Title: CUSTOMIZED EDUCATIONAL TOY

Abstract: The present invention describes a customized educational toy comprising a base unit having a grid shaped surface and a slot into which customized replaceable templates are inserted. The customized replaceable templates are easily produced by utilizing a standard computer, imaging means and a printer. The images printed on the customized replaceable templates are viewed through the grid shaped surface and matching audio inputs are recorded to each image using a simple interface on the grid shaped surface.
Customized Educational Toy

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention is related to the field of educational toys, more specifically the invention is related to the field of electronic toys which utilize standard computer, imaging means and a printer in order to allow the parents of a child to take part in the generation of his educational experience.

2. Description of the Prior Art

There is a variety of educational electronic toys, typically such toys incorporate audio or visual outputs to stimulate the interest of a child in the toy and to provide educational experience while playing, and the educational experience is usually performed by generating certain audio outputs which match certain visual outputs.

Some of the existing inventions utilize standard computer or printer means in order to provide a toy with advanced capabilities while maintaining a relatively simple and low cost to manufacture toy.

Some typical publications that demonstrate the state of the art are:

US publication number 20060025036 demonstrates an interactive electronic device, wherein the device includes a body, a controller disposed within the body, a touch-screen input coupled with the body, wherein the touch-screen input includes a transparent viewing field, a display output coupled with the body, wherein the display output includes a transparent portion positioned within the viewing field of the touch-screen input, and a background disposed behind the touch-screen input and the display output, the background including activity content, wherein the controller is configured to accept an input from the touch-screen input and to control the display of an output on the transparent portion of the display output.

US publication number 20050206156 describes a book and a method of using a book having leaves with pockets capable of housing panels, panels and pages with apertures through which indicia on panels may be incorporated into predefined indicia on the pages.

US Publication number 2008/0032275 A1 describes an interactive system and a method illustrating the subject matter of a book or a plurality of documents. The
system has a housing assembly, a selector, and a video screen. A book or a plurality of documents are positioned in a receiving zone of the housing assembly in a manner in which at least one page of the book or plurality of documents is exposed and faces upwardly. The selector is then used to select a specific location on the exposed page, causing video images associated with the specific location to be displayed at the video screen.

US 7106309 describe a method for producing an output in response to an interaction with a print element on a sheet is disclosed. In one embodiment, the method includes placing a sheet comprising a print element on a surface of a base unit. A user can then mark on the sheet in the vicinity of the print element with a marking instrument. An audio output that corresponds to the print element is generated.

US 6641401 describe an interactive apparatus. In one embodiment, the interactive apparatus includes a base unit. The base unit has a surface and an array of electrical elements under the surface. A removable template is placed on the base unit and is positioned over the surface. The removable template has a movable element that the user can move and a speaker in the apparatus can produce an audio output in response to the movement of the movable element.

US 6608618 describe a method for producing an output in response to an interaction with a print element on a sheet. In one embodiment, the method includes placing a sheet comprising a print element on a surface of a base unit. A user can then mark on the sheet in the vicinity of the print element with a marking instrument. An audio output that corresponds to the print element is generated.

US 7050754 describes a system where a child or other individual arranges one or more computer-recognizable characters on a working platform to spell words or provide a mathematical result in response to computer generated questions or prompts, the system then indicating whether the words or mathematical result is correct.

US 6190174 describe an interactive toy which employs a plurality of figures which are employed by the user to tell a story. The figures are selected and placed at selected locations on a story board or a book. The selection and placement results in the device telling the story by synthesized speech and other visual communications. The device is also configured in a compact case for carrying and storage.

US 5959281 describe an interactive system for reading cards. The system comprises a card bearing an image and encoded information and a talking hand-held card reader for reading the encoded information on the card and playing back an audible message associated with the image or encoded information. In one aspect, the invention is also a talking hand-held card reader having a housing which is shaped to resemble a person, place, aspect or thing associated with the image or encoded information on the card being read.
Most prior art toys, such as those described above, are able to perform with varying degrees of success only the specific tasks for which they were designed.

It is therefore an object of the present invention to provide a non-limited configuration educational customized toy to enhance the educational experience.

It is another object of the present invention to provide a toy which harnesses parents to the learning experience of their children in order to strengthen the bond and to extend the quality time which parents spend with their children.

It is yet another object of the present invention to provide a tailor maid educational tool which suits the specific requirements of a child by those who are familiar with his specific requirements.

It is yet another object of the present invention to provide a customized toy which is highly simple and low cost to manufacture.

Other objects and advantages of the invention will become apparent as the description proceeds.

Summary of the invention

The present invention provides a customized educational toy comprising a base unit comprised of:

a. an upper grid shaped surface with buttons integrated to the grid shaped surface;
b. a bottom plane shaped surface;
c. a slot between the upper grid shaped surface and the bottom plane shaped surface;
d. a processor and memory means;
e. a microphone through which personal sound inputs are recorded;
f. a speaker;
g. a connection to energy means;

wherein a standard computer, imaging means, and a printer are utilized in order to generate a customized replaceable template to be inserted through the slot of the said base unit.

In a preferred embodiment, the standard imaging means are based on one or more of the following:
a. a camera;
b. a video camera;
c. a mobile phone having integrated imaging means;
d. a scanner;
e. a web camera.
In a preferred embodiment, the customized replaceable template is based on one or more of the following:
   a. any standard paper sheet;
   b. a photo sheet;
   c. a plastic sheet;
   d. a transparent sheet.

In a preferred embodiment, the invention further comprises designated software which runs on the standard computer and provides a simple interface to produce customized templates respectively to the upper grid.

In a preferred embodiment, the invention further comprises a designated website which provides a simple interface to produce customized templates respectively to the upper grid.

In a preferred embodiment, the invention further comprises a database of images and sounds to generate a customized replaceable template.

In a preferred embodiment, the base unit further comprises a connection to a standard computer to synchronize the base unit with selected sounds.

In a preferred embodiment, the database includes predetermined suggested templates sorted according to subjects. The predetermined templates can save time to the user and suggest logical steps for, language learning, pronunciation tutoring, educational story telling, etc.

In a preferred embodiment, the connection to the standard computer enables to synchronize multiple base units simultaneously.

In a preferred embodiment, the base unit further comprises a connection to headphones.

In a preferred embodiment, the base unit further comprises light emitting diodes for indication or ornamentation means.

In a preferred embodiment, the base unit further comprises voice recognition firmware, such that the firmware can analyze the voices of a child relatively to prerecorded sounds and generate visual or audio outputs in accordance.

In a preferred embodiment, the base unit further comprises a transparent surface coupled underneath the upper grid.

In a preferred embodiment, the base unit further comprises firmware enabling the base unit to serve as an interface to the standard computer.


**Brief Description of the Drawings**

In the drawings:
- FIG. 1 schematically shows a preferred method for generating a customized replaceable template and operating the base unit.
- FIG. 2 schematically shows the preferred main components which can be used in order to generate a customized replaceable template.
- FIG. 3 schematically shows a front view of the preferred embodiment of the base unit of the invention.

**Detailed description of the invention**

For a better understanding of the invention and to show how the same may be carried into effect, reference will now be made, purely by way of example, to the accompanying drawings. With specific reference to the drawings in detail, it is stressed that the particulars shown are by way of example and for purposes of illustrative discussion of preferred embodiments of the present invention only, and are presented for the purpose of providing what is believed to be the most useful and readily understood description of the principles and conceptual aspects of the invention. In this regard, no attempt is made to show structural details of the invention in more detail than is necessary for a fundamental understanding of the invention. From the description taken together with the drawings it will be apparent to those skilled in the art how the several forms of the invention may be embodied in practice.

FIG. 1 schematically shows a preferred method for generating a customized replaceable template and operating the base unit. Step 1 (1) shows a parent of a child taking pictures of objects which the parent wants the child to learn how to pronounce. Step 2 (2) involves downloading the pictures which were taken on to a standard computer. Step 3 (3) depicts the parent using designated software to organize the pictures which were taken as a customized template which can be then printed and inserted into the slot of the base unit respectively to the upper grid shaped surface of the base unit, such that each picture printed on the customized template can be viewed through the upper grid shaped surface and to which matching audio inputs can be recorded. Step 4 (4) shows the customized template which is then printed using a standard printer connected to the computer. Step 5 (5) demonstrates how the customized template is inserted through a slot between the upper grid shaped surface and the bottom plane shaped surface of the base unit. Step 6 (6) shows how the parent records to each picture its pronunciation and then gives the base unit to the child step 7 (7) in order that the child can play with the base unit and at the same time learn how to pronounce the objects appearing in the pictures taken by the parent.
In a similar manner, the base unit can also be used as an educational story telling toy, wherein customized stories can be generated by a parent using the steps which were set forth above. For example, the parent can make up a story, take relevant pictures which can then be organized on a template using the designated software; the parent can then record the relevant part of the story to match each picture printed on the customized template which he produced.

FIG. 2 shows the preferred main components which can be used in order to generate a customized replaceable template.

Standard imaging means such as a camera (8), a web-cam (9), a mobile phone which includes imaging means (10) are used in order to take pictures of objects and scenes which can be used in order to generate a customized template. The pictures are then downloaded to a standard computer (11). Designated software installed on the computer enables the organization of the downloaded pictures according to the preferences of the user as a customized template respectively to the grid shaped surface (12) of the base unit (13). In order to produce the customized template created by the user on the computer, a standard printer (14) can be used to print the customized template (15). The printed customized template (15) is inserted into a slot in the base unit (16) and matching audio inputs can be recorded to each picture on the customized template using the microphone of the base unit (17).

A connection to the internet (18) enables the user to browse to a designated website which provides pre-designed templates and matching audio inputs which can be downloaded by the user. The downloaded templates can then be printed by the printer (14) and the matching audio files are either downloaded directly to the base unit via an interface (wireless communication) between the base unit and the computer (19) or alternatively the audio files can be played by the computer and recorded manually using the microphone of the base unit (17).

The present embodiment further comprises a database of images and sounds, the database can either be integrated to the designated software, or it can be accessed via the designated web-site. The database offers the user images and sounds which can be selected in order to produce a customized template. The database further offers a variety of pre-determined suggested templates sorted according to subjects. The predetermined templates can save time to the user and suggest series of templates to provide logical steps for; language learning, pronunciation tutoring, educational story telling, etc.

The present invention can also be used as an educational tool for facilities such as kindergartens and nursery schools. In such cases the wireless connection to the standard computer (19) can synchronize multiple base units with the selected audio files simultaneously.

Any type of standard wire or wireless communication technology known in the art can be used in order to carry out the interfaces between the components described in the invention (e.g. Bluetooth, WiMax, WiFi, USB, etc.)

The information downloaded from the designated website can include any type of compressed visual or audio files (e.g. Jpeg, Tiff, Mpeg, MP3 etc'). Firmware
integrated into the base units supports the play-back of the compressed audio files by the speakers of the base unit (20).

FIG. 3 schematically shows a front view of the preferred embodiment of the base unit (13) of the invention.

The upper grid shaped surface (12) of the base unit (13) is designed to allow each picture printed on the customized template (15) to be seen through it and to provide buttons to record (21) and to play audio (22) which matches each picture printed on the customized template, therefore the upper grid shaped surface can be either hollow or partially transparent to enable viewing the pictures comprising the customized template through it. A microphone is integrated to the base unit (17) to provide recording means and the speakers (20) play the recorded sounds. A simple interface such as buttons incorporated to the grid shaped surface (22) allows to record and to play sounds as desired. For example, a continuous press of a button (22) can trigger the recording feature and a momentary press of the same button can play the audio which was recorded by the said continuous press, such that each picture printed on the customized template can be accompanied by matching customized sounds. Alternatively the recording interface can be based on a button alongside the base unit (21) which activates the recording feature when pressed simultaneously with one of the buttons along each picture on the template (22); such an interface prevents accidental recording which may occur by an inadvertent continuous press of buttons during play time. Another advantage of the aforesaid interface is the proximity of the recording person to the microphone of the base unit while pressing both buttons, thus improving the recorded quality of his voice.

A connection to energy means (23) enables insertion of batteries or alternatively a connection to an external power source, the interface to the computer can also be used as an external power source if so provided by such interface (e.g. USB port).

A connection to head phones (24) allows the child to play with the base unit without the disturbance of others by the audio outputs generated by the base unit.

The present invention further comprises light emitting diodes for indication or ornamentation means (25). In addition, the base unit further comprises voice recognition firmware, such that the firmware can analyze the voices of a child relatively to pre-recorded sounds and generate visual or audio outputs in accordance. For example, a parent can record the word "apple" by continuously pressing the button (26) next to the image of an apple (27) on the customized template. When a child presses momentarily the button next to the image of the apple the base unit will play the recorded sound "apple", if the child in response will also say the word "apple" than the voice recognition algorithm will confirm a match and play in response a sound such as "very good" and flash green lights by the light emitting diodes (25).
In a preferred embodiment, the base unit further comprises a transparent surface coupled underneath the upper grid (28); the transparent surface prevents direct contact between the child and the printed customized template to prevent ink from smearing on the child in a moist environment and to prevent erosion of the customized template.

The customized templates may be based on any kind of standard plan paper sheets, photo sheets, plastic sheets and transparent sheets at different kinds of sizes (e.g. A3, A4, Letter, 2R, Quarto, Post, Legal, etc).

A handle is provided (29) to assist the child to carry the base unit.

In a preferred embodiment, the base unit further comprises firmware enabling the base unit to serve as an interface to the standard computer, i.e., the base unit performs as an alternate keyboard for designated programs having an interface for such keyboard.
What is claimed is:

1. A customized educational toy comprising a base unit comprised of:
   a. an upper grid shaped surface with buttons integrated to the grid shaped surface;
   b. a bottom plane shaped surface;
   c. a slot between the upper grid shaped surface and the bottom plane shaped surface;
   d. a processor and memory means;
   e. a microphone through which personal sound inputs are recorded;
   f. a speaker;
   g. a connection to energy means;
   wherein a standard computer, imaging means and a printer are utilized in order to generate a customized replaceable template to be inserted into the slot of the said base unit.

2. A customized educational toy according to claim 1, wherein the standard imaging means are based on one or more of the following:
   a. a camera;
   b. a video camera;
   c. a mobile phone having integrated imaging means;
   d. a scanner;
   e. a web camera

3. A customized educational toy according to claim 1, wherein the customized replaceable template is based on one or more of the following:
   a. any standard paper sheet;
   b. a photo sheet;
   c. a plastic sheet;
   d. a transparent sheet;
   e. a sheet having a transparent cover;
   f. any combination thereof.

4. A customized educational toy according to claim 1, further comprising a designated software which runs on the standard computer and provides a simple interface to produce customized templates respectively to the upper grid.

5. A customized educational toy according to claim 1, further comprising a designated website which provides a simple interface to produce customized templates respectively to the upper grid.

6. A customized educational toy according to claims 4 or 5, further comprising a database of images and sounds to generate a customized replaceable template.

7. A customized educational toy according to claim 4, wherein the base unit further comprises a connection to a standard computer to synchronize the base unit with selected sounds.

8. A customized educational toy according to claim 6, wherein the database includes downloadable predetermined suggested templates.

9. A customized educational toy according to claim 7, wherein the connection to a standard computer enables to synchronize multiple base units simultaneously.
10. A customized educational toy according to claim 1, further comprising a connection to headphones.

11. A customized educational toy according to claim 1, further comprising light emitting diodes for indication or ornamentation means.

12. A customized educational toy according to claim 1 or 11, further comprising voice recognition firmware.

13. A customized educational toy according to claim 12, which enables sound or visual indication according to a response of a child.

14. A customized educational toy according to claim 1, further comprising a transparent surface coupled underneath the upper grid.

15. A customized educational toy according to claim 1, further comprising firmware enabling the base unit to serve as an interface to the standard computer.
# INTERNATIONAL SEARCH REPORT

**A. CLASSIFICATION OF SUBJECT MATTER**
- IPC(B) - G09B 5/06 (2009.01)
- USPC - 434/311

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)
- USPC- 434/311

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
- USPC- 434/365, 81, 96, 128, 308, 309, 311; 446/147, 397 (Term Limited)

Electronic database consulted during the international search (name of database and, where practicable, search terms used)
- PubWest (USPT, PQPB, EPAB, JAPB), Google, Google Patents
- Search Terms Used: electronic, computer, pc, game, toy, tablet, interface, input, housing, body, case, grid, matrix, window, photo, photograph, picture, image, template, sheet, web, internet, world wide web, database, headphones, earphones, LED, light emitting diode,

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>US 2006/0040748 A1 (Barthold) 23 February 2006 (23.02.2006), para [0002], [0012], [0015], [0018].</td>
<td>1-15</td>
</tr>
<tr>
<td>Y</td>
<td>US 7,351,062 B2 (Gordon et al.) 01 April 2008 (01.04.2008), col 1, ln 14, 15, col 8, ln 24-29, col 10, ln 63-66, fig 4.</td>
<td>1-15</td>
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<tr>
<td>Y</td>
<td>US 2006/0373809 A1 (Heiman et al.) 07 December 2006 (07.12.2006), para [0001], [0004], [0021], [0023], [0050], [0065].</td>
<td>9, 15</td>
</tr>
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</table>

☐ Further documents are listed in the continuation of Box C. ☑

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed
- "R" latter document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search: 27 December 2009 (27.12.2009)

Date of mailing of the international search report: 27 JAN 2010

Name and mailing address of the ISA/US
- Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
- P.O. Box 1450, Alexandria, Virginia 22313-1450
- Facsimile No. 571-273-3201

Authorized officer: Lee W. Young
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- PCT OSP: 571-272-7774

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