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*Ola*

**Worry-Free Diabetes Care**

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# Introduction to Problem & Solution

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Currently, chronic disease patients (such as diabetics):

- typically receive treatment update only when they visit their doctor (once every 3 to 6 months).
  - have to self administer numerous measurements/treatments each day to maintain their health.
  - their health devices are expensive, hard to use and requires proprietary software to view download historical/raw data.
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# Introduction to Problem & Solution

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Our solution is to enable real time context aware care for chronic disease patients via technologies such as inexpensive smart wearable devices and advanced data analytics (machine learning).

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# Overview

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Ola is a system (smartphone application + pod) that provides real time context aware care for diabetic patients through smart wearable devices and advanced data analytics.

The goal is to build a hi-fi prototype of our user interface design using native interface builder, incorporating heuristic evaluation results.

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# Heuristic Evaluation Results

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## [H2-8: Minimalist Design] [Severity 3] [Found by B+ D]

I feel that both of these pieces of information are highly relevant to users, but **do both (Charts and Doctor Communications) need to coexist on the same page?** They didn't feel intrinsically relevant to each other. I feel both pieces of information would be better served if they had their own dedicated pages that users could devote their attention to without having to decide their focus. By doing this, each page could also build up a more detailed page with relevant data to the pie chart and/or email communications.

## Response

We'll separate the information by replacing the "Profile" tab with "Doctor Communications"

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# Heuristic Evaluation Results

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**[H2-7. Flexibility and efficiency of use][Severity 4][Found by A + B+ D]**

**Replying to doctors takes you off the App and into your email.** To make this app very useful, it would be convenient to get all the information under one room. Having your incoming messages go to the app and your replying messages go somewhere else is inefficient and lacks consistency. Having the ability to reply to a doctor's note on the app will make things much easier.

## **Response**

We'll add in-app email capabilities to reply to doctor emails.

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# Heuristic Evaluation Results

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**[H2-7. Flexibility and efficiency of use][Severity 4][Found by A]**

**No way to add a note to your doctor.** This is a function that many users will want to use. This also comes back to the idea of having everything under one roof; being able to fully communicate with your doctor through this app will bring a lot of value to it. Having a system that splits your communication into two different platforms defeats the purpose of this app.

## **Response**

We'll add in-app email capabilities to send a new message to a doctor.

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# Heuristic Evaluation Results

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**[H2-7. Flexibility and efficiency of use][Severity 3][Found by A]**

**Can't search** under “Doctor Communications”. It is very frustrating to manually filter through many messages. Adding search functionality would make things much easier for the user.

## **Response**

We'll add a search bar to doctor communications.

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# Heuristic Evaluation Results

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## **[H2-5: Error prevention] [Severity 3] [Found by B]**

When looking at an individual note from a doctor (a “Doctor Communication”), the user has two options: to either Reply to the note or to Implement the recommendation. However, the placement of the “Implement” button is placed where the most intuitive next step button would be. Further, if that button is clicked, there is no way to undo that action.

## **Response**

The next logical step should be approve the change. Will add ability to undo.

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# Heuristic Evaluation Results

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## **[H2-7:Flexibility and efficiency of use] [Severity 3] [Found by B+ D]**

Again, on the foods page, I realize that there are TWO options of how to enter your carb intake. However, I don't think the way the page is laid out makes it obvious that the user can choose ONE of the TWO methods. Instead, it seems a little like the user has to use both features on the page to get to the next step.

## **Response**

Already addressed by an earlier change. We'll modify the food tab to be a list screen and each push of the "add" button gives the option to either: take food picture, input carb or search by food name.

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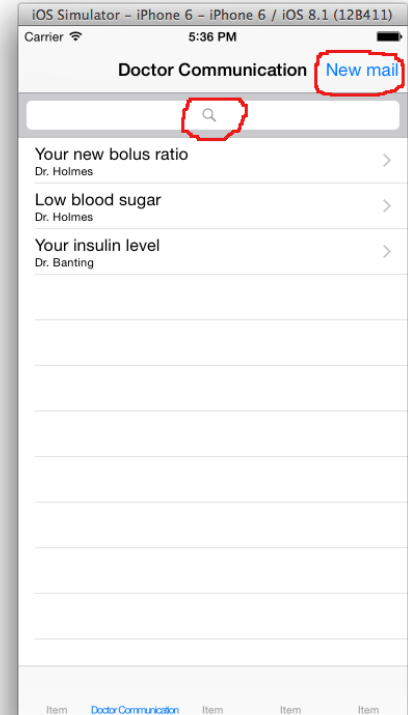
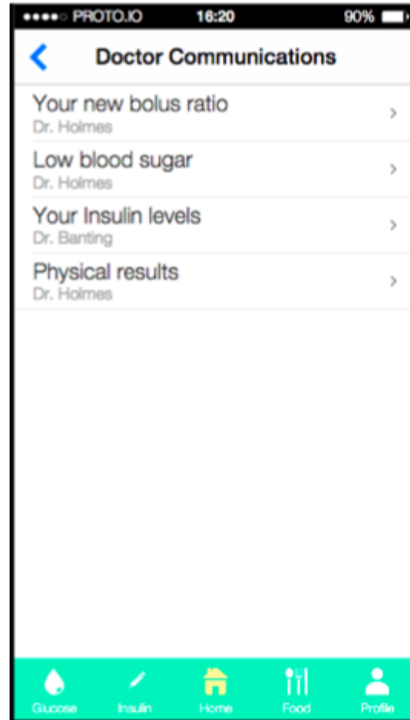
# Overview of Revised Design

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1. Add a label to indicate tapping on the home screen chart is possible.
  2. Reword label to “Your recommend insulin level is...”
  3. Add in-app email capabilities to reply to doctor emails.
  4. Add in-app email capabilities to send a new message to a doctor.
  5. Add a search bar to doctor communications.
  6. Modify the food tab to be a list screen and each push of the “add” button gives the option to either: take food picture, input carb or search by food name.
  7. Make the highlighted/selected tab more visible.
  8. Add ability to undo/redo dosage changes.
  9. Separate out the information on home screen by replacing the “Profile” tab with “Doctor Communications”
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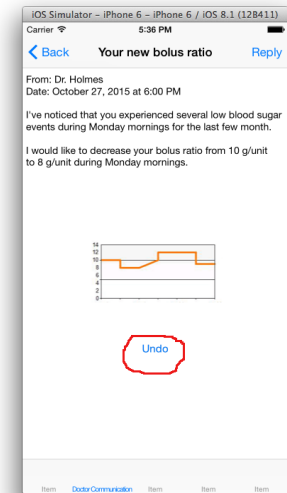
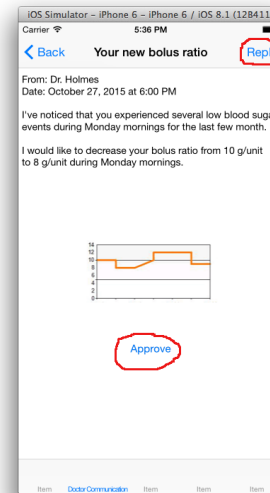
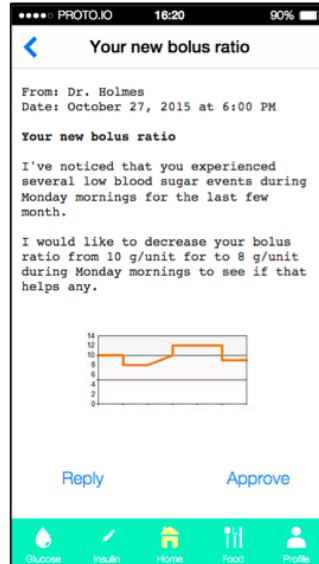
# Overview of Revised Design

- Add ability to compose new mail
- Add search



# Overview of Revised Design

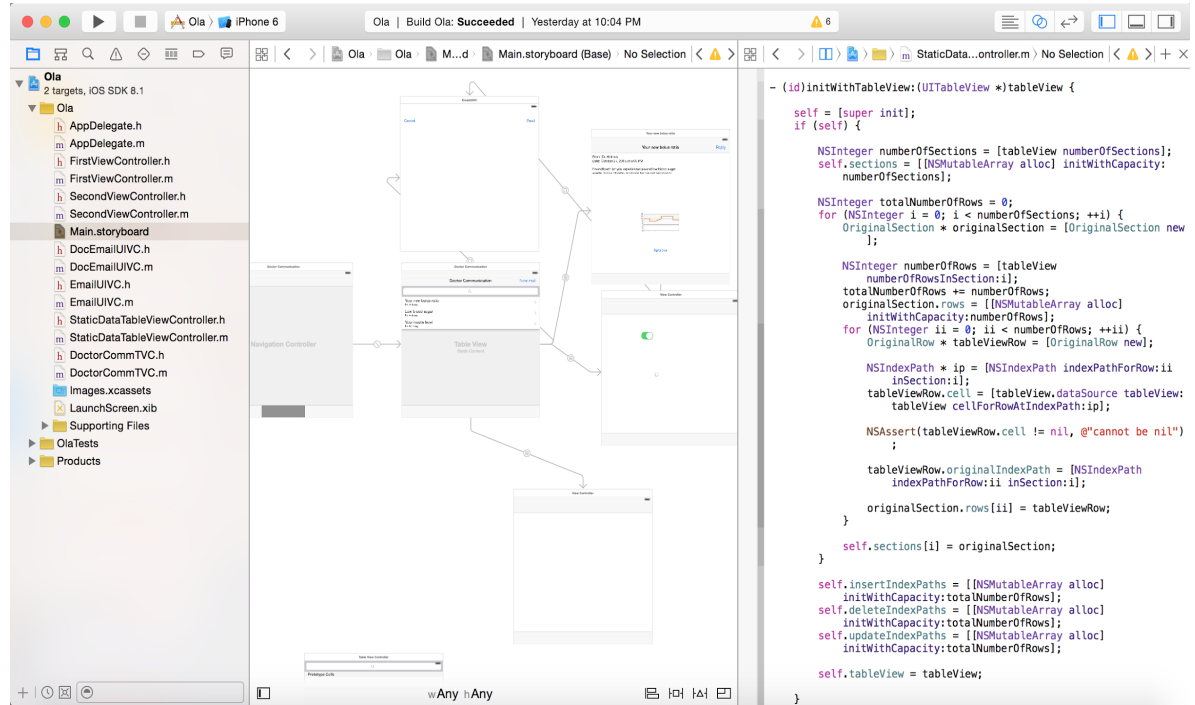
- Add ability to reply email within app.
- Add ability to undo.



# Prototype Implementation Status

## Tools:

- Xcode 6.1
- Objective-C for iOS 8.



# Prototype Implementation Status

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## Implemented Features:

- Doctor Communications
    - All messages consolidated in one place
      - No more off-app messaging
    - Messages are searchable
    - User can make changes from within message
    - User can create a new message from scratch
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# Prototype Implementation Status

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## Unimplemented Features:

- Home Screen & overall GUI
  - Doctor Communications (Task 1)
    - new message alert & confirmation screen
  - Calculate Carbohydrates in Food (Task 2)
    - integrate Camera w/ image recognition
  - Provide Emergency Alerts (Task 3)
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# Prototype Implementation Status

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## Wizard of Oz Techniques:

- Emergency alerts
    - Will have our own “lock screen”
    - Simulate push notifications coming in (using shake or other gesture)
  - Carb Counting Camera
    - will start off just selecting a default meal
  - Hardware integration (glucometer, CGM, etc.)
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# Prototype Implementation Status

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## Hard-coded Data:

- Food data and Insulin dosages
  - Messages from doctors
  - Data in charts/graphs are placeholders
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# Prototype Implementation Status

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## Issues/Questions

- Figured out how to use Oz techniques to solve push notification components
  - Lots more to do with iOS/Xcode development, but we're teaching ourselves
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**[Demo]**

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# Heuristic Evaluation Results

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## **[H2-1. Visibility of system status][Severity 3][Found by A+C+ D]**

I was unaware that I could click the pie chart on the main page to see a different chart. This is something that can easily be overlooked because the app has no indication that clicking the pie chart will bring you a different chart

### **Response**

We'll add a label to indicate tapping on the chart is possible.

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# Heuristic Evaluation Results

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## **[H2-5. Error prevention][Severity 3][Found by A]**

Under the “Food” section, after confirming the amount of carbs I am currently consuming, it says “Based on your history data, your recommended insulin level is...” not sure what kind of time frame this is working with. This ambiguity may cause problems for someone who interprets it the wrong way. There is also no documentation to help with this issue.

### **Response**

Reword label to “Your recommend insulin level is...”

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# Heuristic Evaluation Results

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## **[H2-10 Help and Documentation] [Severity 3][Found by A+C]**

Under the food section I have the option of choosing “Standard”, “Short Extended”, and “Dual”. This is probably something a diabetic would know, but if they don't, for some reason, there is nowhere to check what that is or what the best delivery method is.

### **Response**

Our target users are diabetics.

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# Heuristic Evaluation Results

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## **[H2-7. Flexibility and efficiency of use][Severity 4][Found by A + B+ D]**

The calculation of carbs via picture seems very inaccurate. Being able to manually enter carbs is a good thing, but taking a picture of your meal probably won't give you the best results (this would take quite a bit of machine learning and would most likely end up being the main focus within development). I suggest having some sort of search functionality where a user can enter what they are eating and the portion size. The returned output will be the carbs associated with that piece of food.

## **Response**

Modify the food tab to be a list screen and each push of the “add” button gives the option to either: take food picture, input carb or search by food name.

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# Heuristic Evaluation Results

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## **[H2-7. Flexibility and efficiency of use][Severity 3][Found by A+D]**

The only way to add multiple pieces of food (ie Banana and Milk mentioned in the report) is by taking separate pictures. You cannot input multiple amounts of carbs. This is a simple fix that would make the carb counting functionality a bit easier to use and more consistent.

## **Response**

We do support multiple food items in a single shot.

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# Heuristic Evaluation Results

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## **[H2-1: Visibility of Status] [Severity 3][Found by D]**

There is no responsive indication of where the user is in the app. Ola works to segment the app into logical sections (insulin, home, food, etc.) but does not give the user either a pipeline or highlighted tab to help them get a sense of where they are within the application. I found this most disorienting when in the 'Dr. Communications' section, when the forward/backward buttons take you to an inbox rather than home. I immediately searched to figure out where I was but was left confused.

## **Response**

We'll make the highlighted/selected tab more visible.

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