

# AN IPOD-BASED ENURESIS ALARM AND CORRESPONDING MANUAL FOR TEACHING TOILETING SKILLS TO CHILDREN WITH AUTISM

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## INTRODUCTION

- Children with Autism Spectrum Disorder (ASD) are often delayed in acquiring toileting skills, with skill acquisition often taking a year or more of training to accomplish (Ando, 1977; Dalrymple & Ruble, 1992). Urinary incontinence may impact physical comfort, personal hygiene, independence, and inclusive opportunities (e.g., some preschool, kindergarten, and community settings).
- Standard behavioral interventions for toilet training can be a struggle for families due to the extended time and focus it requires in the context of busy days.
- Therefore, there is a need for an effective, efficient, and user-friendly toilet training methodology.
- The current multi-site, pilot study examines the benefits of an intervention that incorporates an iPod-based moisture pager (enuresis alarm) and corresponding treatment manual to promote the acquisition of toileting skills in individuals with ASD.
- To date, 11 of 15 families have completed enuresis alarm training.

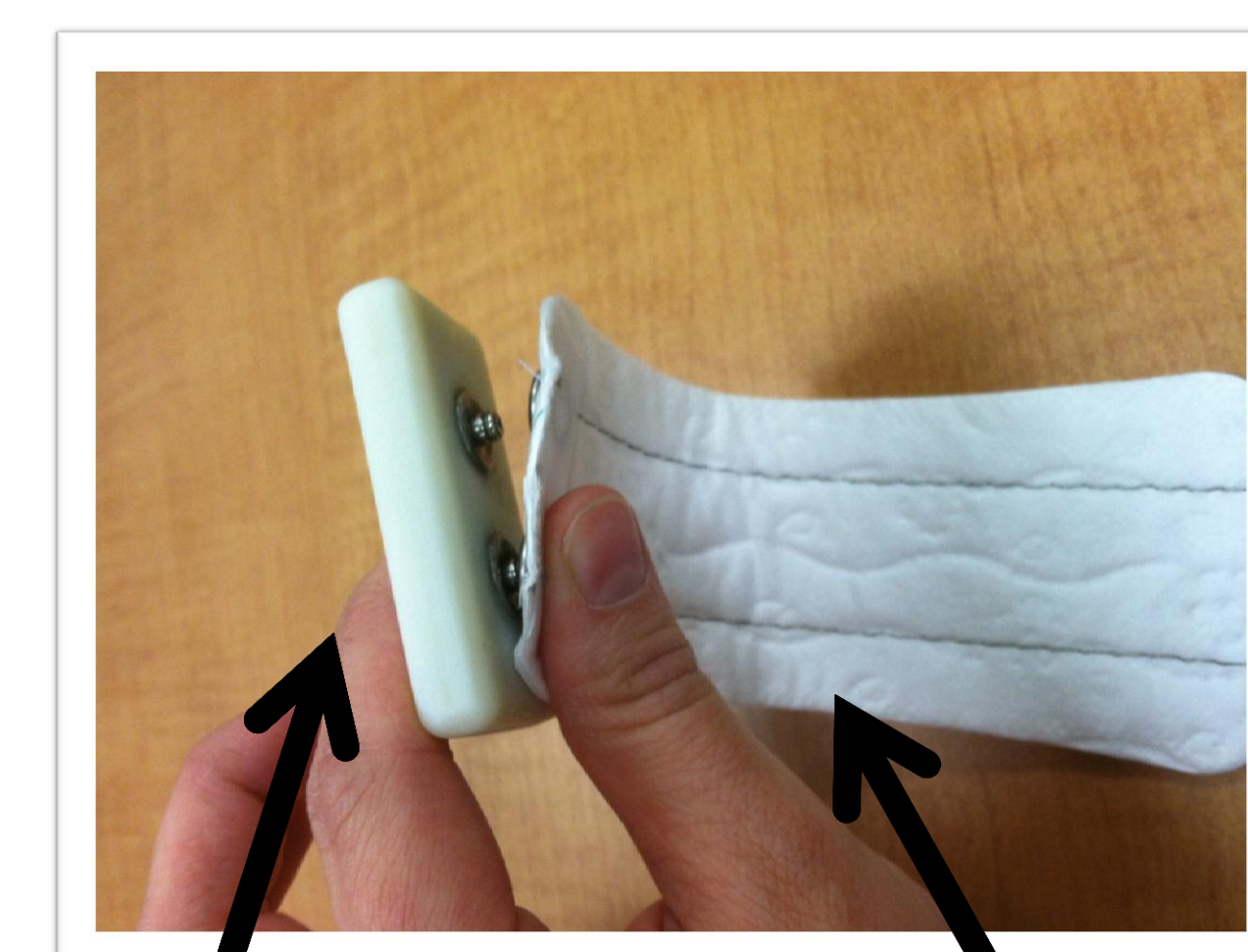
## DEMOGRAPHICS

- Participants who received enuresis alarm training consisted of 8 males and 3 females with a mean age of 4 years, 5 months.
- There was 1 Black or African-American, 9 Caucasian/White, and 1 Asian.
- Two participants reported being of Hispanic or Latino origin.

## THE ENURESIS ALARM DEVICE

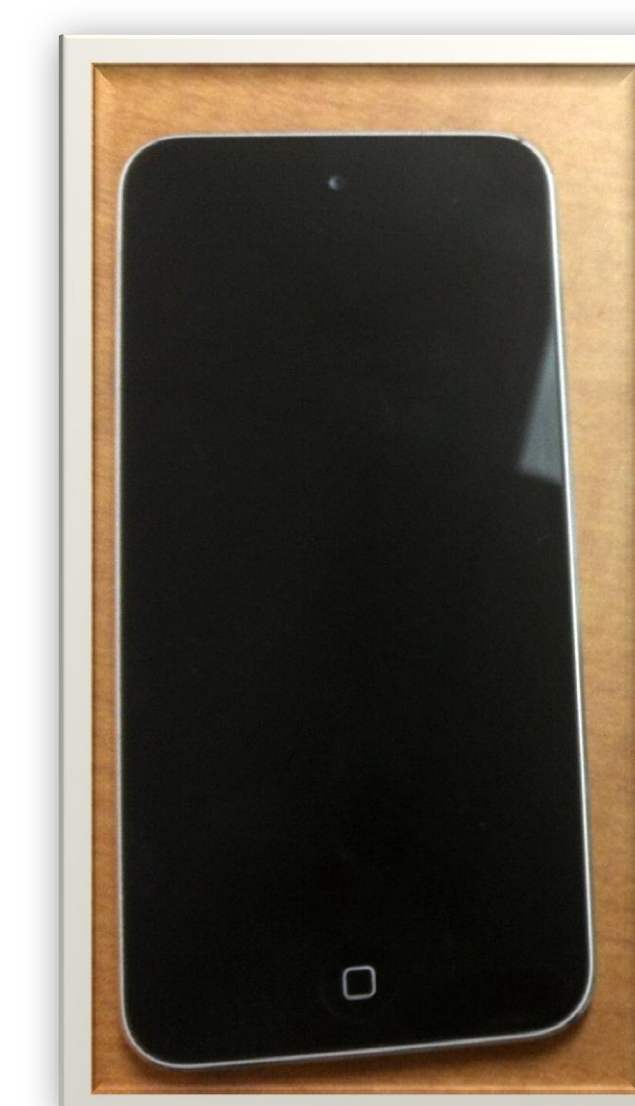
The device consists of an iPod based application that interfaces with a transmitter and disposable moisture sensor positioned in the child's underwear.

When the sensor contacts urine, the attached transmitter sends a signal to the iPod. At onset of audible alert, caregiver directs participant to bathroom.

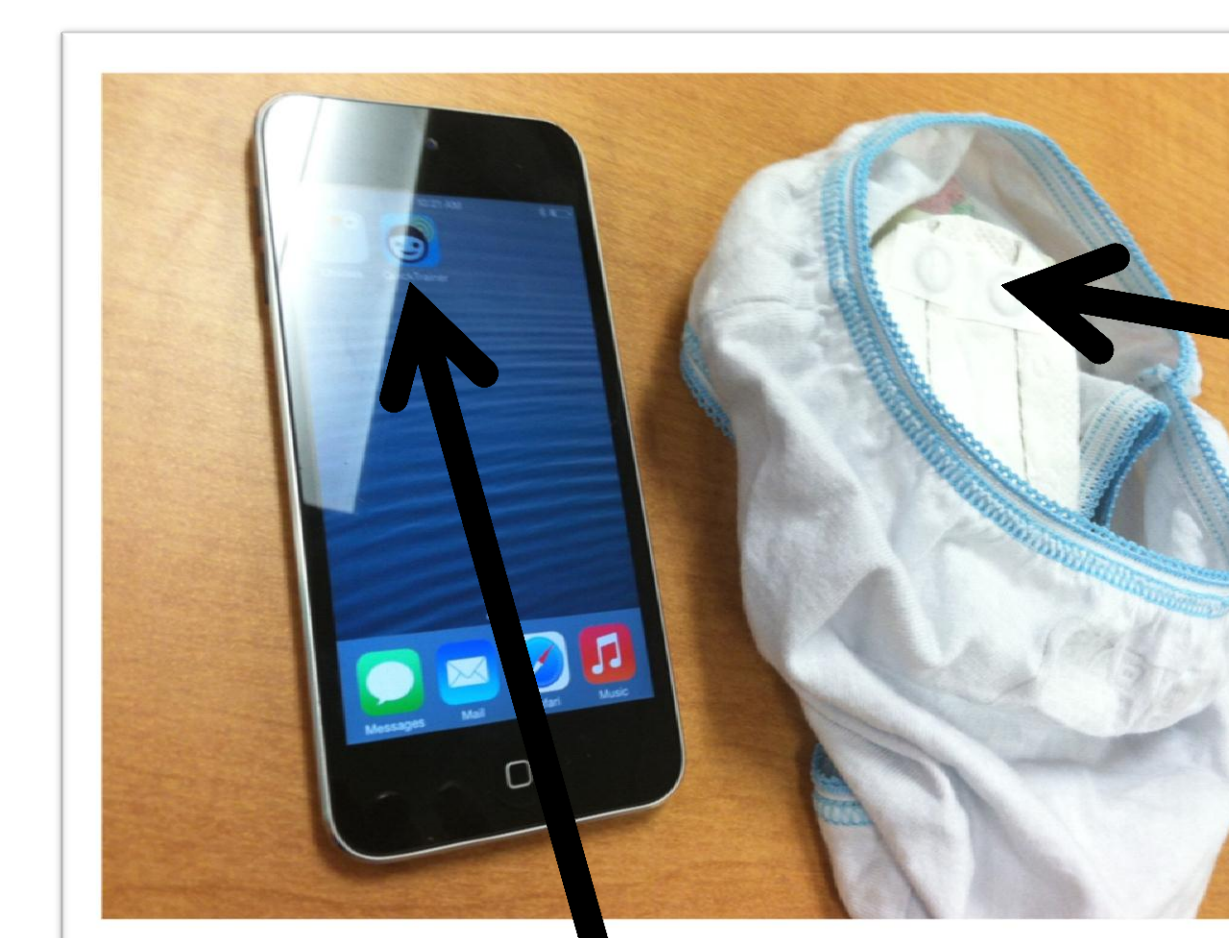


The transmitter sends the signal to the iPod when the sensor becomes wet.

The sensor is placed in the child's underwear.



The iPod receives the signal from the sensor and sounds an audible signal.

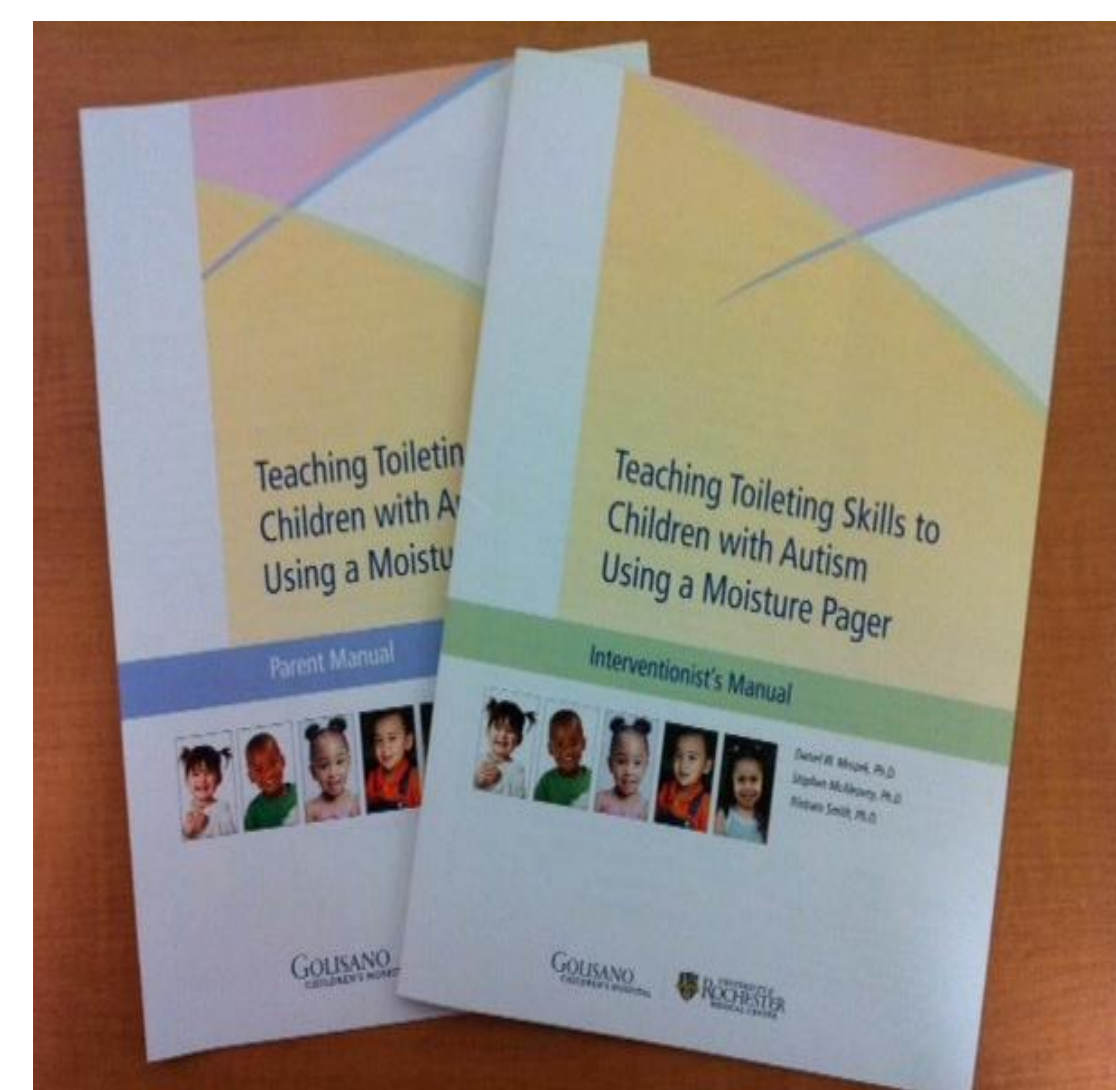


The iPod application "QuickTrainer"

The transmitter and sensor are affixed in the child's underwear.

## MANUALIZED INTERVENTION

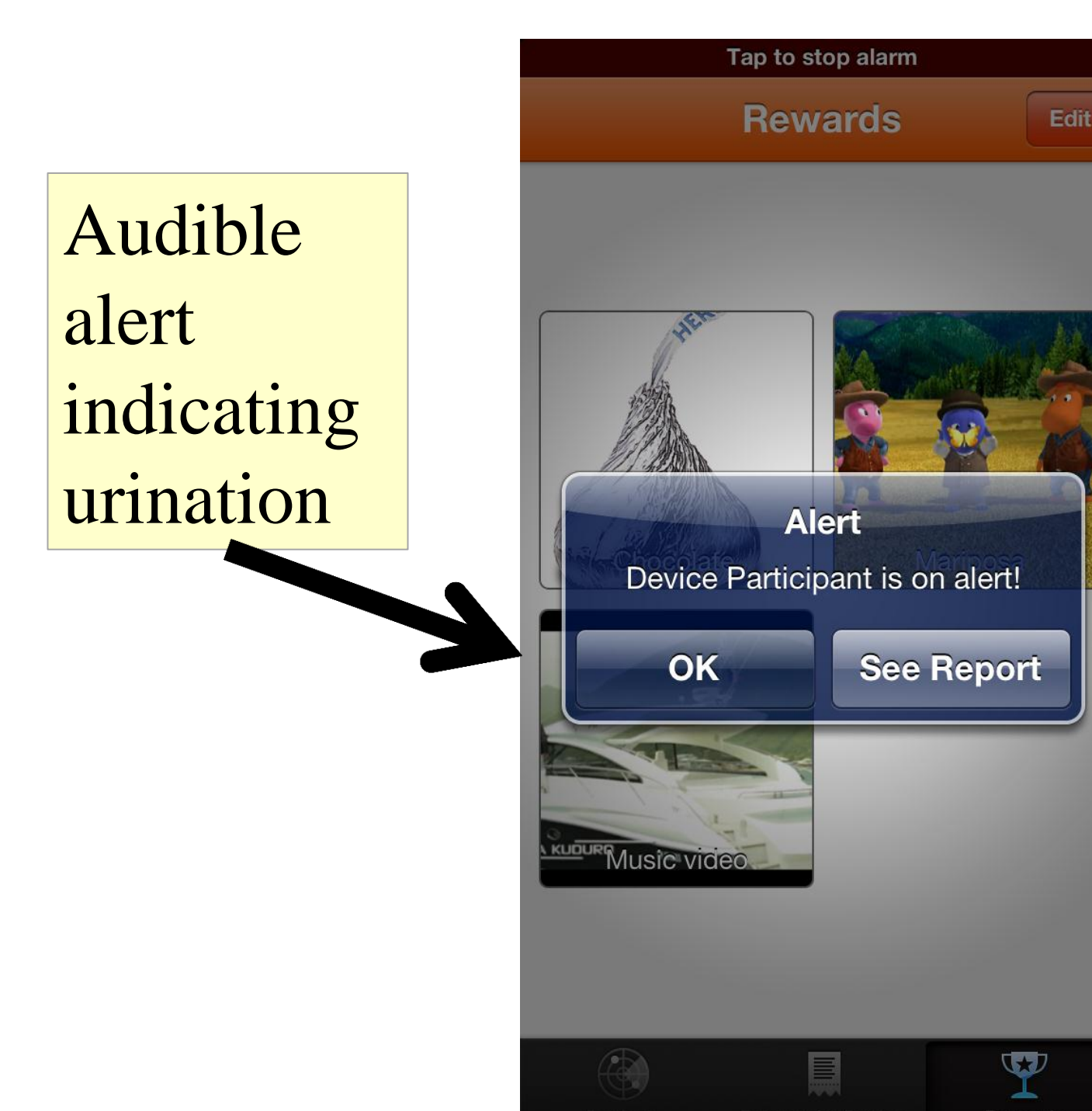
A parent manual and corresponding clinician's manual provides a module-based guide for training. Training modules include: Program Planning, Pager and Disposable Sensors, Setting Up for Training, and The Training Routine. The interventionist's manual includes intervention planning documents for individualizing training.



Feasibility Items	Mean response 1 "Disagree" to 4 "Agree"
The toileting procedure was pretty easy to implement; I knew what to do and when	3.8
My child participated in the toileting intervention pretty well; he/she did not protest or oppose me more than usual	3.6
The technology and supports used in the toileting procedure worked well and were helpful	3.3
I would recommend this toileting intervention procedure to others	3.9
Satisfaction Item	Mean response 1 "Very Unsatisfied" to 4 "Very Satisfied"
Rate your overall satisfaction with the toilet training intervention that you and your child participated in	3.4

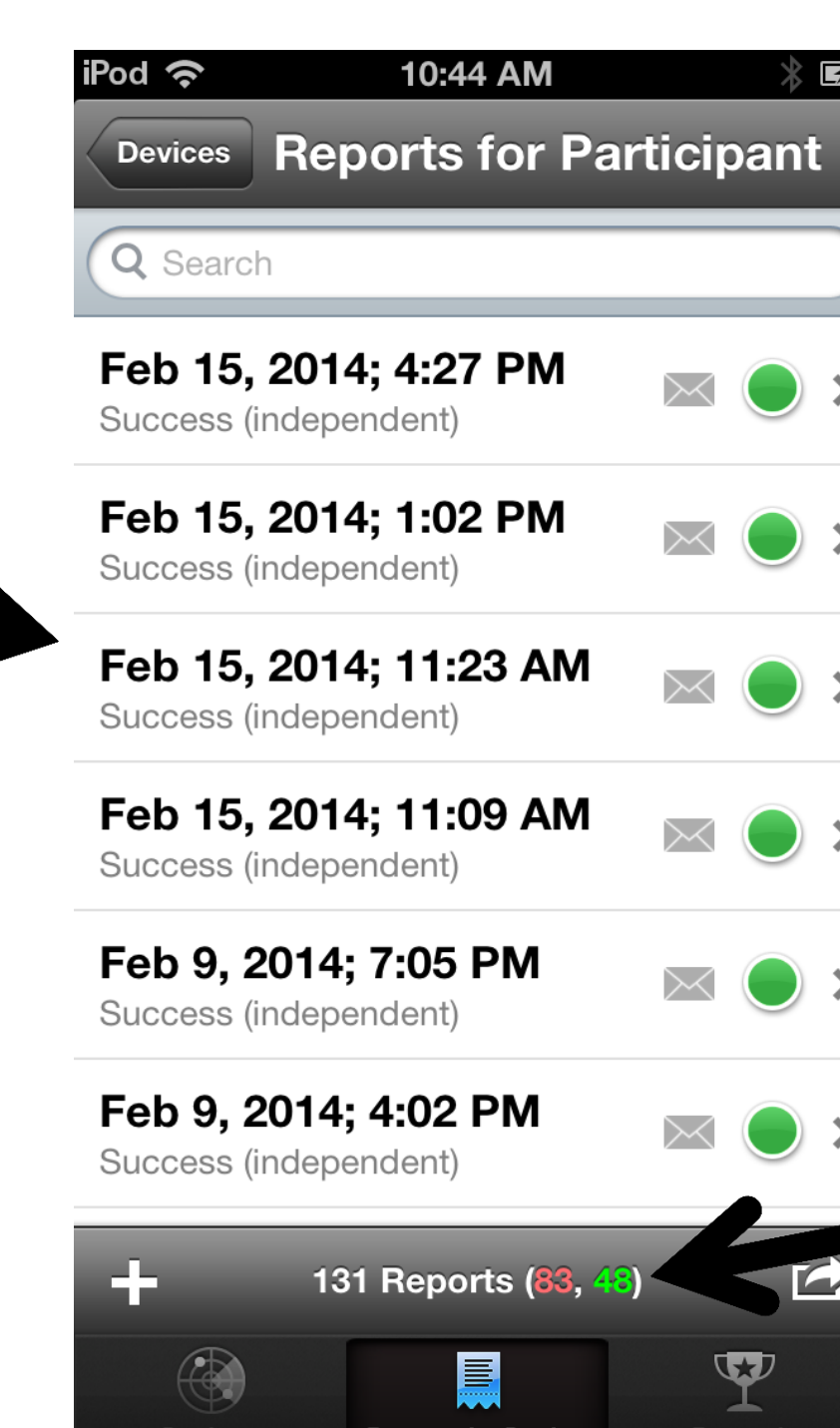
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## KEY FUNCTIONS

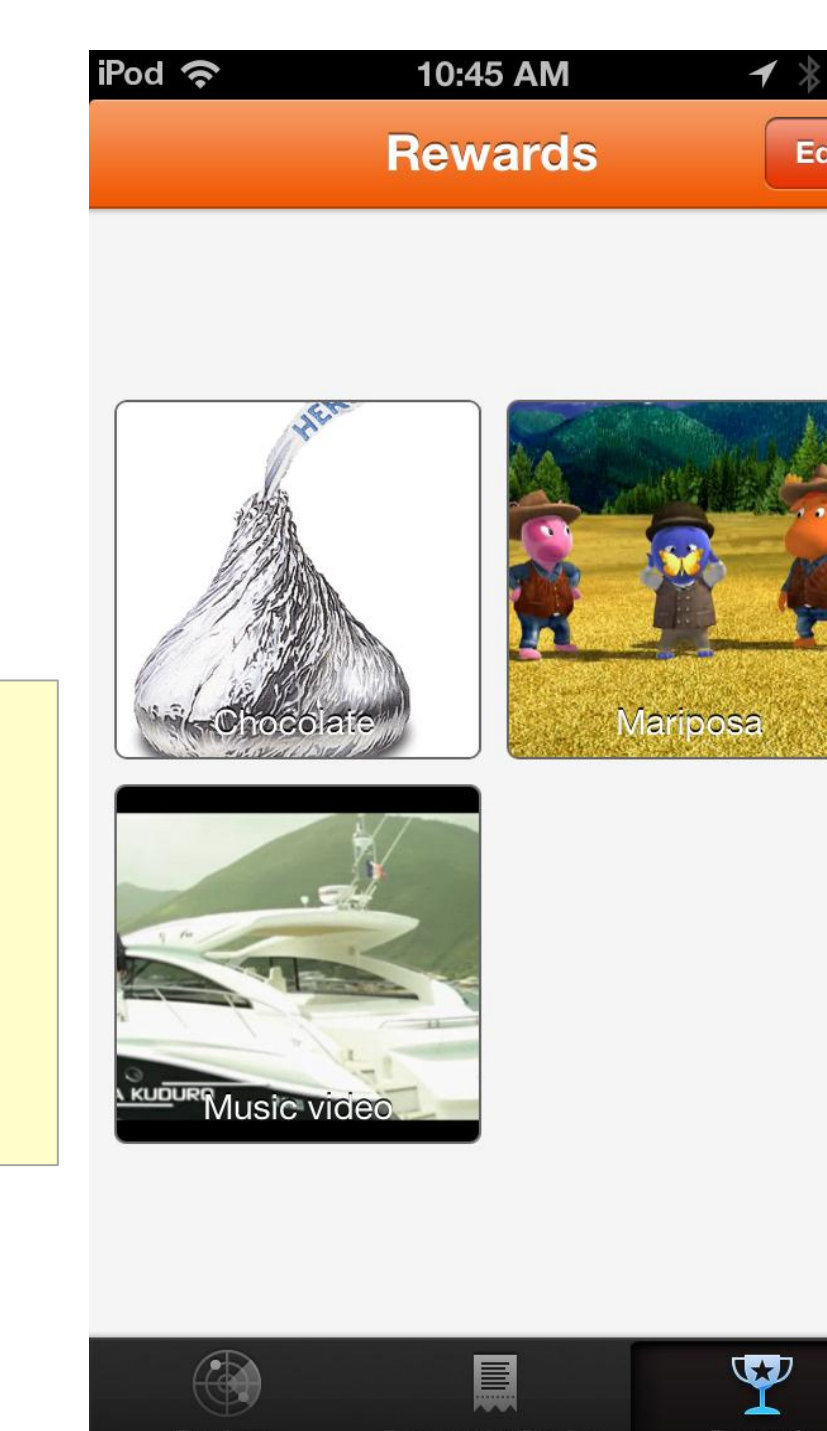


Audible alert indicating urination

Time-stamped record of accidents and successes



Email transmission of data from iPod to clinician



Picture-based reinforcer menu