

## Project Proposal for Sara Smith

### Working Title: GlucoGo

#### Summary

A mobile phone application for diabetics that will help users track diet and blood sugar readings, while learning healthy eating habits through customized coaching and positive feedback. Mobile phone hardware enhancements will help to ease the data collection and logging processes associated with actively monitoring the disease both individually and by associated care givers.

#### Audience

Primary audience is newly diagnosed type 2 and gestational diabetics who are still learning about the disease and the effects of their food choices on blood sugar levels. Secondary audience is younger (under 30) diabetics who lead busy, on the go lifestyles and who keep their mobile phones by their side 24/7.

#### Background

Type 2 Diabetics must closely monitor their diets and corresponding blood sugar levels in order to keep the disease under control. The diabetic diet is typically lower in carbohydrate, and higher in protein and fats. Eating these dietary components in balanced proportion is a key success factor, as is reducing or limiting sugary foods. Checking blood sugar levels regularly helps diabetics to see the results of their dietary and lifestyle choices, and make adjustments accordingly.

Newly diagnosed type 2 diabetics, those with gestational (pregnancy-related) diabetes, and those with co-existing conditions where diabetes is a complicating factor are usually required to work closely with a diabetic counselor or nutritionist. The diabetic patient is required to test blood sugar levels 4+ times per day at pre-determined intervals, track the results, and send them to the diabetic educator each week. Often the readings must be manually written in a paper based log. These numbers either get faxed, or phoned into the specialist. Additionally, many diabetic counselors require the patient to keep detailed food logs to check compliance with a prescribed dietary plan which usually prescribes how many carbohydrates, proteins, and fats should be consumed with each meal or snack. It is the responsibility of the diabetic counselor to analyze all this data and make recommendations to the patient.

For the diabetic patient, this whole process is extremely cumbersome. First, they must learn and continually be aware of the nutritional values for everything they eat. This can be especially challenging because many foods that are healthy for normal people are not for diabetics. So, there is a steep learning curve and a great deal of trial and error in learning what works for each individual. Secondly, the diabetic must remember to take their blood sugar readings at certain times. Busy, inconsistent schedules, concerns over privacy, and discomfort in drawing a blood sample can cause irregular testing. Learning to interpret the numbers can also be difficult and the problem is magnified when readings are done irregularly. Third, the tracking component is extremely tedious, especially when a third party is involved. Though there are a number of software tools available for tracking either food or glucose readings, they are typically pc or web-based (and so not available to someone on the go), are not linked together in any way, and still rely on manual data entry methods.

GlucoGo is designed to address needs such as these in a single, portable tool that virtually everyone already has, a mobile phone. The resulting application will empower the diabetic to learn and manage diabetes on their own with less effort.

#### GlucoGo Features

- ✦ Readings from handheld and continuous blood sugar monitors wirelessly transferred to mobile phone application
- ✦ Use phone as a bar-code reader. Scan UPC codes on food products to add items to food logs along with nutritional information.
- ✦ Add items to food log based on database lookup
- ✦ Snap photos of foods eaten as a reminder to log it later
- ✦ Get immediate feedback if blood sugar is too high or too low with customized recommendations on how to remedy the problem
- ✦ Get reminders to record food eaten or test blood sugar
- ✦ Get analysis of trends over time with customized recommendations and pointers to historical areas that may have contributed to highs and lows
- ✦ Get instant visualization of progress against goals and current status via ambient display
- ✦ Send reports or raw data to care-givers or others
- ✦ Get lifestyle tips and recommendations on other factors that affect diabetes including sleep, mood, exercise, hormones, etc.