable memory, a reader/writer associated with the point of sale device is arranged to write the value of the tax amount paid by the person into the first database in the portable memory.

Preferably, the computing means is arranged to effect storage of a tax value amount received by a person associated with the identification means into a second database under the identification token.

In accordance with a third aspect of the present invention, there is provided a computer readable medium, including instructions for controlling a computing device to provided a system as discussed above.

In accordance with a fourth aspect of the present invention, there is provided a computer readable medium, including instructions for controlling a processing device to operate as a portable identification means as discussed above.

Preferably, the processing device is a portable memory device and is preferably a smart card.

In accordance with the fifth aspect of the present invention, there is provided a method of facilitating the processing of tax, comprising the steps of utilising a portable identification means associated with a person
receiving or paying tax, to identify the person during a transaction involving tax, storing a tax value amount associated with the transaction in a database associated with the identification means.

The identification means may be an identification means as discussed above and the database may be external to or internal to the identification means.

The above aspects of the invention are particularly suited to facilitate calculation and payment of goods and services taxes. For example, every time an item is purchased which includes a proportion of the purchase value as tax, the tax value is recorded in the database. Every time an item is sold by a person which includes a proportion of tax, the tax value is stored in the second database. The resulting data can be downloaded at the end of a financial period in order to calculate the amount of tax that needs to be paid by the person, or the amount of tax credits that need to be received by the person.

More generally, however, a person may utilise the present invention to record in a database all transactions that occur during a financial period which may by used for the calculation of a tax liability (or credit) of the person. For example, an individual may be able to claim a tax benefit on industrial clothes (e.g. industrial boots) that they must buy for the purposes of their work. If every relevant purchase that they make is recorded as an item in a database, this can provide a record, for tax calculation purposes, at the end of the financial period. The person may refer to the item purchase of work boots, as proof that this deduction from the tax liability needs to be made.

In accordance with a sixth aspect of the present invention, there is provided identification means arranged to enable storage of transaction data associated with transactions carried out by a person under an identification token or identifying the associated person,
and to enable retrieval of the transaction data stored in the database.

The identification means is preferably portable, preferably being a portable memory device such as a smart card.

Every time the person makes a purchase, or every time they make a purchase of an item which they believe should be associated with a tax deduction or tax liability, the identification means is used in order to record the transaction data (e.g. amount paid for the item and type of item) in a database. This can be used at the end of a financial period in order to provide proof to government tax office of the tax credit or liability.

From a seventh aspect, the present invention provides a system for monitoring tax transactions, comprising a computing means arranged to effect storage of tax transaction data into a database associated with an identification means associated with a person undertaking the transaction.

**Brief Description of the Drawings**

Features and advantages of the present invention will become apparent from the following descriptions of embodiments thereof, by way of example only, with reference to the accompanying drawings, in which;

Figures 1a to c are schematic drawings illustrating the use of a smart card in accordance with an embodiment of the present invention.

Figure 2 is a schematic drawing illustrating the use of a smart card in accordance with an embodiment of the present invention.

Figure 3 is a schematic drawings illustrating the use of a smart card in accordance with an embodiment of the present invention, and
Figure 4 is a schematic diagram illustrating the application of an identification means, system and method in accordance with an embodiment of the present invention.

5 Detailed Description of the Preferred Embodiments

Referring to figure 1, there is illustrated a use of an embodiment of the present invention in recording tax transactions undertaken by, for example, a tourist touring the tax jurisdiction. A tourist needs to record the tax they have paid so that they can advise the authorities on leaving the country and obtain a tax refund. In this embodiment the tourist is provided with a smart card for enabling calculation of tax (goods and services tax). In the following description the card will be referred to as a "GST card".

In Figure 1a, a tourist can obtain a GST refund card (in this embodiment being a smart card) e.g. at a tax refund office located at an international airport.

An officer enters the details of the tourist into a computer, and the GST refund card is programmed accordingly, including a temporary tax file number allocated as an identification number for the tourist.

Whenever the tourist makes a purchase that attracts GST during his or her stay in the particular country, he or she uses the GST refund card. E.g. when paying at a restaurant, the GST refund card is presented when the account is requested. The restaurant has a GST refund card reader/writer (see Figure 1b), which is connected to the restaurant's register computer system.

The account details are transferred automatically from the computer system to the card reader/writer and after the GST refund card is inserted into the card reader/writer, a database on the GST refund card is updated such that the tax amount paid as part of the account is added to a "tax paid" amount stored on the card.
The database on the card includes the temporary tax file number of the tourist as an identification number.

As shown in Figure 1c, when the tourist leaves the country, he or she goes the tax refund office 12 at the airport, where the total amount of GST paid during the visit is extracted from the GST refund card 10 utilising the computer system 14, and a refund 17 is issued to the tourist.

In an alternative embodiment shown in Figure 2, a GST refund card 20 is arranged such that it in use with a card reader 22 effects storage of the tax amount paid as part of a transaction, e.g. the purchase of clothes in a boutique, in a central database 23 connected to the card reader 22 via e.g. the Internet 24. The tax amount paid is added under the temporary tax file number allocated to the tourist. Upon leaving the country, the total tax amount paid is retrieved from the data base 23 at a tax refund office 26. The office 26 utilises a computer system 28 also connected to the database 23 via the Internet 24.

In the above embodiment, therefore, an external database is used and it is not necessary to have, as the GST card a smart card. A simple identification card would do. A smart card is preferred, however.

Figure 3 illustrates a further embodiment of the present invention, where an identification means is utilised to enable recordal of tax values for transactions where tax is paid and also where tax is received, so that a GST liability of a person (a company) can easily be calculated, for example for a particular financial period.

Referring to Figure 3, a GST card 30 (in this embodiment being a smart card) of a paper manufacturer 32 is used during payment of raw wood material purchased from a sawmill 34. At the sawmill 34, the GST card 30 is inserted into a computer system 36 (the computer system 36 may include a point of sale device, such as an electronic cash register) which includes a card reader/writer 38. The
details of the transaction as agreed are manually entered into the system 36, and the amount of tax paid as part of the transaction is added in a first database on the GST card 30, which also includes the tax file number of the paper manufacturer 32 as an identification number.

When the paper manufacturer 32 sells uncut paper produced to a printer 40, again the GST card 30 of the paper manufacturer 32 is used with a computer system 42 located at the paper manufacturer 32 including a card reader/writer 44. For this transaction, the printer 40 pays GST to the manufacturer 32 as part of the transaction. The tax amount received by the manufacturer 32 is added in a second database on the GST card 30, which also includes the tax file number of the manufacturer 32 as an identification number.

At the end of e.g. a financial year, the manufacturer 32 utilises the GST card 30, on which all taxes received and all taxes paid as part of transactions are stored. To determine the tax liability of the manufacturer 32, the total amount of tax paid is subtracted from the total amount received.

It will be appreciated by a person skilled in the art that in the above example both the sawmill 34 and the printer 40 could utilise their own GST cards in the same manner as described by reference to the manufacturer 32. E.g. in the case of the sawmill 34 tax is paid as part of a transaction with a logger 46 to buy logs, whereas in the case of the printer tax is received as part of e.g. selling the planner diaries to a newsagent 48.

Furthermore, in the above example the computer systems 36, 42, 43, 45 and 47 could be connected to a central database for storing the respective tax amounts under the respective tax file numbers read from a read only GST card, and a database on the card itself would not be required.

A system and method for facilitating recordal and calculation of tax to be paid will now be described in more
detail with reference to figure 4. Figure 4 is a schematic flow diagram which illustrates a process for recording and facilitating payment of tax utilising a system in accordance with an embodiment of the present invention.

5 The type of tax that the system is concerned with is a goods and services tax (GST). It is a requirement for most GST systems that a person (and "person" in this document includes a legal person, such as a corporation), must be able to calculate and be able to pay the GST liability for a particular financial period. In Australia, for example, the GST liability is calculated quarterly, by providing a "business activity statement" (BAS) to the tax office in order to enable the calculation of the GST liability. The person will need to provide information about all transactions that are associated with GST, including transactions where the person pays GST themselves (e.g. when they are buying in raw materials to enable them to manufacture their product), and transactions where they may receive the GST amount (e.g. where they sell manufactured goods to customers). The balance between the GST paid and GST received is the person's GST liability. The liability may be positive or negative (i.e. a credit or a debit).

In the majority of countries that operate a GST, there are similar requirements, albeit perhaps for different financial periods. In Australia, the financial period is 3 months.

Presently, the GST is calculated manually or using an in-house company computer system. This GST may be viewed by an accountant who may prepare the BAS for the tax office. This is a cumbersome procedure. Further, as discussed in the preamble of this specification, record keeping is difficult, particularly where dealing with paper receipts.

In accordance with an embodiment of the present invention, the person (in this particular example, being a corporation) is provided with a "GST card" 50. In this
embodiment, the GST card 50 is a smart card. It will be appreciated that the GST card may be any portable memory device, such as a DVD, micro chip, or CD ROM, for example.

The company operates a point of sale system and computer database, 51, 52. The point of sale system (in this case, a point of sale device, is illustrated as an electronic cash register but it could be any point of sale device) includes a scanner 53 for scanning products e.g. having barcodes printed thereon. If the company pays for goods (goods in, reference numeral 54) the goods may be scanned into the POS system using scanner 53 or, alternatively, manual entry of the goods in 54 transaction may be made using interface 55 on the POS device 51. The transaction details may include the items being purchased, the value of the transaction, and may also include a tax value to the amount of GST that the company must pay on the goods in 54 transaction. Note that the POS device 51 or the computer system 52 of the company may calculate the GST value amount which is payable.

A card reader/writer 56 is connected to the company computing system 52. The card reader/writer 56 writes onto the GST card into a database 50 and the GST card data indicating the GST value paid in the goods in transaction 54. The GST card also, in this embodiment, includes an identification token identifying the person. In this embodiment, the identification token is a tax identification token which is used by the tax office to identify the person. In Australia, this tax identification token is known as a tax file number. Other countries have similar systems e.g. in the U.K. the number is known as a national insurance number.

Similarly, when the company sells goods, the goods out 57 are scanned by a scanner 53 and entered into the POS device 51. The amount of GST received is entered into the computer system 52 and stored in a second database on the GST card 50 by the card reader/writer 56. The database on
the GST card 50 therefore has a full record of the amount of GST paid and the amount of GST received by the company.

In a preferred embodiment, entries to the GST card 50 are restricted by security systems. It is not possible to amend entries. If an entry is made in error, therefore, in order to correct that error a further entry must be made. The error entry will still appear, however, on the GST card. If all entries are made, it is difficult for fraud to occur. Further, because the GST card is portable, when a representative of a company buying goods from an external location, they can take the GST card with them to purchase the goods. A card reader/writer at the external location enters the amount of GST (in or out) onto the GST card 50. Although there is a full record on the GST card 50, therefore, the computer database 52 of the company may require updating and this can be done by reading from the GST card 50 into the computer database 52, so there is also a record of GST on the company's system 52. The card can be read from and written into, but amendment to data already written into the card cannot be made.

The database on the GST card 50 can be accessed by the computer system 52 and therefore can be accessed by outside parties e.g. by the company's accountant's system 58. The accountant can monitor the GST transactions of the company by connection to the company's computing system 52 (and thereby to the GST card 50) via e.g. the Internet 59 or a direct dial up connection 60.

Some companies have a practice of banking GST received in order to ensure that they have sufficient GST to pay the tax office. This can be done electronically to the bank 61 via an Internet connection 59.

At the end of the financial period, the accountant or the company system 52 can provide the information on the GST (e.g. in the form of a business activity statement) to the tax office. The tax office may subsequently confirm how much is required to be paid by the company and/or how
much the company is in credit. The tax office 62 may receive direct payment from the bank 61 via the Internet 59, when authorised by the company 52.

One particular advantageous aspect of the present invention is that the tax office may electronically provide a digital receipt to the company 52. This may be done via the Internet 59 or by a direct connection to the computing system 52. In figure 4 the provision of the digital receipt is indicated by arrows 63. The digital receipt is stored on the GST card 50, having been written there by the card reader/writer 56.

The GST card can then be stored for the company’s records and another GST card used for the next financial period. Alternatively, another memory area on the same GST card 50 can be used for the next financial period.

With appropriate security means, the GST card can act as verification and evidence of all GST incurring transactions, and a digital receipt acts as a confirmation that the company has complied with the tax requirements.

The GST card may store all identification tokens which may be required by the particular tax system, e.g. numbers identifying the company (e.g. in Australia these are known as the A.B.N. number).

In the above embodiment, the computing system 52 of the company may calculate GST, including recognising different rates of GST. It is possible that this processing could be done on the GST card if it is programmed to recognise the different rates of GST.

In the above embodiments, the identification token associated with the portable memory device is a tax identifier, such as a tax file number. It could be any type of token, and need not be a number.

The database where the tax value amounts are stored may be in any form, depending on convenience and the memory capabilities of the portable memory device or external database (whichever is used).
In an alternative embodiment, the system and method of the present invention may be used to store data on all relevant transactions undertaken by a person, not necessarily for the purpose of calculating a goods and services tax. Instead, the person could carry the identification means (preferably a portable memory card) and record on the card transactions relating to items which they may, for example, be able to use as a "write off" of tax liability, e.g. the purchase of work related items. With appropriate security arrangements on the identification means, this provides proof that these items were purchased and the transaction amount. They also provide a record for the person of the items that they have purchased that they consider to be a write off of their tax liability.

The present invention is also very useful for auditing purposes. In order to verify transactions an auditor may ask for a company's GST card, for example, and access the GST card or other identification means, (depending upon the embodiment of the invention which is being utilised) to check that the transactions are correct.

It will be appreciated by the person skilled in the art that numerous variations and/or modifications may be made to the present invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects to be illustrative and not restrictive.

E.g. the GST card could be arranged to be suitable for both read only and read/write operations, allowing its use with different systems available at the point of the transaction. The mounts stored both in the central database and on the card would be linked in a manner such that at the time of e.g. determining a tax liability, the respective amounts in both the central database and on the card a added using a suitable computer system.
Furthermore, pass words may be used in conjunction with the GST card when transaction details are updated to increase the security of the system.
The Claims Defining the Invention are as follows:

1. An identification means arranged to enable storage of a tax value paid by a person associated with the identification means as part of a transaction, in a first database under an identification token identifying the associated person, and to enable retrieval of the information stored in the first database under the identification token.

2. An identification means in accordance with claim 1, being arranged to enable storage of a tax value received by a person associated with the identification means as part of a transaction, in a second database under identification token, and to enable retrieval of the information stored in the second database under the identification token.

3. An identification means in accordance with claim 1 or claim 2, wherein the identification means is a portable identification means.

4. An identification means in accordance with any one of claims 1, 2 or 3, wherein the first database is a database external to the identification means.

5. An identification means in accordance with any one of claims 2, 3 or 4, wherein the second database is a database external to the identification means.

6. An identification means in accordance with any one of claims 3 to 5, the identification means being a portable memory device.

7. An identification means in accordance with claim 6, being a smart card.

8. An identification means in accordance with claim 6 or claim 7, wherein the first database is stored on the portable memory device.

9. An identification means in accordance with claim 6, 7 or 8, wherein the second database is store on the portable memory device.
10. An identification means in accordance with any one of the preceding claims, wherein the identification token is a token associated with the tax identity of the person in the legal jurisdiction where the transaction is occurring.

11. An identification means in accordance with any one of the preceding claims, including security means preventing an entry to the database from being overwritten or amended.

12. An identification means in accordance with any one of the preceding claims, arranged to store receipt data confirming payment of a tax amount to a tax office.

13. A system for monitoring tax transactions, comprising a computing means arranged to effect storage of a tax value amount paid by a person associated with an identification means in accordance with any one of the preceding claims into a first database under an identification token.

14. A system in accordance with claim 13, the computing means being associated with a point of sale device.

15. An identification means arranged to enable storage of transaction data associated with transactions carried out by a person under an identification token or identifying the associated person, and to enable retrieval of the transaction data stored in the database.

16. A method of facilitating the processing of tax payments, comprising the steps of utilising a portable identification means associated with a person receiving or paying tax, to store a tax value amount associated with a transaction entered into by a person in a database associated with the identification means.

17. A method in accordance with claim 16, comprising the further step of reading tax value amounts from the database in order to process a tax return.
18. A method in accordance with claim 16 or 17, wherein the identification means is an identification means in accordance with any one of claims 1 to 12.
FIG. 4

SUBSTITUTE SHEET (RULE 26)
**INTERNATIONAL SEARCH REPORT**

**International application No.**
PCT/AU00/01302

### A. CLASSIFICATION OF SUBJECT MATTER

| Int. Cl. | G06K 019/00 |

According to International Patent Classification (IPC) or to both national classification and IPC

### B. FIELDS SEARCHED

| Minimum documentation searched (classification system followed by classification symbols) |
| IPC: G06K 019/--, G07F 019/--, G06F 017/60, G06F 157/00 |

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPAT: Tax, card

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>X</td>
<td>US 5903876 (Hagemier) 11 May 1999 See whole document</td>
<td>1-18</td>
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<td>X</td>
<td>WO 98/09260 (Xcell Corporation) 5 March 1998 See whole document</td>
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<td>X</td>
<td>WO 98/41956 (Schlumberger Technologies Inc.) 24 September 1998 See whole document</td>
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* Further documents are listed in the continuation of Box C

X See patent family annex

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Date of the actual completion of the international search

6 February 2001

Name and mailing address of the ISA/AU
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Date of mailing of the international search report

9 January 2001

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Form PCT/ISA/210 (second sheet) (July 1998)
This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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