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Interactive training toilet

Abstract

An interactive training toilet to aid in potty training a child. The training toilet has sensors to detect liquid waste, solid waste, and flatulence. The training toilet plays audio or video to relax and encourage the child. The training toilet records a timeline of bodily functions and sends a report to a connected application. One embodiment is an independent unit, and another embodiment attaches to a standard toilet.

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Primary Examiner: Deery; Erin**Background/Summary****FIELD OF THE INVENTION**

(1) The present invention relates generally to training toilets. More specifically, the present invention relates to training toilets with waste detection and feedback.

BACKGROUND OF THE INVENTION

(2) Training toilets are used to train children how to use a toilet, i.e., “potty train” the child. A training toilet for a child is typically smaller than a standard toilet and is sized for a small child. Children with special needs may need additional training to use the toilet. Approximately 3 million children have down syndrome, Aspergers, or autism that makes potty training on a conventional toilet almost impossible. Many training toilets attach to a standard toilet and provide a smaller seat that is more comfortable for a child. Other training toilets are independent units with basins that must be emptied and cleaned by a caregiver.

(3) It is an objective of the present invention to provide an interactive training toilet. The present invention also helps relax the child during the bathroom process, which also reduces tension or prevents the child becoming upset.

SUMMARY OF THE INVENTION

(4) A training toilet for potty training children. The training toilet can be attached to a standard toilet, or the training toilet can be operated independently. The training toilet integrates sensors to detect a child using the toilet. The sensors detect different types of bodily waste. The training toilet provides feedback to the child based on what type of waste was detected. The training toilet plays audio cues to relax and encourage the child to use the toilet and reinforce good use of the toilet.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

- (1) FIG. 1 is a perspective view of an embodiment of the present invention.
- (2) FIG. 2 is a perspective view of an embodiment of the present invention.
- (3) FIG. 3 is a perspective view of an embodiment of the present invention.
- (4) FIG. 4 is a perspective view of an embodiment of the present invention.
- (5) FIG. 5 is a flowchart of an embodiment of the present invention.

DETAILED DESCRIPTIONS OF THE INVENTION

- (6) All illustrations of the drawings are for the purpose of describing selected versions of the present invention and are not intended to limit the scope of the present invention.
- (7) The present invention is a training toilet. In one embodiment, the present invention is attached to a standard toilet. In another embodiment, the present invention is an independent unit. The present invention is a singing potty that sings a repetitive jingle with the words “Mama, I am a big boy. Now I can doodie in my potty and peepee in my potty.” The present invention plays a light jingle that would relax the child and reduce tension for the child to prevent the child becoming upset during the process.
- (8) In one embodiment, the present invention connects to an application on a smartphone or home electronic system, controlled by the mother, father, or other caregiver. The app alerts the user that the child has urinated, defecated, or flatulated. The user can record a message to be played by the toilet to encourage the child. For example, the mother may record a message in a calm voice that says, “Very good, Kyle, you just peepeed and poopied in the potty.”
- (9) In one embodiment, the present invention includes a video device. The video device allows a mother, father, or caregiver to communicate with the child. The video device also allows for playback of videos that instruct the child how to use the toilet or aid in relaxation of the child. For example, the video device may show a child sitting happily on the present invention.
- (10) In one embodiment, the present invention includes a video device. The video device allows for playback of videos that instruct the child how to use the toilet or aid in relaxation of the child. For example, the video device may show a child sitting happily on the present invention.
- (11) In one embodiment, the present invention includes an audio device. The audio device allows a mother, father, or caregiver to communicate with the child. The audio device also allows for playback of audio recordings that instruct the child how to use the toilet or aid in relaxation of the child.
- (12) In one embodiment, the present invention includes an audio device. The audio device also allows for playback of audio recordings that instruct the child how to use the toilet or aid in relaxation of the child.
- (13) FIG. 1 is a perspective view of an embodiment of the present invention. In this embodiment, training toilet **100** comprises child seat **101**, urinal cup **102**, adult seat **103**, lid **104**, bowl **105**, housing **106**, and communication device **107**. Child seat **101** is a smaller seat, sized to be used by a

small child. In some embodiments, child seat **101** can be lifted to allow access to adult seat **103**. Urinal cup **102** prevents a child, especially a male child, from urinating outside the toilet. In some embodiments, urinal cup **102** includes sensors to detect the presence of liquid waste. Lid **104** can be lowered to cover the opening when not in use. In this embodiment, lid **104** has a cutout to fit around urinal cup **102**. Bowl **105** receives the waste. In some embodiments, bowl **105** is removable to empty the waste. In other embodiment, bowl **105** contains a removable basin to hold the waste. Housing **106** contains the electronics, while having the outer appearance of a flush tank for a toilet. For example, housing **106** may contain a computing device that receives data from sensors.

(14) In one embodiment of the present intention, communication device **107** is a video device equipped with a video screen and a camera, enabling two-way video or two-way audio communication. In another embodiment, communication device **107** is an audio communication device. In one embodiment, communication device **107** is mounted to a wall adjacent to training toilet **100**. For example, communication device **107** may be attached to an extending swivel mount, which is attached to the wall. In this example, communication device **107** is positioned in front of the child while in use and returned to the wall when not in use. In another embodiment, communication device **107** mounted to the base of toilet **100** with an extendable mount. For example, communication device **107** may be connected to an arm that moves upward and positions communication device **107** in front of the child. Communication device **107** allows a mother, father, or caregiver to communicate with the child. Communication device **107** also allows for playback of recordings that instruct the child how to use the toilet or aid in relaxation of the child. For example, communication device **107** may show a video of a child sitting happily on training toilet **100**. In another example, communication device **107** may play audio instruction to instruct the child how to use the toilet.

(15) In this embodiment, training toilet **100** is an independent unit with sensors built into bowl **105**. The sensors include a sensitive lite scale that will detect the presence of the smallest amount of solid waste. For example, the solid waste sensor may be an accordion-type structure located inside bowl **105**. In this example, the accordion-type structure will compress when solid waste falls on the structure, triggering the sensor to report the presence of solid waste. The sensors also include a sensor to detect the slightest amount of liquid waste. For example, the liquid waste sensor may be a capacitance sensor that detects the presence of liquid. In another example, the liquid waste sensor is a temperature sensor that detects a change in temperature caused by the presence of liquid waste. A channel to the sensor is slanted to ensure the liquid waste collects within range of the sensor. The sensors also include an audio sensor to detect flatulence. For example, the audio sensor may be a microphone located inside bowl **105**. In this example, the audio sensor detects flatulence based on the proximity of the sensor to the child. Additionally in this example, the audio sensor is shielded from extraneous noises by bowl **105** and the body of the child. The sensors would make it easier for the child to identify these biological functions when he or she has them. The sensors are electronic and are powered by a rechargeable battery or wired into training toilet **100** to be charged.

(16) FIG. 2 is a perspective view of an embodiment of the present invention. In this embodiment, training toilet **100** comprises child seat **101**, urinal cup, **102**, adult seat **103**, lid **104**, bowl **105**, and housing **106**.

(17) FIG. 3 is a perspective view of an embodiment of the present invention. Training toilet **300** comprises child seat **101**, urinal cup **102**, sensors **308**, backrest **309**, adult seat **103**, and lid **104**. Child seat **101** is a smaller seat, sized to be used by a small child. Backrest **309** is adjustable and aids in adjusting training toilet **300** to fit the child. Urinal cup **102** prevents a child, especially a male child, from urinating outside the toilet. In this embodiment, urinal cup **102** is collapsible to provide space for an adult to use the toilet. In some embodiments, urinal cup **102** includes sensors to detect the presence of liquid. Sensors **308** include a system of sensors to detect bodily function of the child. Sensors **308** are attached to the bottom of backrest **309** with screws or adhesive. Sensors **308** identify and detect the passing activities and the different properties between urination,

defecation, and flatulence. Sensors **308** are electronic and are powered by a rechargeable battery or wired into training toilet **300** to be charged. In one embodiment, sensors **308** are attached with wires to a computing device located outside training toilet **100**. For example, the computing device may be mounted to the standard toilet or to a wall. In another embodiment, the computing device may be located behind backrest **309**, inside child seat **101** or adult seat **103**.

(18) FIG. **4** is a perspective view of an embodiment of the present invention. In this embodiment, training toilet **300** comprises child seat **101**, urinal cup **102**, sensors **308**, backrest **309**, adult seat **103**, and lid **104**.

(19) Training toilet **100** includes sensors to detect the positions of child seat **101**, adult seat **103**, and lid **104**. When lid **104** is closed, training toilet **100** is inactive. When lid **104** and child seat **101** are both raised, training toilet **100** remains inactive. When lid **104** is raised while child seat **101** remains lowered, training toilet **100** activates. Training toilet **100** is also activated if child seat **101** is lowered from a raised position while lid **104** remains raised.

(20) FIG. **5** is a flowchart of an embodiment of the present invention. Method **500** is a method for detecting use of a training toilet and providing feedback based on the use.

(21) At step **501**, the training toilet detects a child sitting on the toilet. For example, the training toilet may use a pressure sensor or scale to detect a child sitting on the toilet. In another example, if a maximum weight threshold is exceeded, the toilet may determine that something other than a child is sitting or has been placed on the toilet.

(22) At step **502**, the training toilet activates the sensors. In this embodiment, the training toilet prepares the sensors to start detecting bodily waste.

(23) At step **503**, the training toilet plays a relaxing jingle. In this embodiment, the training toilet plays a relaxing jingle to help the child become comfortable sitting on the toilet. For example, the training toilet may repeatedly play a jingle with the words, "Mama, I am a big boy now. I can doo-doo in my potty and pee-pee in my potty."

(24) At step **504**, the training toilet detects waste. In this embodiment, the training toilet has an array of sensors, including liquid, solid, and audio detectors. The training toilet detects the presence of liquid waste, solid waste, or the release of flatulence.

(25) At step **505**, the training toilet differentiates the types of waste. The training toilet differentiates the type of waste present based on which sensor detected the waste. For example, if the liquid sensor detects liquid, the training toilet determines that liquid waste is present.

(26) At step **506**, the training toilet records the order of events. In this embodiment, the training toilet records when the child sits on the toilet, when liquid waste is detected, when solid waste is detected, and when flatulence is detected. For example, the training toilet may record a timestamp when each event occurs.

(27) At step **507**, the training toilet plays feedback. In this embodiment, the training toilet plays a soothing jingle to encourage the child and reinforce good behavior. In some embodiments, the training toilet plays a general jingle. For example, the training toilet may play a jingle with the words, "Very good, Kyle. You just pee-pee'd or doo-doo'd in the potty." In other embodiments, the training toilet plays a jingle based on the specific waste detected. For example, when liquid waste is detected, the training toilet may play a jingle with the words, "Very good, Kyle. You just pee-pee'd in the toilet." In some embodiments, a pre-recorded message from the mother, father, or other caregiver is played.

(28) At step **508**, the training toilet alerts the app. In this embodiment, the training toilet sends an alert to a connected application controlled by the mother, father, or other caregiver of the child. For example, the training toilet may send an alert to an app installed on the smartphone of the mother with the text, "Kyle completed function 1 and function 2." In some embodiment, the training toilet includes the order of events in the alert. In some embodiments, the training toilet may wait for a period after the first event before reporting to monitor for additional events to include in the report.

(29) At step **509**, the training toilet ejects the inner container. In this embodiment, the training toilet

ejects or dislodges an inner container holding the waste and discards the waste into the toilet. For example, a parent pulls a handle on the training toilet to eject the inner container, emptying the container into a standard toilet. The container is then cleaned and replaced in the training toilet. (30) Although method **500** has been explained in relation to the preferred embodiment, one skilled in the art will recognize that the steps may be performed in a different order and not all of the steps may be necessary to implement the method. (31) Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.

Claims

1. A training toilet, comprising: a toilet seat; a plurality of sensors, comprising: a liquid waste sensor; a solid waste sensor; and a flatulence sensor, comprising an audio sensor configured for detecting flatulence; a computing device; a backrest; wherein the backrest has an adjustable position, the adjustable position configurable to adjust a fit of the backrest; wherein the computing device records an order of events, wherein the order of events includes a time associated with data received from the plurality of sensors; wherein the computing device sends an alert to a connected application, wherein the alert includes the order of events; a sensor configured to detect a position of the toilet seat; and wherein the computing device is configured to activate the plurality of sensors responsive to detection of a raised position of the toilet seat.
2. The training toilet of claim 1, further comprising a communication device.
3. The training toilet of claim 2, wherein the communication device is configured for two-way communication.
4. The training toilet of claim 2, wherein the communication device is configured for playback.
5. The training toilet of claim 1, further comprising: a urinal cup; a second liquid waste sensor; the urinal cup connected to the toilet seat; and the second liquid waste sensor disposed within the urinal cup.
6. A training toilet, comprising: a toilet seat; a plurality of sensors, comprising: a liquid waste sensor; a solid waste sensor; and a flatulence sensor, comprising an audio sensor configured for detecting flatulence; a computing device; a communication device; a sensor configured to detect a position of the toilet seat; wherein the computing device is configured to activate the plurality of sensors responsive to detection of a raised position of the toilet seat; wherein the computing device records an order of events, wherein the order of events includes a time associated with data received from the plurality of sensors; and wherein the computing device sends an alert to a connected application, wherein the alert includes the order of events.
7. The training toilet of claim 6, wherein the communication device is configured for two-way video communication.
8. The communication device of claim 6, wherein the communication device is configured for two-way audio communication.
9. The communication device of claim 6, wherein the communication device is configured for audio playback.
10. The training toilet of claim 2, wherein the communication device is configured for video playback.
11. The training toilet of claim 6, further comprising a backrest.
12. The training toilet of claim 6, further comprising: a urinal cup; a second liquid waste sensor; the urinal cup connected to the toilet seat; and the second liquid waste sensor disposed within the urinal cup.
13. A training toilet, comprising: a toilet seat; a plurality of sensors, comprising: a liquid waste sensor; a solid waste sensor; and a flatulence sensor, comprising an audio sensor configured for

detecting flatulence; a computing device; the computing device configured to record an order of events, wherein the order of events includes a time associated with data received from the plurality of sensors; the computing device configured to send an alert to a connected application, wherein the alert includes the order of events; a sensor configured to detect a position of the toilet seat; and wherein the computing device is configured to activate the plurality of sensors responsive to detection of a raised position of the toilet seat.

14. The training toilet of claim 13, further comprising a communication device.

15. The training toilet of claim 14, wherein the communication device is configured for two-way communication.

16. The training toilet of claim 14, wherein the communication device is configured for playback.

17. The training toilet of claim 13, further comprising: a urinal cup; a second liquid waste sensor; the urinal cup connected to the toilet seat; and the second liquid waste sensor disposed within the urinal cup.
