Executive Summary

Non-invasive, continuous monitoring of blood glucose level and its role towards predictive and personalized diagnosis is emerging as a real need in healthcare. This proposal summarizes development cycle of a non-invasive wearable blood glucose sensor based on multi-wavelength absorption spectroscopy.

NJIT to develop the measurement algorithm based on Monte Carlo simulations with the hardware development including prototyping, design, qualification and production launch. The development is proposed in five stages: Concept, Feasibility and Demonstration, Development, Qualification and Product Launch.

The estimated project schedule is 2 years with a total development cost of $2,000,000; $1,000,000 from SBIR and $1,000,000 from investors.
Significance

• 285 million people worldwide currently have type II diabetes, reaching 438 million by the year 2030

• Globally, diabetes account for
  – 12% of the health expenditures in 2010
    • $376 billion in 2010 -- $490 billion in 2030.

• Self-monitoring crucial to proper diabetes management, but low adherence

• Current solution not working, enter Geneo
The Product: Visual

Varying near infrared wavelengths from 800nm-2000nm

Independently connected LED sources/receptors. Data set goes to computing device to be analyzed

Computing Device
Analyzes Sample

Results are sent through connection to mobile device
Information can be stored and usage history can be tracked by user

SAMPLE TO BE TESTED HERE
*Clip Mechanism

mobile device
Phone App
Tablet App
Displays info from Glucose Analysis

NJIT
New Jersey's Science & Technology University

IDS
ALBERT DORMAN HONORS COLLEGE
Proposed System Overview

Transmitter Board with 7 LEDs

Receiver Board with PD and TIA

Signal Processing Board

Power Supply section

LED Indicators.
The Product: Offering Description

- Painless and non-invasive method to measure blood glucose levels
  - Multispectral imaging
    - Noninvasive
    - Painless

- Accurate readings constantly without increasing Healthcare costs
  - No supplementary product needed for device
  - Increased data for Physician to work with
  - Lower diabetes related ER costs
Target Market - Diabetics

Type 1
- Uses multiple times a day
- Strong need for product

Type 2
- Uses occasionally
- Improved quality of life with product

Others
- Health monitoring
- Hospital integration
## Value Proposition

<table>
<thead>
<tr>
<th>Geneo Medical</th>
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</thead>
</table>

- **Cost**
  - Efficiency
  - Long term savings for primary market who uses multiple times a day as needed

- **Painless**
  - Adds comfort to difficult lifestyle
  - Encourages higher adherence for those that need to do so for health reasons

- **Ease of use**
  - Intended to eventually be seamless integration as a lifestyle

- **Accuracy**
  - Increased accuracy compared to current device standards
Market survey to gauge engagement and potential first adopters / initial market

- **Purpose**: To study the potential consumer market through engagement metrics of a survey targeted at determining the product features, core consumer base demographic, and consumer interest.

<table>
<thead>
<tr>
<th></th>
<th># of people</th>
<th>Total Conversion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Views</td>
<td>395</td>
<td></td>
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<tr>
<td>Clicks</td>
<td>139</td>
<td>35 %</td>
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<tr>
<td>Survey Completion</td>
<td>54</td>
<td>38.8 %</td>
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<tr>
<td>Subscriptions</td>
<td>11</td>
<td>20 %</td>
</tr>
</tbody>
</table>
Value Proposition

54 People
Surveyed over 1 week

Continuous monitoring important?

# of uses a day

Age

Problems

Solutions

Alert system
Painful
Costly
Bulky
Not accurate enough

Make it less painful
Make it cheaper
Make it easier to use
Make it faster
Make it more accurate
Make it smaller
Competitive Advantage

- Low cost
- High quality of life
- Slower to market
- Smaller market share at start

Geneo: The High Value, Noninvasive Niche
Business Model

Assumption:
Markup is 50% of selling price at previous level

Gross profit values come from Dun and Bradstreet Industrial Financial Ratios 2011

Geneo
Markup: $1500
Gross Margin 33% -- Assumption

$1,125

Distributor (Warehousing + freight charges)
Markup: $562.50 – 50%
Distributor Gross Profit 70%

$1,687.50

Pharmacy
Markup: $750 – 50%
Retailer Gross Profit ~ 30%

$2,531.23

End User Insured
TOTAL: $2,531.23
(end payment between $50 – 50% of product cost with insurance)

Manufacturing costs:
$500 (build up method)

Device will only be sold with a prescription in order for consumers to take advantage of insurance coverage

Current invasive glucometers are sold OTC, but a prescription is required to get insurance coverage for the purchase of the strips

Government & Insurance
# Comparison across continuous glucose monitors

<table>
<thead>
<tr>
<th>Companies</th>
<th>Guardian REAL-Time Continuous Glucose Monitoring System</th>
<th>Dexcom SEVEN Plus</th>
<th>MiniMed Paradigm® REAL-Time System</th>
<th>Geneo Medical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor</td>
<td>$1339 for monitor</td>
<td>$1248</td>
<td>$999</td>
<td>$2,531.23</td>
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<tr>
<td>Sensor</td>
<td>$35 per 3 day sensor</td>
<td>$399 per 4 7-day sensors</td>
<td>$35 per 3 day sensor</td>
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<tr>
<td>Yearly cost</td>
<td>$1339 + 120 days * $35 sensors</td>
<td>$6,335</td>
<td>$5,199</td>
<td>$2,531</td>
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</tbody>
</table>

Financial Assessment

• Breakeven: Nov Y3 (late second year of sales)

• Investment assumptions:
  – SBIR Phase 1: $150,000 – Y1, Phase 2: $1,000,000 – Y2
  – VC - $1,000,000 over Y3-Y5
    • ROI: 38x in first 3 years