Project Abstract
IPRO Team 372 Fall 2004

Medical Informatics
IPRO 372

Objectives:
The objective of IPRO 372 was to explore solutions for the field of medical informatics, specifically, to create an ecological display that would be effective in communicating information to clinicians and further improve healthcare for individuals. This work is necessary because of the current limits of systems and technologies in the medical field in displaying and communicating useful information in a complex environment that deals with patient data. The shortcoming of developers of these systems in realizing the complex array of data and its corresponding relationship with the cognitive aspects involved in patient care and monitoring has put clinicians and staff at a disadvantage in current healthcare environments.

Conclusions:
In this project, the team has come up with several key findings through research, and observations made in real world settings such as the intensive care unit of a hospital. One aspect that the team has explored is the cognitive nature of the decision making process in working with large amounts of data. We have surmised that technology is only effective when information is displayed in a comprehensible and non-cognitively taxing way. Other findings include those that make an effective ecological display such as the ability to view different types of patient information in one screen and having a user-configurable display that provides the most pertinent data available to the clinician.

Results:
The IPRO team has come up with several criteria and solutions in creating a practical and effective ecological display that include observability, the ability to accurately synthesize data and ease of clinician programming. Furthermore, a usability assessment can be done of the prototype ecological display in order to eliminate or improve upon the tasks that caused error during task performance. Further work would need to be done in developing display systems integration and intercommunication. Also, ethnographic research in the healthcare work domain is necessary to enhance the effectiveness of such displays.

Faculty and Advisors
Dr. Christopher Nemeth, PhD
Dr. Mark Nunnally, M.D.
Dr. Michael O'Connor, M.D.

Team Leader
Predrag Barac, CHE

Student Members
Mehak Dhingra, ECE
Ricardo Herrera, BIO
Alfred Ladores,CAE

Samantha Paruchuri, PSYC
Oliver Skuza, PSYC