A System For Monitoring Distribution of Takeaway Boxes A Method Thereof

Technical Field

[0001] The present invention relates to a system for monitoring distribution of takeaway boxes and a method thereof. Preferably, the present invention relates to a system for monitoring distribution of advertising medium.

Background

[0002] When advertising, it is important for the advertiser to know who the target audience is and whether the advertisement reaches the target audience. There are many forms of advertising, e.g. digital media advertising, print media advertising. While digital advertising is gaining popularity, print advertising is still one of the most effective ways of advertising. One form of print advertising is using food packaging, e.g. takeaway boxes.

[0003] Advertiser would print the advertisement onto the food packaging such that when a consumer uses the food packaging, the advertisement will be seen by the consumer and those around the consumer. Advertisement may include promotional material for non-profit purposes, e.g. health awareness. As the consumer takes some time to consume the food in the food packaging, there is a higher chance of the consumer looking at the advertisement for a longer period of time. In this way, the consumer will have longer exposure to the advertisement and have a better and more lasting impression of the message in the advertisement. For an advertiser to reach target audience using takeaway boxes, the advertiser has to print the advertisement on the takeaway boxes and distribute them to the target audience.

[0004] For the advertisement to reach the target audience, the advertiser would usually engage a box supplier. Advertiser may provide the takeaway boxes to the box supplier or commission the box supplier to make the takeaway boxes. Advertiser may provide the advertisement artwork to the box supplier to be printed onto the takeaway boxes. Advertiser may also decide on the quantity of takeaway boxes to be distributed.

[0005] Box supplier supplies the takeaway boxes to the at least one food outlet. A distributor may be engaged to distribute the takeaway boxes to the at least one food outlet. Box supplier may be a manufacturer who manufactures the takeaway boxes. Distributor may be an agent, e.g. a company, with a distribution network to distribute the takeaway boxes to the food outlets.

[0006] However, it is difficult to know whether the advertisement reaches the target audience. Further, it is difficult to identify the reach and effectiveness of the advertisement. Therefore, it would be useful to find a solution to solve the abovementioned problem.

Summary

[0007] According to various embodiments, a system for monitoring distribution of takeaway boxes is provided. The system includes a processor, and a memory in communication to the processor for storing instructions executable by the processor, such that the processor is configured to receive at least one batch identifier identifying at least one batch of takeaway boxes transmitted from a mobile device, retrieve a batch quantity of the at least one batch of takeaway boxes based on the at least one batch identifier, receive at least one outlet identifier identifying at least one food outlet that receives the takeaway boxes transmitted from the mobile device, receive location data transmitted from the mobile device or retrieving location data of the at least one food outlet based on the outlet identifier, and generate a distributed quantity of the takeaway boxes based on the quantity of the at least one batch of takeaway boxes and the location data of the at least one food outlet, such that the processor is configured to monitor the distribution of the takeaway boxes to the at least one food outlet based on the distributed quantity.

[0008] According to various embodiments, the processor may be configured to receive at least one distributor identifier transmitted from the mobile device, the at least one distributor identifier for identifying at least one distributor for distributing the takeaway boxes.

[0009] According to various embodiments, the processor may be configured to receive a date/time stamp that denotes the date and/or time the at least one batch of takeaway boxes is received by the food outlet.

[0010] According to various embodiments, the processor may be configured to receive geo-location data of the location of the mobile device from the mobile device when the batch of takeaway boxes is received by the food outlet.

[0011] According to various embodiments, a method of monitoring distribution of takeaway boxes is provided. The method includes receiving at least one batch identifier identifying at least one batch of takeaway boxes transmitted from a mobile device, retrieving a batch quantity of the at least one batch of takeaway boxes based on the at least one batch identifier, receiving at least one outlet identifier identifying at least one food outlet that receives the takeaway boxes transmitted from the mobile device, receiving location data transmitted from the mobile device or retrieving location data of the at least one food outlet based on the outlet identifier, generating a distributed quantity of the takeaway boxes based on the quantity of the at least one batch of takeaway boxes and the location data of the at least one food outlet, and monitoring the distribution of the takeaway boxes to the at least one food outlet based on the distributed quantity.

[0012] According to various embodiments, the method may further include receiving at least one distributor identifier transmitted from the mobile device, the at least one distributor identifier for identifying at least one distributor for distributing the takeaway boxes.

[0013] According to various embodiments, the method may further include receiving a date/time stamp that denotes the date and/or time the at least one batch of takeaway boxes is received by the food outlet.

[0014] According to various embodiments, the method may further include receiving geo-location data of the location of the mobile device from the mobile device when the batch of takeaway boxes is received by the food outlet.

Brief Description of Drawings

[0015] Fig. 1 shows an exemplary embodiment of a system for monitoring distribution of takeaway boxes.

[0016] Fig. 2 shows an exemplary embodiment of a takeaway box.

[0017] Fig. 3 shows an exemplary embodiment of the storage and the databases stored therein.

[0018] Fig. 4 shows an exemplary method of monitoring distribution of takeaway boxes.

Detailed Description

[0019] Fig. 1 shows an exemplary embodiment of a system 100 for monitoring distribution of takeaway boxes. System 100 includes a processor 110, and a memory 120 in communication to the processor 110 for storing instructions executable by the processor 110, such that the processor 110 is configured to receive at least one batch identifier identifying at least one batch of takeaway boxes transmitted from a mobile device 20, retrieve a batch quantity of the at least one batch of takeaway boxes based on the at least one batch identifier, receive at least one outlet identifier identifying at least one food outlet that receives the takeaway boxes transmitted from the mobile device 20, receive location data transmitted from the mobile device 20 or retrieving location data of the at least one food outlet based on the outlet identifier, generate a distributed quantity of the takeaway boxes based on the quantity of the at least one batch of takeaway boxes and the location data of the at least one food outlet, such that the processor 110 is configured to monitor the distribution of the takeaway boxes to the at least one food outlet based on the distributed quantity. System 100 may include an I/O interface 130, display 140, power source 150, communication module 160, etc.

[0020] Mobile device 20 may include a camera configured to scan a machine-readable code. Mobile device 20 may include a laptop, a handheld device, e.g. a mobile phone, a code reader, etc. Mobile device 20 may include a communication unit and configured to receive user input and transmit the user input to the system 100. Mobile device 20 may be equipped with a GPS module configured to provide the geo-location data of the mobile device 20.

[0021] Fig. 2 shows an exemplary embodiment of a takeaway box 200. Each of the takeaway boxes 200 may include a machine-readable code 210 that contains at least a box identifier. As shown in Fig. 2, the takeaway box 200 may include an advertisement 220 printed thereon.

When a plurality of takeaway boxes 200 are being despatched to a food outlet, the plurality of takeaway boxes 200 may be despatched in batches. Each batch of takeaway boxes 200 may be packed in a packaging, e.g. a bag or a box. A machine-readable code, i.e. batch code, may be attached to the packaging to identify the batch of plurality of takeaway boxes 200. Batch code contains a batch identifier to identify the batch of takeaway boxes 200. Machine-readable code may be a barcode, QR code, etc. Batch code may be an RFID tag.

[0022] System 100 may include a storage 180 for storing databases. System 100 may include a box database containing a plurality of box records. Each of the plurality of box records may include information of the takeaway box, e.g. a batch identifier, batch quantity, a box identifier, type of box, total quantity of boxes, advertiser identifier, etc. For example, based on the batch identifier, the system 100 is able to retrieve information like batch quantity, i.e. quantity of takeaway boxes 200 in a batch, and the type of box, etc.

[0023] Box supplier may enter the total number of boxes into the system 100 after the takeaway boxes 200 are manufactured. System 100 is configured to receive the total quantity via an I/O interface of the system 100 when the box supplier enters the total number of boxes into the system 100.

[0024] Food outlet may have a machine-readable code at the food outlet, i.e. an outlet code. Outlet code may contain the outlet identifier for identifying the food outlet. Outlet code may also include information of the food outlet, e.g. name of food outlet, location/address of the food outlet, type of food outlet, cuisine type of food outlet, etc. System 100 may include an outlet database stored in the storage 180. Outlet database may include a plurality of food outlet records. Each of the food outlet records may include information of the food outlet, e.g. the outlet identifier, location of the food outlet, type of food outlet, etc. Based on the outlet identifier, the system 100 is able to retrieve the information of the food outlet, e.g. address/location data.

[0025] Distributor may possess a machine-readable code, i.e. distributor code. Distributor code may contain the distributor identifier. System 100 may include a distributor database containing a plurality of distributor records. Each of the distributer records may contain information of the

distributor, e.g. distributor name, distributor identifier, location, distributing zone, etc. System 100 is configured to receive at least one distributor identifier transmitted from the mobile device 20, the at least one distributor identifier for identifying at least one distributor for distributing the takeaway boxes 200.

[0026] Fig. 3 shows an exemplary embodiment of the storage 180 and the databases stored therein. Storage 180 may contain the box database 182, the outlet database 184, the distributor database 186 and any other databases required.

[0027] Fig. 4 shows an exemplary method of monitoring distribution of takeaway boxes 200. Method includes receiving at least one batch identifier identifying at least one batch of takeaway boxes 200 transmitted from a mobile device 20 in box 1100, retrieving a quantity of the at least one batch of takeaway boxes 200 based on the at least one batch identifier in box 1200, receiving at least one outlet identifier identifying at least one food outlet that receives the takeaway boxes 200 transmitted from the mobile device 20 in box 1300, receiving location data transmitted from the mobile device 20 or retrieving location data of the at least one food outlet based on the outlet identifier in box 1400, generating a distributed quantity of the takeaway boxes 200 based on the quantity of the at least one batch of takeaway boxes 200 and the location data of the at least one food outlet in box 1500, and monitoring the distribution of the takeaway boxes 200 to the at least one food outlet based on the distributed quantity in box 1600. Method may be a computer-implemented method.

[0028] Depending on the target audience that the advertiser wishes to reach, the box supplier may identify the location or area to distribute the takeaway boxes 200 to. For example, the advertiser may target students and the box supplier may distribute the takeaway boxes 200 to food outlet in schools. In another example, the advertiser may target students in the central area of a city and the box supplier may distribute the takeaway boxes 200 to food outlets in the schools that are in the central area. In another example, the advertiser may target consumers in an establishment or institute and the box supplier may distribute the takeaway boxes 200 to the food outlet or outlets in the establishment or institute.

[0029] When a batch of takeaway boxes 200 is delivered to a food outlet, the batch code and the outlet code are scanned by the mobile device 20 and transmitted wirelessly to the system 100. Alternatively, the box code may be scanned. If the outlet code contains other information, e.g. location of outlet, the information may be read and transmitted to the system 100 as well. Once the system 100 receives the data, e.g. batch identifier and outlet identifier, the system 100 is able to retrieve the box record and the outlet record based on the box identifier and outlet identifier. System 100 is then configured to retrieve the batch quantity and location of the takeaway boxes 200 that is being received. System 100 may not need to retrieve the location if the data is received from the mobile device 20. Mobile device 20 may be configured to transmit the geo-location data of the location of the mobile device 20 when transmitting the data. Hence, the system 100 may be configured to receive geo-location data of the location of the mobile device 20 from the mobile device 20 when the batch of takeaway boxes 200 is received by the food outlet. In this way, the system 100 is able to verify the geo-location data against the location of the outlet retrieved and determine that the batch of takeaway boxes 200 are despatched to the actual location of the food outlet. Mobile device 20 may be configured to insert a date/time stamp of the date and/or time that the outlet code is scanned and transmit the date/time stamp to the system 100. System 100 may be configured to receive the date/time stamp that denotes the date and/or time the batch of takeaway boxes 200 is received by the food outlet. It is understood that other information may be retrieved from the databases based on the identifiers when required.

[0030] When a distributor distributes a plurality of batches of takeaway boxes 200 to a plurality of food outlets, the distributor may scan the distributor code and transmit the distributor identifier to the system 100. In this way, the system 100 is able to identify the distributor who distributes the plurality of batches of takeaway boxes 200.

[0031] After the takeaway boxes 200 have been distributed, the system 100 receives and processes all the data and is able to generate a distributed quantity of the takeaway boxes 200 based on the quantity of takeaway boxes 200 distributed and the locations where the takeaway boxes 200 are received. In addition, the system 100 is able to provide the date and/or time that the takeaway boxes 200 are received. In this way, the advertiser is able to monitor the distribution of the advertisement accurately by the quantity and location of takeaway boxes 200 used. Advertiser may also monitor the date and/or time that the takeaway boxes 200 are

received and identify key events and trends in the distribution, e.g. days and/or time of highest demands, location with the highest demand. Hence, the advertiser is able to know whether the advertisement reaches the target audience. Further, the advertiser is able to identify the reach and effectiveness of the advertisement based on the quantity of boxes received and therefore used.

[0032] After a period of data collection, the system 100 is able to generate reports, e.g. trends, of the usage of the takeaway boxes 200 by the food outlets. Based on the frequency of despatches of the takeaway boxes 200 to the food outlets, the system 100 is able to predict the usage of the takeaway boxes 200 by the food outlets. System 100 is able to notify the distributor to despatch a batch of takeaway boxes 200 to a food outlet when the system 100 identifies the date and/or time that the food outlet is about to request for a new batch of takeaway boxes 200. System 100 may include an artificial intelligence (AI) module to learn the data and identify the date and/or time.

[0033] System 100 may include a server, a laptop, a computer, etc. Processor 110 typically controls overall operations of the system 100, such as the operations associated with display, data communications. Processor 110 may include one or more processors to execute instructions in the above-described modules to perform all or part of the steps in the above-described methods. Moreover, the processor 110 may include one or more modules which facilitate the interaction between the processor 110 and other modules. System 100 may be in communication with the mobile device via the network.

[0034] Memory 120 may be configured to store various types of data, including the modules, to support the operation of the system 100. For example, the data may include instructions for any applications or above methods operated on the system 100, programmes, applications, modules etc. Memory 120 may be implemented using any type of volatile or non-volatile memory devices, or a combination thereof, such as a static random access memory (SRAM), an electrically erasable programmable read-only memory (EEPROM), an erasable programmable read-only memory (EPROM), a programmable read-only memory (PROM), a read-only memory (ROM), a magnetic memory, a flash memory, a magnetic or optical disk.

[0035] Power source 150 provides power to various modules of the system 100. Power source 150 may include a power management system 100, one or more power sources, and any other modules associated with the generation, management, and distribution of power in the system 100.

[0036] Display 140 may include a screen providing an output interface for the system 100 and the user. In some embodiments, the screen may include a liquid crystal display (LCD), organic light-emitting diode (OLED), a touch panel, etc. If the screen includes the touch panel, the screen may be implemented as a touch screen to receive input signals from the user. Touch panel may include one or more touch sensors to sense touches, swipes, and gestures on the touch panel. The touch sensors may not only sense a boundary of a touch or swipe action, but also sense a period of time and a pressure associated with the touch or swipe action.

[0037] I/O interface 130 provides an interface between the processor 110 and peripheral interface modules, such as a keyboard, a click wheel, buttons, and the like. The buttons may include, but are not limited to, a home button, a volume button, a starting button, and a locking button.

[0038] Communication module 160 may be configured to facilitate communication, wired or wirelessly, between the system 100 and other devices e.g. mobile device. System 100 may access a wireless network based on a communication standard, such as WiFi, 2G, or 3G, LTE, and 4G cellular technologies or a combination thereof. In one exemplary embodiment, the communication module may receive a broadcast signal or broadcast associated information from an external broadcast management system 100 via a broadcast channel. In one exemplary embodiment, the communication module may further include a near field communication (NFC) module to facilitate short-range communications. For example, the NFC module may be implemented based on a radio frequency identification (RFID) technology, an infrared data association (IrDA) technology, an ultra-wideband (UWB) technology, a Bluetooth (BT) technology, and other technologies.

[0039] In exemplary embodiments, the system 100 may be implemented with one or more application specific integrated circuits (ASICs), digital signal processors (DSPs), digital signal processing devices (DSPDs), programmable logic devices (PLDs), field programmable gate

arrays (FPGAs), controllers, micro-controllers, microprocessors, or other electronic modules, for performing the above described methods.

[0040] A skilled person would appreciate that the features described in one example may not be restricted to that example and may be combined with any one of the other examples.

[0041] The present invention relates to a system and a method for monitoring distribution of takeaway boxes generally as herein described, with reference to and/or illustrated in the accompanying drawings.

Claim

1. A system for monitoring distribution of takeaway boxes, the system comprising:

a processor, and

a memory in communication to the processor for storing instructions executable by the processor,

wherein the processor is configured to:

receive at least one batch identifier identifying at least one batch of takeaway boxes transmitted from a mobile device,

retrieve a batch quantity of the at least one batch of takeaway boxes based on the at least one batch identifier,

receive at least one outlet identifier identifying at least one food outlet that receives the takeaway boxes transmitted from the mobile device,

receive location data transmitted from the mobile device or retrieving location data of the at least one food outlet based on the outlet identifier, and

generate a distributed quantity of the takeaway boxes based on the quantity of the at least one batch of takeaway boxes and the location data of the at least one food outlet,

wherein the processor is configured to monitor the distribution of the takeaway boxes to the at least one food outlet based on the distributed quantity.

2. The system according to claim 1, wherein the processor is configured to receive at least one distributor identifier transmitted from the mobile device, the at least one distributor identifier for identifying at least one distributor for distributing the takeaway boxes.

3. The system according to claim 1 or 2, wherein the processor is configured to receive a date/time stamp that denotes the date and/or time the at least one batch of takeaway boxes is received by the food outlet.

4. The system according to any one of claims 1 to 3, wherein the processor is configured to receive geo-location data of the location of the mobile device from the mobile device when the batch of takeaway boxes is received by the food outlet.

5. A method of monitoring distribution of takeaway boxes, the method comprising:

receiving at least one batch identifier identifying at least one batch of takeaway boxes transmitted from a mobile device,

retrieving a batch quantity of the at least one batch of takeaway boxes based on the at least one batch identifier,

receiving at least one outlet identifier identifying at least one food outlet that receives the takeaway boxes transmitted from the mobile device,

receiving location data transmitted from the mobile device or retrieving location data of the at least one food outlet based on the outlet identifier,

generating a distributed quantity of the takeaway boxes based on the quantity of the at least one batch of takeaway boxes and the location data of the at least one food outlet, and

monitoring the distribution of the takeaway boxes to the at least one food outlet based on the distributed quantity.

6. The method according to claim 5, wherein the method further comprises receiving at least one distributor identifier transmitted from the mobile device, the at least one distributor identifier for identifying at least one distributor for distributing the takeaway boxes.

7. The method according to claim 5 or 6, wherein the method further comprising receiving a date/time stamp that denotes the date and/or time the at least one batch of takeaway boxes is received by the food outlet.

8. The method according to any one of claims 5 to 7, wherein the method further comprises receiving geo-location data of the location of the mobile device from the mobile device when the batch of takeaway boxes is received by the food outlet.

9. A non-transitory computer readable storage medium comprising instructions, such that the instructions, when executed by a processor in a system, cause the system to:

receive at least one batch identifier identifying at least one batch of takeaway boxes transmitted from a mobile device,

retrieve a batch quantity of the at least one batch of takeaway boxes based on the at least one batch identifier,

receive at least one outlet identifier identifying at least one food outlet that receives the takeaway boxes transmitted from the mobile device,

receive location data transmitted from the mobile device or retrieving location data of the at least one food outlet based on the outlet identifier, and

generate a distributed quantity of the takeaway boxes based on the quantity of the at least one batch of takeaway boxes and the location data of the at least one food outlet,

wherein the processor is configured to monitor the distribution of the takeaway boxes to the at least one food outlet based on the distributed quantity.