

JollyPod

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Overview

“Helping children manage their diabetes in a fun and engaging way”

-Focus is towards improving the experience of kids aged 8-15 with Type 1 Diabetes

-Redesigning current technology like the OmniPod



Problems and Solutions

Problems

- Managing Diabetes can be scary and daunting
- Many things to keep track of at any given time--stress
- Current interfaces are not particularly user friendly, let alone kid friendly

Solutions

- Use positive reinforcement and rewards
- Education for better management and necessary skills
- An intuitive interface that makes monitoring your blood sugar easier

Contextual Inquiry

Participant 1: Mother of a Stanford Student with Type 1 Diabetes

- Homemaker
- No immediate family with Type 1 Diabetes
- Worried that daughter may also be susceptible → gets her tested
- Helps make decisions about diabetes care

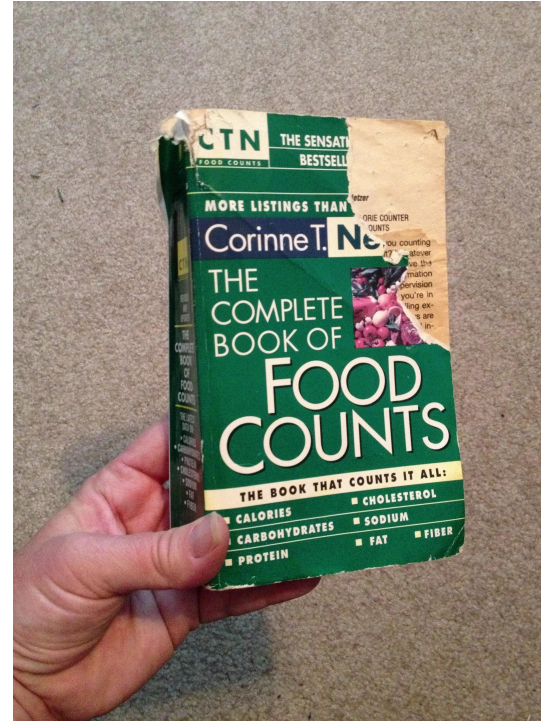


“A Mother’s Glimpse of Hell” by R.H.

Contextual Inquiry



← Supply drawer with PDM, insulin pump, glucose test strips



← Book to help count carbs

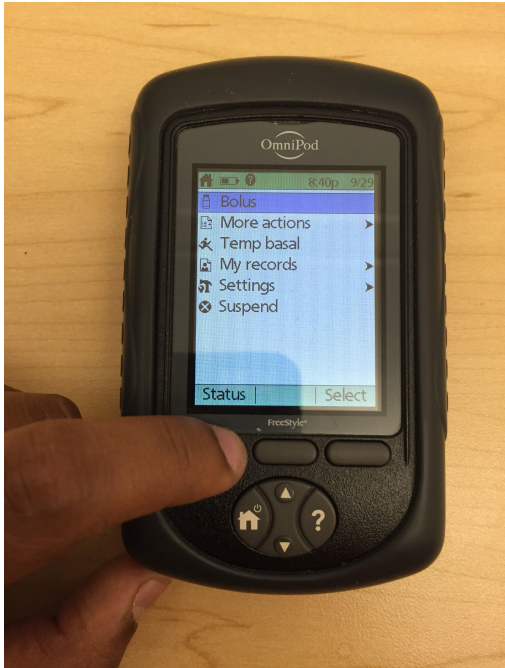
Contextual Inquiry

Participant 2: Son of the previous participant, Stanford senior with Type 1 Diabetes

- Was diagnosed when he was 12
- Uses a wireless pumping system and must test his blood sugar periodically



Contextual Inquiry



Omnipod

- Tests blood sugar
- Has some short term records for blood glucose (bg) levels
- Recommends/administers units of insulin based on blood sugar and when you eat

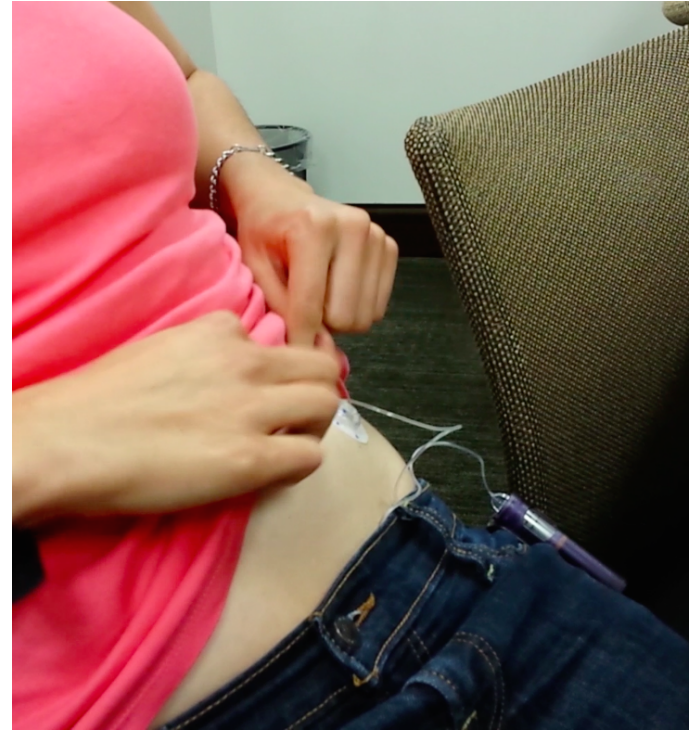
Contextual Inquiry

Participant 3: Junior at Stanford with Type 1 Diabetes

- Female, diagnosed at 6
- Uses a system that consists
 - continuous glucose monitoring device
 - blood sugar test kit
 - insulin pump



Contextual Inquiry



Task Analysis

1. Who is going to use the system?
 - Children who have recently been diagnosed with diabetes
2. What tasks do they now perform?
 - Checking blood sugar
 - Counting carbs
 - Administering insulin (with needles or pump)
 - Replace insulin
 - Strategically eat snacks
 - Keep track of supplies

Task Analysis

3. What tasks are desired?

- Easy way to count carbs
- Precise/fast way to keep track of blood sugar trends and administer insulin

4. How are the tasks learned?

- Under guidance of doctor
- Parents
- Flashcards for counting carbs
- Counting carbs with book

Task Analysis

5. Where are the tasks performed?
 - Everywhere (at meals, gym, school, work, home, etc)
6. What's the relationship between customer & data?
 - Customer and doctor/parents must keep track of long term trends
7. What other tools does the customer have?
 - A way to deliver insulin (shots or wireless system)
 - A way to look up carbs either through search engine or book

Task Analysis

8. How do users communicate with each other?

- In-person/online diabetic communities
- Diabetes camps

9. How often are the tasks performed?

- Testing blood sugar at least before each meal, after physical activity, anytime the patient feels ill
- Bolusing for each meal or snack
- Counting carbs for each meal or snack

Task Analysis

10. What are the time constraints on the tasks?

- Must test for blood sugar before every meal and before sleeping
- Must bolus for insulin immediately before/after eating

11. What happens when things go wrong?

- Must be hospitalized if blood sugar is extremely low or high→
patient is unconscious
 - Glucagon pen to increase blood sugar when patient is suffering from low sugar
 - 911 if unresponsive

Representative Tasks

1. Checking blood sugar (simple)

- Fast (once you are used to it)
- Needs to be done several times each day
- Must eat snack or cut back on insulin when blood sugar is low
- Must drink water and take more insulin when blood sugar is high

Representative Tasks

2. Counting carbs (moderate)
 - Needs to be done when eating/snacking
 - Requires practice
 - Can cause anxiety
 - Can be imprecise

Representative Tasks

3. Administering insulin/bolusing (complex)
 - What have you eaten?
 - What was your blood sugar previously?
 - What activities will you be doing later?
 - What amount of insulin do you need?

Application Ideas

1. Social Network
 - Give diabetics an opportunity to connect
 - Advice and tips
 - Sharing progress and victories
 - Diabetes memes

Application Ideas

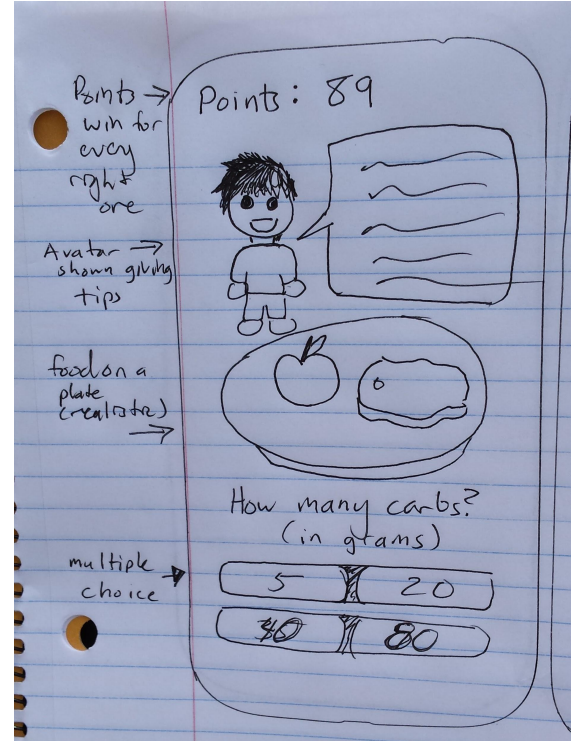
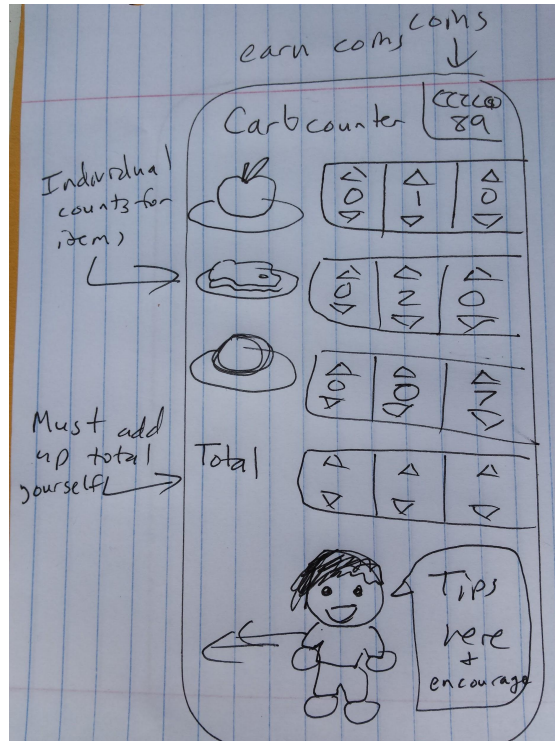
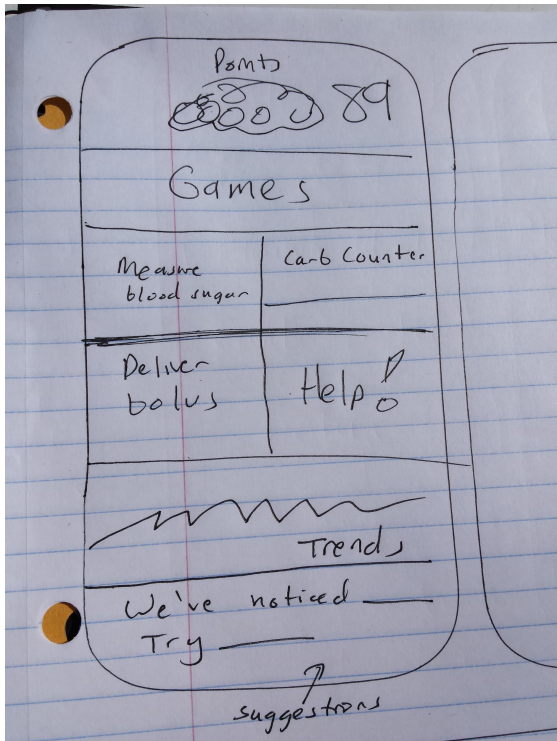
2. Artificial Pancreas

- Work with system that constantly monitors glucose levels and adjusts insulin doses
- Graphical user interface
 - visually displays information collected
 - projection on arm?
- Alerts when something needs to be adjusted

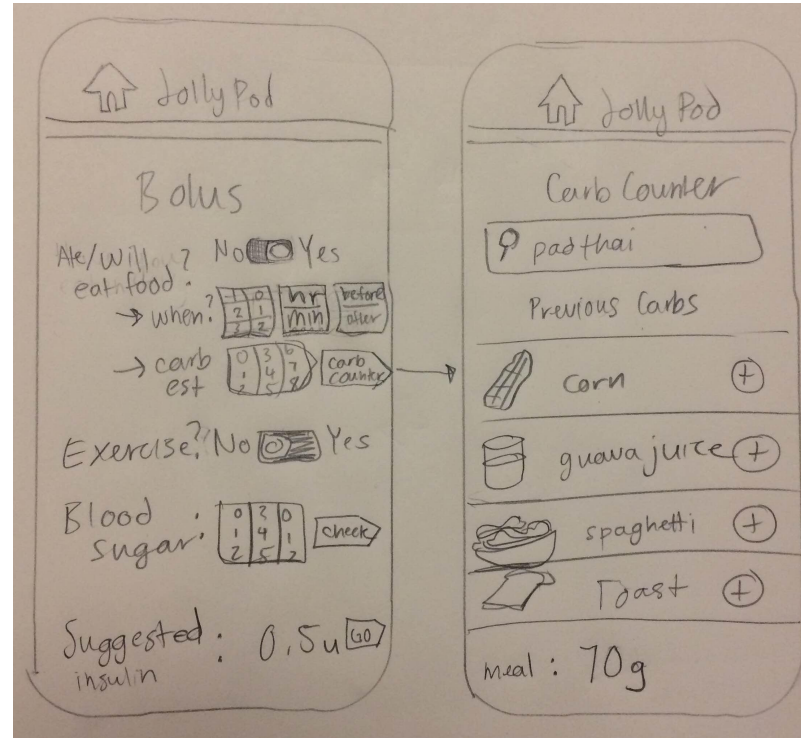
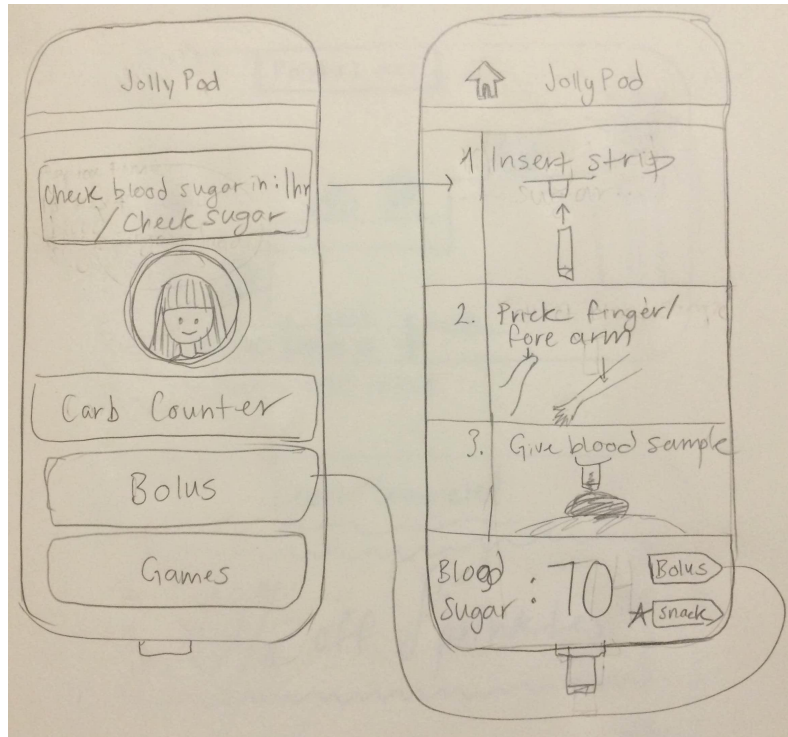
Application Ideas

3. Integrated Management System
 - Educational/motivational games
 - Teach you the skills you need to manage diabetes (ex: when to check bg, carb counting)
 - Positive reinforcement → rewards for good blood sugar levels

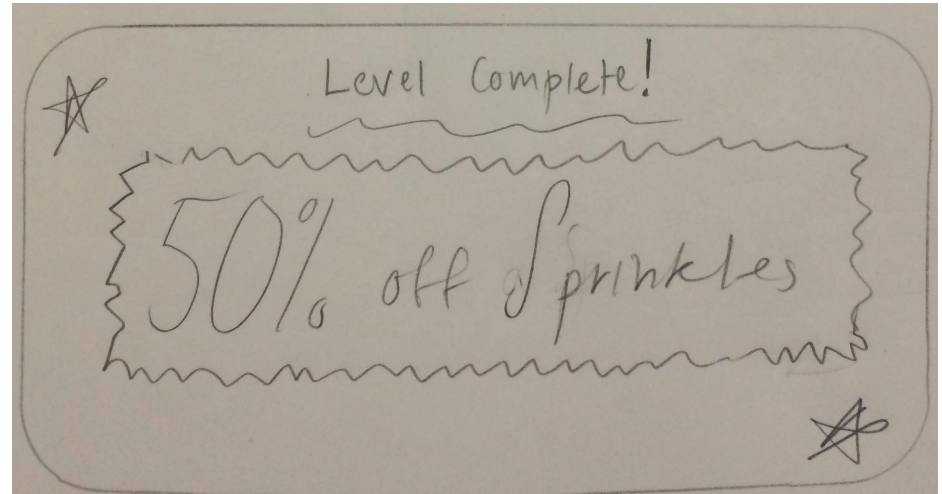
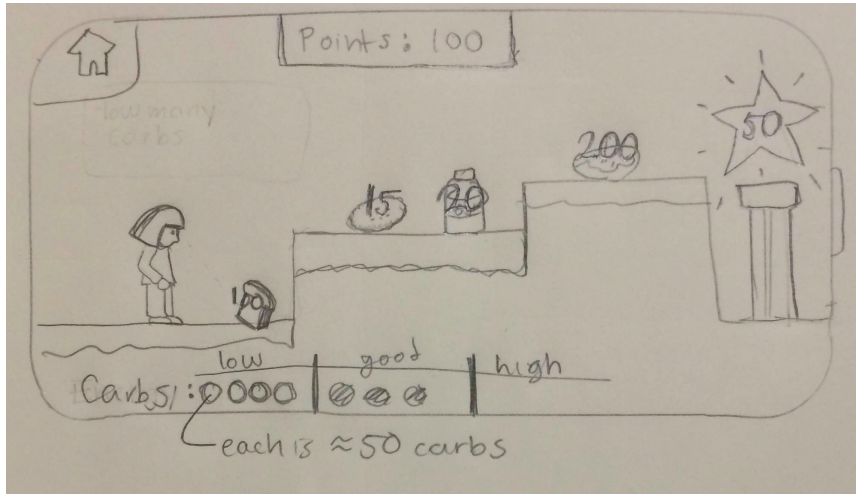
UI Sketches



UI Sketches



UI Sketches



Summary

- Application that simplifies daily tasks
- Use games to teach diabetic children necessary skills in a fun way
- Positive reinforcement to relieve stress related to managing diabetes