

## **IPRO 308**

### **Developing an Artificial Pancreas**

#### **Objective**

The goal of IPRO 308 was to review the non-invasive methodology for blood glucose monitoring that had been undertaken in the previous semesters and to consider its suitability for incorporation into an automated insulin pump that would truly represent an artificial pancreas.

#### **Basic Organization and Tasks**

IPRO 308 delegated responsibilities to small groups. During the first half of the semester, the tasks the groups worked on were: methodology research, prototype design and market analysis. The latter half of the semester involved regrouping to work on the following tasks: aesthetics, patents and customer analysis.

#### **Accomplishments**

Accomplishing our goals to a high degree, IPRO 308 made significant progress. A working prototype of the artificial pancreas was created to highlight its main features. The main task of delivering insulin in an automated and non-invasive manner was established.

#### **Critical barriers and obstacles**

New ideas were suggested throughout the research process. Many of these ideas were investigated and depending on how useful or feasible the idea, were integrated into our final product. Funding also posed a major concern. Our research is limited due to lack of funds and lab space.

#### **Conclusion**

IPRO 308 made significant progress continuing the work of the previous semesters. These steps have put the project in a position where an independent research team lead by Dr. Opara, contingent on sufficient funding, can hopefully perform the necessary lab work and eventually bring the artificial pancreas to market.

#### **Next steps**

Future members of this IPRO will need to complete a working prototype and use lab time for testing. They will also need to apply for a patent in order to protect the current research and ideas. Eventually, if created, the non-invasive insulin pump combined with a non-invasive glucose monitoring system could potentially replace current insulin pumps.

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