Security methods and security devices of alcoholic products

Xiaolong Li [a], Jianhui Li [b], Chunhui Yuan [c]

School of Economics and Management, Beijing University of Posts and Telecommunications, Beijing 100876, China

[a]tell714@gmail.com, [b]lijianhui2013@126.com, [c]yuanchunhui@tom.com

Keywords: alcoholic products, security methods, security devices, anti-fake.

Abstract. This invention relates to a device security method and security products, particularly with regard to a security methods and security devices of alcoholic products. The invention provides a way to give consumers and manufacturers to provide product flow path query, thus, providing help consumers identify the authenticity of the counterfeit alcohol method and security apparatus.

Introduction

According to the data of ICC Counterfeiting Intelligence Bureau [1], at present, the prevalence of fake and shoddy goods in the domestic market, has already had an impact on the state and enterprises. Previously, there are many security measures, but those means are not get instant results.

Nowadays, with the alcohol products, especially the growing demand for high-grade alcohol, these cases of alcoholic counterfeit products appearing on the market more frequently, and have threatened the vital interests of businesses and consumers. Existing liquor manufacturers mostly use as packaging security [2] and electronic security technology [3] to protect the product. These methods are often non-exclusive because of its own characteristics, and consumer identification difficulties and other factors, so that security is not ideal. Although, there are now using radio frequency technology (RFID) [4] to achieve the alcoholic products traceable path method, but this method requires human involvement, the initiative to establish communication with the RFID chip in order to be positioned[5], therefore, the recording can only be positioned on the specific position, especially recovered in the bottle and the filling process is not to counterfeit relevant location record, cannot effectively monitor the wrongful identification[6]. Moreover, because the security apparatus of alcoholic products are mostly set up on the product packaging, can only prove that the product packaging (such as bottles, packaging cartons, etc.) used in the production of genuine businesses, cannot really provide security for the wine itself. On the other hand, due to the increasingly fierce market competition, if manufacturers want to grab a larger market share, they need to quickly and accurately obtain market liquidity conditions and sales trends of products, in order to better determine product audiences, and targeted to locate R & D direction and marketing strategy to adjust the product, but at this stage, in view of the market survey are mostly through simple sales channels, the survey results are often coverage is low, the accuracy rate is also low[7].

In response to these problems, this invention provides a way to give consumers and manufacturers to provide product flow path query, thus, providing help consumers identify the authenticity of the counterfeit alcohol method and security apparatus.

System model

In order to achieve the above object, the invention adopt the following technical scheme: a kind of alcoholic product security methods, it includes the following steps: 1) on the bottle set includes the SIM card, embedded circuit boards of the single chip microcomputer and power supply unit, SCM is used to control access to the communications network SIM card on a regular basis, and installed in the manufacturer on the cloud server, including a communication unit, a storage unit, coordinate positioning unit and Internet information services unit of service monitoring system to establish communication links; 2) when the alcoholic products out of factory, starts the embedded circuit board on the bottle, SCM control its regular SIM access communication networks, accessing the circuit

board away from the nearest base station embedded, get global cell identifier CGI, and put it and the bottle serial number sent to the communication unit service monitoring systems; 3) service supervision system of communications unit received information into the storing unit, according to the latest global community in the storage unit identification number CGI, coordinate positioning unit to determine latitude and longitude coordinates of the base station location, and use it as the current location latitude and longitude coordinates of alcoholic products, returned to the storage unit, and stored in the corresponding bottle serial number directory; 4)when consumers buy alcohol products, through the Internet access manufacturers cloud server, enter the relevant bottle serial number, service supervision system of internet information service units tune out all the latitude and longitude coordinates information of the bottle under the serial number from the storage unit, successively presented on the map.

The alcoholic product security devices to achieve the security method of the alcoholic products, it is characterized in that: it includes a circuit board disposed on the embedded bottle and service monitoring system is provided on the manufacturer's cloud server; the circuit board includes an embedded SIM card, SCM and a power supply unit, service monitoring system includes a communication unit, a storage unit, coordinate positioning unit and Internet information services unit; embedded board of SCM is used to control the SIM card access communication network on a regular basis, visit the nearest base station away from embedded boards, get global cell identifier CGI, and put it and the bottle serial number is sent to the communication unit service monitoring systems;

The communication unit of service monitoring system is used to receive information, coordinate positioning unit is used for determine the latitude and longitude coordinates of base station location that according to the latest global community in the storage unit identification number CGI, and put it as the current location latitude and longitude coordinates of alcoholic products, returned to the storage unit, and stored in the corresponding bottle serial number directory; internet information services unit is used to recall alcoholic products all positions latitude and longitude coordinates from the storage unit, and integrate path for consumers.

These services supervision system also includes a flow path for calling different types of products from the storage unit, summarized the statistics generated products circulation to report analysis statistical unit.

The invention by adopting the above technical scheme, it has the following advantages: 1.this invention by providing an embedded circuit board has a GSM positioning in the bottle, and service monitoring system set up in the cloud server with the manufacturer, in the process of alcohol products shipped, it can be fully automatic positioning for fitted with alcohol bottles, therefore, compared with the existing technology, this invention may be better to put an end to Outlaws using artificial positioning omissions fraud case. 2.Due to this invention in the bottle set includes a SIM card embedded boards, regularly to the service monitoring system which is provided on the manufacturer's cloud server sends the location information, which can help consumers control the product flow path, and then determine the authenticity of products; In addition, manufacturers are also able to understand the market liquidity conditions and product sales trends by product flow path, better define the product audiences, increase liquor sales performance. This invention can be widely used in a variety of alcoholic product security.

Combining with the drawings and embodiments of this invention will be described in detail. As shown in Figure 1, this invention provides a method of counterfeit alcohol products based on GSM positioning technology, this method requires the embedded circuit board is arranged on the bottle and service monitoring system set up in the cloud server service monitoring system with the completion. Among them, embedded circuit board comprising a SIM card and a SIM card connected to the SCM, and support embedded circuit board that working power supply unit of each unit (not shown). Service monitoring system includes a communication unit, a storage unit, a coordinate positioning unit and an Internet information service unit.

The above embedded circuit board power supply unit can be used 5V, 16000mAh lithium battery. These service monitoring system may also include a circulation Analysis and Statistics Unit, Used to

call the circulation paths of different types products from the storage unit, and then summarized the statistics generated products circulation to the report.

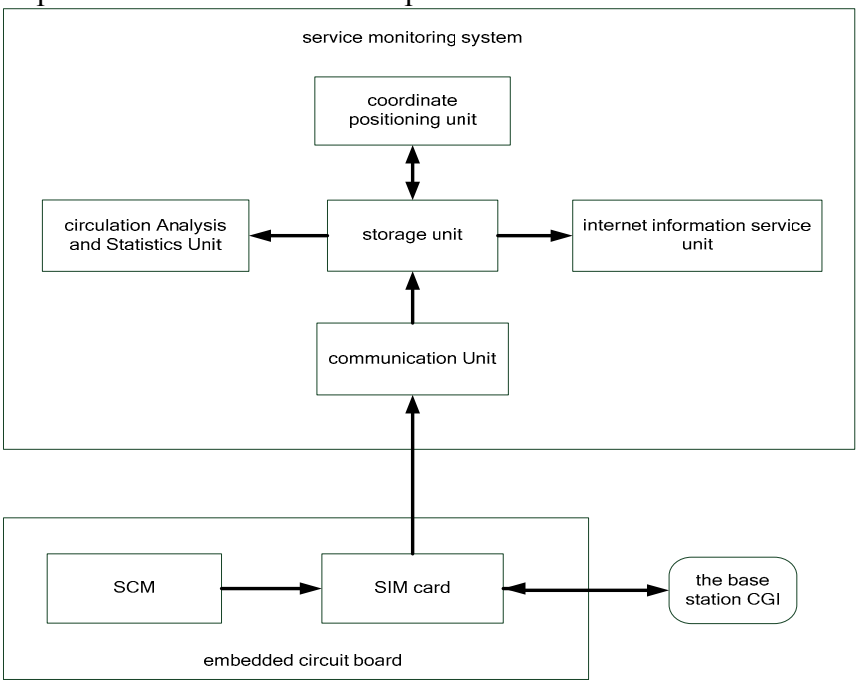

Figure 1: anti-counterfeiting unit diagram of the invention

Working process

As shown in Figure 2, the alcohol anti-fake method of this invention includes the following steps:

1) when the manufacturers in producing bottle, the embedded circuit board embedded in the bottle, when the liquor factory, started on the bottle embedded board, which controls the microcontroller regular SIM access communication networks, access the embedded circuit board distance the nearest base station, access to global cell identifier CGI, and wine bottle serial number is sent to the communication unit service monitoring system.

2) The communication unit of service monitoring system sent the received information into the storing unit, coordinate positioning unit according to the latest global community identification number in the storage unit CGI determine base station location latitude and longitude coordinates, and use it as an embedded circuit board, which is alcohol current location latitude and longitude coordinates, returned to the storage unit, the corresponding bottle serial number stored in the directory.

3) When consumers buy alcoholic products, manufacturers can access the cloud server, enter the serial number of the bottle through the Internet-related inquiries, service monitoring system Internet Information Services unit tune out all the latitude and longitude coordinates information under the serial number of the bottles from the storage unit, integration path out of the product circulation, providing to the consumer.

Consumers can use the product flow path to judge whether the product is genuine. Such as when there are lawless recycling bottles and re-filled with fake and shoddy products sold to consumers, when consumers buy alcoholic products, you can check this flow path through the bottle and found the bottle to stay longer recording fraud is rampant in some places, and then choose not to buy this product.

4) Manufacturers can also through the analysis of the circulation service supervision system statistics unit calls from the storage unit flow path of different types of products, summarize the statistics generated products circulation to report, analyze the circulation of products, in order to grasp customer information. For example, manufacturers can analyze the flow direction of the high concentration liquor products; determine the different geographical focus of consumer tastes, in order to produce targeted alcoholic products.

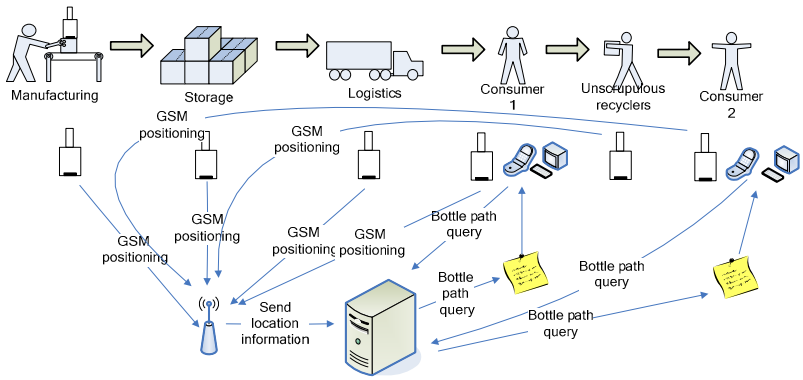

Figure 2:anti-fake method working schematic diagram of the invention

In the above example is only used to this invention, among them, the structure of components, the connection method may vary in all, where there are conducted on the basis of the present invention technical scheme of equivalent transformation and improvement, should not be excluded from the scope of the present invention.

Conclusion

This invention relates to a device security method and security products, the method by setting embedded circuit board which contains SCM and SIM card on the bottle, by SCM SIM card regularly access the communication network, access to global cell identifier CGI distance to the nearest base station embedded circuit board, and sent to a service monitoring system is provided on the manufacturer server, service monitoring system to determine the coordinates of the base station location positioning unit based on latitude and longitude coordinates global cell identifier CGI, as alcohol location latitude and longitude coordinates, stored into the storage unit. Using this method can provide alcoholic products for consumers and manufacturers from the factory until it reaches the hands of consumers' circulation path. Consumers can use the product flow path judge the authenticity of products, in addition to product manufacturers can also determine the audience through the product flow path, targeted to locate R&D direction and adjust marketing strategies of the product. The present invention can be widely used in a variety of alcoholic product security.

Acknowledgements

The authors acknowledge financial support from program "A typical industry logistics collaborative service platform's research and application" (Grant No.2014BAH23F00) and "Intellisense third-party express logistics cloud service platform's research and application" (Grant No.2014BAH23F07)

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