

Assembling and computerizing an indirect calorimeter

Week: April 27 – May 3

Client: Professor Dongsheng Cai
Dept. of Physiology
Phone: 263-9389
E-mail: dcai@physiology.wisc.edu

Advisor: Dr. Ken Gentry
Tel: 608/263-7128
E-mail: kgentry@wisc.edu

Team: Jon Baran – BSAC
Dhaval Desai – Communicator
Kyle Herzog – Team Leader
Tim Pearce – BWIG

Problem Statement

The goal of the project is to assemble the pieces on an indirect calorimeter into a functioning unit and computerizing the system with the existing software. This unit will be used to continuously collect the real-time (24~48 hours) data on mouse oxygen consumption, CO₂ production, activity and food intake. The instrument will be very useful in studying the genetic and pharmacological effects of Professor Cai's targets on the treatment and prevention of obesity-diabetes. Professor Cai has all components of an indirect calorimeter, mainly including oxygen sensors, CO₂ sensors, air flow controls, mouse chambers, pipes, wires, computer, all types of switches and controls, software, and manual instructions.

Last Week's Goals

- Set up final prototype
- Find a way to obtain signal on computer
- Move all materials to ECB
- Finish up work on poster and have it printed
- Practice presentation

Accomplishments

- Friday we met with Dr. Gentry and informed him that we will try to connect the analyzers to a computer and he agreed that this was the best idea to show that we at least accomplished something
- All of the materials that we used all semester from Dr. Cai's lab were moved to ECB on Monday. We will be using them for our demonstration during our poster presentation.
- On Monday we also found a way to hook up the analyzers to the computer. We used an 'Elvis' hookup which is an ADC, and then wrote a short program in LabView that allows us to track and store data from the analyzers. We are planning on bringing the computer down to our poster presentation to show that we can track data on the computer.
- We met on Wednesday night to finish up work on the poster. We will be having it printed Thursday morning, and will then practice presenting it on Thursday night.

This Week's Goals

- Present on Friday
- Finish up work on paper
- Have final meeting with Dr. Gentry

Difficulties

- Still no money source
- We still are not sure if the Oxygen analyzer is functional
- We need to make sure we will have room for all of the elements of our prototype at our poster presentation

Team Effort

	Class	Client Meeting	Advisor Meeting	Research (Notebook)	Construction	Reports/Presentation
Kyle Herzog	1.0	0.0	0.5	3.0	0.0	1.5
Tim Pearce	1.0	0.0	0.5	3.0	3.0	2.0
Jon Baran	1.0	0.0	0.5	4.0	3.0	1.5
Dhaval Desai	1.0	0.0	0.5	5.0	3.0	3.5
Week Totals	4.0	0.0	2.0	15.0	9.0	8.5
Semester Totals	20.0	24.0	29.5	76.0	31.0	51.0

Project Schedule

TASK	Jan	Feb				Mar					Apr			
DATES	26	2	9	16	23	2	9	16	23	30	6	13	20	27
PROJECT WORK														
Brainstorming Ideas														
Research														
Designing Prototypes														
Choosing a Prototype														
Obtaining Materials														
Building Prototype														
Testing Prototype														
Modifications														
COURSE DELIVERABLES														
PDS														
Mid-semester Report														
Mid-semester Presentation														
Final Report														
Final Presentation														
Weekly Reports														
Notebooks														
MEETINGS														
Team Meetings														
Client Meetings														
Advisor Meetings														
BSAC Meetings														
OTHER														
Web Page														
Special Lectures														

Expenses to Date: \$20.00 (Poster)