

SYSTEM FOR ENCODING RFID DEVICES AND DISPENSING ARTICLES

Field of the Invention

The invention relates generally to the field of Radio Frequency Identification (RFID) and dispensing systems, and more specifically to a system and method for encoding RFID devices and dispensing articles (including the encoded RFID devices) based on user input.

Background

For race events such as a marathon, each participant (i.e. user) is typically pre-assigned a Radio Frequency Identification (RFID) device for the race. The RFID device (such as a RFID tag, label, or chip, or an article containing an RFID tag, label, or chip) contains unique user data about each user (such as the user's race number), and can be used to track the timing results of the user via RFID detection at the timing mat on the event day.

Such pre-assignment of the RFID device poses 2 limitations:

1. The user has to register for the race event by a certain cut-off date so that there is sufficient time for the pre-assignment of the RFID device to be completed after the cut-off date; and
2. The pre-assignment of the RFID device to the user is usually done manually, leaving room for human error.

In light of the above, there is a need to overcome the above 2 limitations by performing real-time assignment and dispensing of the RFID device (as well as other items associated with the race event) based on user input. With real-time assignment and dispensing of the RFID device, the possibility of human error is reduced and the user can also register for the race event on the actual day itself.

Summary of the Invention

The present invention overcomes the limitations of the prior art by disclosing a system and method for encoding RFID devices and dispensing articles (including the encoded RFID devices) based on user input.

According to one aspect of the present invention, there is provided a system for encoding RFID devices and dispensing articles, comprising the following components:

- a storage module for storing RFID devices and other articles;

- an input module for receiving user input;

- a processing module for generating user data based on the received user input;

- an encoding module for encoding the generated user data onto one or more RFID devices stored in the storage module; and

- one or more dispensing modules for dispensing one or more encoded RFID devices and one or more other articles stored in the storage module, wherein the one or more encoded RFID devices is matched with the one or more other articles prior to dispensation.

Further details and advantages of the invention will become apparent from a consideration of the drawing and subsequent detailed description of the invention.

Brief Description of the Drawing

Figure 1 shows a diagram of one embodiment of the present invention.

Detailed Description of the Invention

The present invention is described herein with reference to particular embodiments. The invention is not, however, limited to such embodiments.

In some embodiments of the present invention as illustrated in Figure 1, there is disclosed a vending machine **101** comprising a storage module **102**, an input module **103** for receiving user input, an encoding module **104** for encoding data onto Radio Frequency Identification (RFID) devices, a processing module **105**, and one or more dispensing modules **106** for dispensing articles.

The storage module **102** contains RFID devices (such as RFID tags/labels/chips, or articles containing RFID tags/labels/chips) and other items (such as race bibs or t-shirts) which are associated with or distributed in conjunction with a race event. The storage module **102** may also contain items which are not associated with a race event (such as snacks or drinks). The input module **103** may be a touchscreen, a barcode reader, an alphanumeric keyboard, some other input device, or any combination thereof.

A user may register for a race event by various means (e.g by submitting an online registration form through a website or by submitting a physical registration form at a designated venue), and obtain the relevant registration details (such as a booking number or booking reference). The registration details may also come in the form of a barcode such as a Universal Product Code (UPC) barcode or Quick Response (QR) barcode, which may be printed onto a piece of paper or displayed on the user's mobile phone.

To collect his/her racepack (i.e. a collection of items associated with the race event, such as the RFID device, race bib, or t-shirt), the user would manually enter his/her registration details into the input module **103** of the vending machine **101**. The user may also scan his/her race registration barcode at the input module **103** so that his/her registration details are automatically captured by the vending machine **101**.

Thereafter, the processing module **105** will process the user's registration details and generate user data associated with the user (such as a race number or some other data which uniquely identifies the user in the race event). The encoding module **104** will encode the generated user data onto one or

more RFID devices stored in the storage module **102**. The processing module **105** will then match the one or more encoded RFID devices with the rest of the items in the user's racepack (such as the user's race bib bearing the user's race number or t-shirt with the user's correct size), prior to dispensation of the entire racepack. After the matching is completed, the dispensing module(s) **106** will dispense the user's racepack for collection by the user.

In another embodiment of the invention, the user would register for the race event directly at the vending machine **101**, by entering his/her details into the input module **103**. Thereafter, the processing module **105** will process the user's registration details and generate user data associated with the user (such as a race number or some other data which uniquely identifies the user in the race event). The encoding module **104** will encode the generated user data onto one or more RFID devices stored in the storage module **102**. The processing module **105** will then match the one or more encoded RFID devices with the rest of the items in the user's racepack (such as the user's race bib bearing the user's race number or t-shirt with the user's correct size), prior to dispensation of the entire racepack. After the matching is completed, the dispensing module(s) **106** will dispense the user's racepack for collection by the user.

There are several modifications or variations which may be made to one or more of the above-described embodiments without departing from the scope of the invention. Although these modifications or variations have not been described, a person skilled in the art will be able to recognize and/or make such modifications or variations.

The Claims

1. A system for encoding RFID devices and dispensing articles, comprising:
 - a storage module for storing RFID devices and other articles;
 - an input module for receiving user input;
 - a processing module for generating user data based on the received user input;
 - an encoding module for encoding the generated user data onto one or more RFID devices stored in the storage module; and
 - one or more dispensing modules for dispensing one or more encoded RFID devices and one or more other articles stored in the storage module, wherein the one or more encoded RFID devices is matched with the one or more other articles prior to dispensation.
2. The system of claim 1, wherein the system is a vending machine.
3. The system according to claims 1 or 2, wherein the generated user data which is encoded onto the one or more RFID devices is a race number or some other data which uniquely identifies a user in a race event.
4. A method for encoding and dispensing RFID devices in a system, the method comprising:
 - generating user data based on user input entered into the system;
 - encoding the generated user data onto one or more RFID devices stored in a storage module of the system; and
 - dispensing the one or more encoded RFID devices.