PROJECT PLAN
IPRO 325
Designing Affordable Water, Energy, and Shelter Solutions for the World's Rural Poor
Friday, February 22, 2008

IPRO 325

Objective

Design, build and test energy, water or shelter solutions costing $5 or less that can be implemented and maintained by local people using locally available materials.

Background

For the past four semesters, IPRO 325 has focused on helping solve problems that the world's poor face. In fall 2006, the team identified the three most severe problems that they should focus on: water, energy and shelter.
The next two semesters focused on improving awareness of poverty and its effect around the campus. Finally, in the fall 2007 semester, the team was successfully able to implement their three subgroup projects in Peru and Nicaragua.
This semester, the team will focus on making adjustments from last semester's projects and studying new ideas for the world's poor. The team has divided into three subgroups again: water – composting toilets, energy – barrel stoves and shelter – evaporative cooling systems. The team also added two other subgroups, the field testing and implementation subgroup and the fundraising subgroup, to help our projects actually take place in our world's rural poor.

Water - Composting Toilet Subgroup

1.0 Objective

Develop a design of a prototype for a composting toilet that would help the world's rural poor in the water conservation of the community, and provide them with a simple, low cost and affordable solution that can be easily fabricated by the target population.

2.0 Background

Most of the rural population in poor countries does not have access to safe and reliable toilets. There is a need for the construction of simple, low cost, affordable toilets that are easy to build and maintain and are relatively free of odors and flies. The end result of this natural process `is a valuable humus-like soil, which can be used to enhance the growth of both trees and vegetables. The processing of human excreta, both humus and urine, is best integrated into a broader scheme of recycling all organic products in both the home and the garden. This is also a good option in a community where there is lack of water and maintenance of sewage processing systems. Even used water - greywater - can be recycled in such a way that it can enhance the production of food.

3.0 Methodology

The problem faced is that much of the world's population lives in rural and underdeveloped areas lacking adequate living conditions-largely lack of water and safe and dependable toilet. To combat this problem the composting toilet subgroup will focus on the efficiency of the toilets and methods to implement the working prototype in the target community. The subgroup will research the current composting toilets both used by the rural poor and the commercially available models, to create a toilet that is as, if not more, efficient using local building materials.

To accomplish this we must:

- -Define a region to focus our time on within Latin and/or South America.
- -Select Composting Toilet designs to improve
  - -Toilets based on number of chambers that can be alternated between and continuous removal systems.
- -Find results by looking at results of precedent cases.
- -Design, build and test IIT composting toilets against standards.
- -Produce final report of findings.

Potential solutions to the problem of efficiently functional toilets will be based on several criteria. The Composting toilets will provide an easily distinguishable increase in benefits to the currently employed method.

To accomplish this we must:

- -Design new composting toilet based on research to increase efficiency.
- -Test new design to see efficiency can surpass commercial composting toilet.
- -Based on tests and time, improvements may be made to improve the toilet design.
- -Possibility of actual field test in rural area.

The research and data collected will be documented and archived in two locations. One of those being iGroups/iKnow, which will present the material to anyone who wishes to see the work that has to be done. Another place the information will be available will be the Water notebook, which should be electronically published. These two methods provide easy access to all the

work done so that future IPRO groups do not waste time on doing work that has already been completed.

To accomplish this we must:

-Organize our tests into easily readable charts.

-Post research and testing results on iGroups.

Analysis of the test will simply be to compare the testing results to the results of commercial composting toilets. If the IIT composting toilet works efficiently and can be made of local materials, the project will be successful.

To accomplish this we must:

-Compare both qualitative and quantitative testing results.

-Create a report summarizing our findings.

The final product will consist of an organized report which summarizes and details all of the findings during this project. The report will consist of all work done including research, design and testing.

To accomplish this we must:

-Create and organize introduction, conclusion and final proposition pages.

-Compile and submit all research in one report with the possibility of prototypes.

4.0 Expected Results

The goal of the composting toilet subgroup is to improve the environmental and sanitation conditions of the local rural population, conserve their limited water supply and provide them with a composting (biological) toilet that will produce soil-like material called humus. The humus has high nutrient levels that are slowly released to plants on demand.

There are many different designs of composting toilets, but all carry out this basic process of aerobic decomposition. To support the initial development of the team, we will come up with a set of designs for the initial model. Since design variations enhance the process, we will choose a prototype that best suits the specific needs of the local community and implement them at a trial site. The results of the tests will determine the viability of our prototype. The prototype is intended to function as well as a commercially available model, yet only cost a fraction of that price.

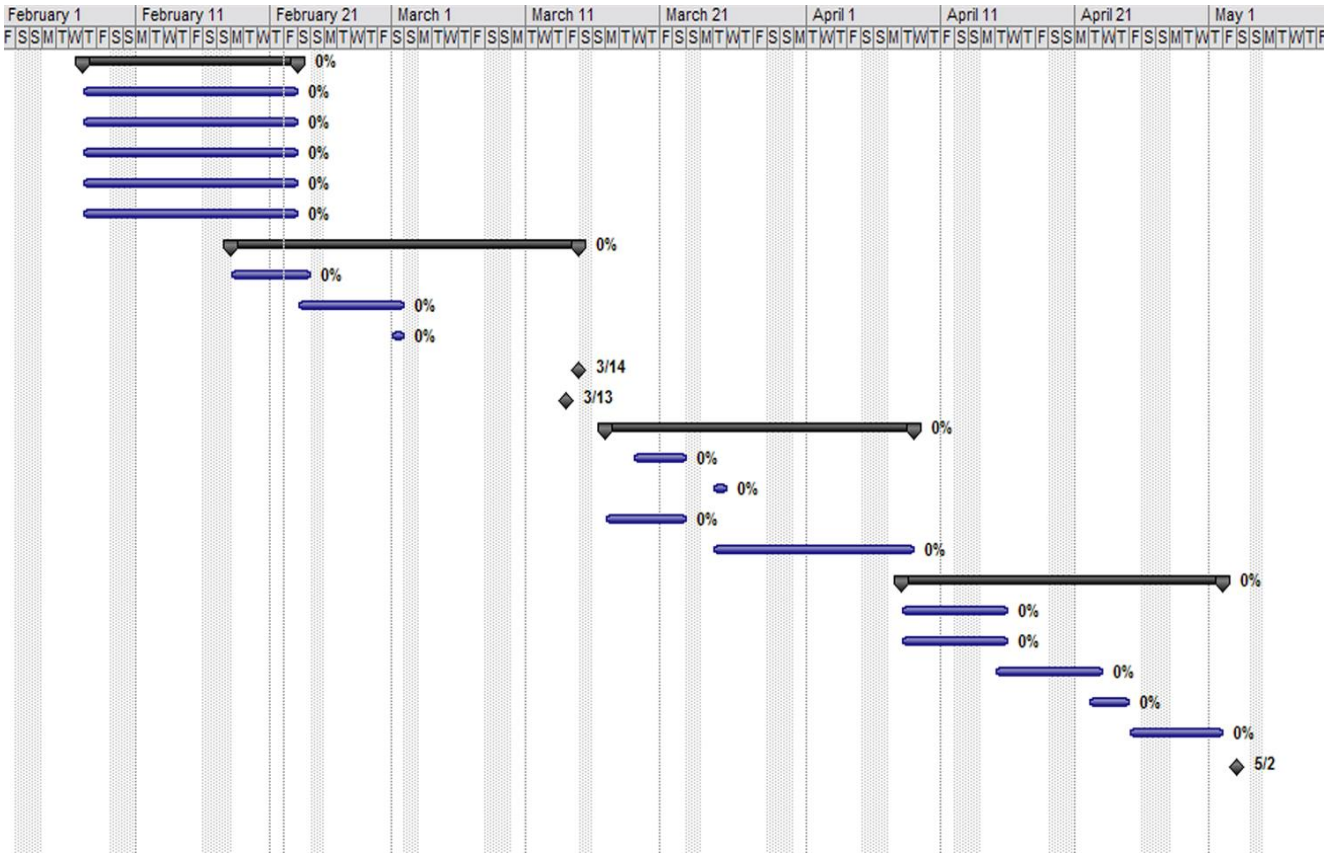
Achieving these results would reduce the water consumption, reduce rubbish collection, reduce health risks and create valuable compost that can be reused. The wide scale use of the toilet would ultimately positively affect the environment.

5.0 Project Budget

Item	Description	Price
Building Materials	Materials needed to build prototype. (Wood, cardboard, concrete, paint, etc)	$300
Testing Materials	Humidity Detector, Heat lamp, thermometer, etc.	$100
Scale Model Materials	Materials needed to build scale model. (Acrylic, wood, metal, etc.)	$100
Educational Materials	Materials to aid in educating local populace. (Handouts – Laminated or not)	$100 TOTAL = $600

6.0 Schedule of Tasks and Milestone Events

	Task Name	Duration	Start	Finish	Resource Names
1	**Phase 1: Research**	**12 days?**	**Thu 2/7/08**	**Fri 2/22/08**	
2	Current Examples	12 days?	Thu 2/7/08	Fri 2/22/08	Reema ,Dan,Tomomi,Josh,Blake
3	Material Costs	12 days?	Thu 2/7/08	Fri 2/22/08	Blake,Dan,Josh,Reema ,Tomomi
4	Location Information	12 days?	Thu 2/7/08	Fri 2/22/08	Blake,Dan,Josh,Reema ,Tomomi
5	Regulations	12 days?	Thu 2/7/08	Fri 2/22/08	Blake,Dan,Josh,Reema ,Tomomi
6	Benchmark Selection	12 days?	Thu 2/7/08	Fri 2/22/08	Blake,Dan,Josh,Reema ,Tomomi
7	**Phase 2: Design & Build**	**22 days?**	**Mon 2/18/08**	**Fri 3/14/08**	
8	Indivisual Design Process	6 days?	Mon 2/18/08	Sat 2/23/08	Blake,Dan,Josh,Reema ,Tomomi
9	Analysis of New Prototype	7 days?	Sat 2/23/08	Sat 3/1/08	Blake,Dan,Josh,Reema ,Tomomi
10	Collection of Materials	1 day?	Sat 3/1/08	Sat 3/1/08	Blake,Dan
11	Building Prototype	11 days?	Sat 3/1/08	Fri 3/14/08	Blake,Dan,Josh,Reema ,Tomomi
12	Midterm Report	1 day?	Thu 3/13/08	Thu 3/13/08	Blake,Dan,Josh,Reema ,Tomomi
13	**Phase 3: Testing and Analys**	**18 days?**	**Mon 3/17/08**	**Tue 4/8/08**	
14	Obtain Testing Equipment	4 days?	Wed 3/19/08	Sat 3/22/08	Blake,Dan
15	Testing Procedures	1 day?	Tue 3/25/08	Tue 3/25/08	Blake,Dan,Josh,Reema ,Tomomi
16	Build Small Scale Model	6 days?	Mon 3/17/08	Sat 3/22/08	Reema ,Tomomi
17	Prototype Modification	11 days?	Tue 3/25/08	Tue 4/8/08	Blake,Dan,Josh,Reema ,Tomomi
18	**Phase 4: Conclusion**	**18 days?**	**Tue 4/8/08**	**Thu 5/1/08**	
19	Abstract	6 days?	Tue 4/8/08	Tue 4/15/08	Josh
20	Poster	6 days?	Tue 4/8/08	Tue 4/15/08	Josh
21	Presentation Practice	6 days?	Tue 4/15/08	Tue 4/22/08	Blake,Dan,Josh,Reema ,Tomomi
22	Question and Answer Pra	3 days?	Tue 4/22/08	Thu 4/24/08	Blake,Dan,Josh,Reema ,Tomomi
23	Final Written Report	5 days?	Fri 4/25/08	Thu 5/1/08	Blake,Dan,Josh,Reema ,Tomomi
24	IPRO DAY	1 day?	Fri 5/2/08	Fri 5/2/08	Blake,Dan,Josh,Reema ,Tomomi


February 1
February 11
February 21
March 1
March 11
March 21
April 1
April 11
April 21
May 1
0%
3/14
3/13
5/2

7.0 Individual Team Member Assignments

Name	Major	Skills	Interests
Reema Paranthan	Architecture	AutoCad, VIZ, Photoshop, Illustrator, MS Office, shop tools	Water conservation, affordable and simple implementation of composting toilets, sustainable architecture
Tomomi Tsukioka	Architecture	AutoCad, VIZ, Photoshop, Illustrator, MS Office, shop tools	Sustainable architecture, water conservation, water recycling
Blake Hellman	Architecture	Rhino, AutoCad, Photoshop, Illustrator, shop tools, construction	Sustainable design, resource management
Daniel Hutchinson	Molecular Biophysics and Biochemistry	Carpentry, Microbial Testing, Excel, Relations with Heifer Project Int., and Extensive Networking in Peru	Cultural awareness, balanced ecosystem, raising the standard of hiring of the World's poor
Joshua Bergerson	Architectural Enginnering	AutoCad, Mathcad, MS Office	Simple, effective structures

8.0 Designation of Roles

Name	Role	Task Group	Tasks
Reema Paranthan	Team leader, Ethics Organizer, agenda maker	Composting Toilet	Research, scale model, testing, prototype building
Tomomi Tsukioka	iGroups organizer, Project Plan leader	Composting Toilet	Research, scale model, testing, prototype building
Blake Hellman	Water notebook, midterm report/presenter	Composting Toilet	Research, testing, prototype building
Daniel Hutchinson	Field Testing leader, time sheet keeper , minute taker	Composting Toilet	Research, testing, prototype building
Joshua Bergerson	Midterm report/presenter	Composting Toilet	Research, testing, prototype building

Energy – Barrel Stove Subgroup

1.0 Objective

IPRO 325 energy subgroup's purpose is to take recent IPRO 325 experience in Peru and Nicaragua and construct a low-cost solution that directly relates to the world's rural poor. The energy group is concerned for the heat efficiency and CO_2 emissions relating to the inefficient stoves in the village.

2.0 Background

The contributors to our project remain anonymous but invested 50% of all expenses for traveling commodities. The other half is planned out by the fundraising team by presenting our cause to departments and establishing events. IPRO 325 is concentrated on small villages some distance away from major cities in Peru and Nicaragua. Fall 2007 IPRO 325 visited and contributed to these countries by familiarizing themselves with natives and incorporates the group's ideas to show that our institution is here to assist in villagers' daily lives. Upon recent presentations from these visits, spring 2008 IPRO 325 asserted these ideas to improve living conditions according to similar situations. The energy group is mainly concerned with the stoves being used….

Currently rocket stoves have been implemented across many different countries amongst different organizations. The rocket stove was also implemented in the winter by the recent IPRO group where a clear manual was provided to encourage others to invest in the idea. A student attempted to build the stove where villagers became excited by the idea of an efficient stove. They drove themselves to complete the incomplete stove according to the manual and as a result, an efficient and fully working rocket stove was built. The idea of a new stove stirred the community in hopes that the use of less fuel and future production can help the community grow. Although there was a break through, other villagers were concerned with the emitted smoke while cooking. It was mentioned that health was an issue due to wood smoke and that some stoves that were already implemented caused problems such as proper insulation and exhaust malfunctioning.

The main concern when entering these villages is not to lose sight of our purpose. When entering these villages, it is of great importance that the group is there to help the problems that are occurring and not to force anything that is insignificant. Another issue lies on the process of implementing a project from one culture into a completely different culture. That issue had already been analyzed by our team for what is to be expected and how to conduct ourselves as scientists in an orderly manner.

3.0 Methodology

The Energy Subgroup is concerned with the health and economic problems due to the lack of energy efficiency. The exposed smoke from a stove is a health factor and is the cause of many problems for families cooking indoors. Other villages also use a conventional way of cooking by simply using an open fire, losing a substantial amount of heat. Due to recent IPRO, it is beneficial for the group in regards to a timeframe of a semester thus a solution will be reasonable to achieve. Therefore the energy subgroup is taking the idea of the rocket stove and applying additional components that can assist with these factors. Research will be conducted on four things: exhaust, combustion chamber, insulation, and an exterior design for the new stove, and by using a commercial rocket stove as the control subject will determine the final design. Being able to organize the team as a unit and achieve our goals we:

- Apply methods according to recent IPRO experience in these regions
- Design a stove that applies to their needs
- Stay focus according to schedule to achieve milestones
- Maintain simplicity throughout the process

The construction and experimentation of the barrel stove will be conducted in Schaumburg. Members will be either transporting goods or constructing the barrel. Testing is concentrated on several main ideas: CO2 emissions, CO emissions, creosote, the temperature of barrel, temperature of insulation, amount of heat, and wood mass. The original rocket stove purchased by IPRO 325 last year will conduct as the controlled subject whereas the barrel stove will be the experimental. To conduct experimental procedures in a correct matter we:

- Organize the teammates and assign duties
- Use precise calculations for efficiency
- Stay on task according to the plan
- Maintain simplicity throughout the process must be emphasized

The group team members are conducting research and documenting all data and testing results. All material will be provided in iGroups and iKnow websites allowing IIT students to analyze previous work. An engineering notebook is also established by members of the group providing an accessible way to observe what had been conducted during IPRO. To successfully document all materials in an organized fashion we:

- Clear explanation throughout the entire experiment
- An organized manner of combining all documents

The testing procedures will be conducted in a manner where simplicity of the process is emphasized. Once the prototype is completed, the control subject and the newly created stove will be looked upon for efficiency and stability. Analyzing the results for example, carbon dioxide and carbon monoxide will determine if further modifications or additions are required. Upon those results will be the factor of this project. To be able to decide on a final decision we:

- Utilize team member's expertise to make the best judgment and as a team, come to a unanimous decision

IPRO deliverable reports will summarize the entirety of the project which summarizes the semester as a whole. For each IPRO deliverable, members are expected to complete the assignment within two weeks. Preparation is critical where constant feedback and updated results can help complete tasks.

- Time management will keep the member focused
- Making Power Point slides of results and key points every team meeting can keep ideas focused

4.0 Expected Results

Our goal is to build a working prototype of the improved institutional barrel stove. The rocket stove is very efficient, but it lacks an exhaust pipe, which still leads to potential health risk. The standard institutional barrel stove comes with an exhaust pipe, but is only good for just a certain size of pot. Our prototype will be good for all pots of all size that have a smaller diameter than the barrel.

The standard barrel stove is not insolated. From common sense and our research from the design of the rocket stoves, insolating the combustion chamber can keep the heat from going into the stove body instead of the pot and reduce some smoke. We expect our prototype to do just that.

The building of the prototype requires a knowledgeable in mathematics. When writing a paper, we are taught to pretend that the audience is a complete dummy. Therefore, our manual will be very clear and pictographic.

Our prototype is going to cost more than $5.00 due to the fact that the abundant resources in Peru and Nicaragua are not available here. That should not be alarming because according to our Field-test sub team, those building materials, such as barrels, metals and so on are very cheap over there.

Since we expect to have a working prototype by the end of the semester, we will start building and testing it next week. If the prototype does not work as planned by the end of the semester, our back up plan is to stick with the rocket when field-testing. We have done extensive researches on both the rocket and the barrel stove. With the help from the previous semester work, a manual can be created without much work.

5.0 Project Budget

Item	Description	Quantity	Price
55-gallon drum	s	2	$ 60.00
5-gallon metal can	s	1	$ -
sheet of heat resistance metal	s	1	$ 15.00
brick	s	12	$ 8.40
6-inch stove pipe	s	1	$ 13.00
punch	s	1	$ -
hacksaw	s	1	$ -
hatchet	s	1	$ -
flat & ball pen hammer	s	1	$ -
vice grips	s	1	$ -
pliers	s	1	$ -
tin snips	s	1	$ 8.00
tape measure	s	1	$ -
marker	s	1	$ -
nail	s	1 pack	
*adobe	s	1	$ -
sawdust	s	1 bag	$ -
CO2 & CO measuring device	s	1	$ 25.00
ash	s	1 bag	$ -
Other miscellaneous			$100
Total			**$ 229.40**

6.0 Schedule of Tasks and Milestone Events

1. 01/20-01/26
2. 01/27-02/02
3. 02/03-02/09
    - Beginning of research/ Responsibilities are assigned (15 hrs)
        - Combustion Chamber
        - Insulation
        - Exhaust Design
        - Stove Design

4. 02/10-02/16
5. 02/17-02/23
    - Draft of Project Plan 02/21 (8 hrs)
    - Research on different designs, structure, and efficiency pointers (15 hrs)
    - Final Project plan due 02/22 (2 hrs)
6. 02/24-03/01
    - Purchase materials needed for the project (5 hrs)
    - Learning Objective Test 02/26
7. 03/02-03/08
    - Code of Ethics due 03/07 (5 hrs)
    - Midterm Presentations (8 hrs)
8. 03/09-03/15
    - Fully constructed prototype (10 hrs)
    - Midterm Presentations
    - Midterm Written Report 03/14 (8 hrs)
        - Research
        - Preliminary Analysis
        - Proposed Solutions
        - Testing Procedures Draft
        - Benchmark Selection

9. 03/16-03/22
    - Spring Break
10. 03/23-03/29
    - Rocket Stove testing (15 hrs)
        - Analysis of tests
11. 03/30-04/05
    - Barrel Stove testing (15 hrs)
        - Analysis of tests
        - Reconstruction
12. 04/06-04/12
    - Final testing of the final prototype (8 hrs)
13. 04/13-04/19
    - Minutes Due 04/18
    - Exhibit Materials (8 hrs)
    - Presentation Slides (5 hrs)

14. 04/20-04/26
    - Abstracts, Posters and Presentations due (15 hrs)
15. 04/27-05/03
    - Final Report 05/02 (8 hrs)
    - IPRO Day 05/02
    - iKNOW uploads 05/02 (5 hrs)
16. 05/04-05/10
    - Team Debriefings

7.0 Individual Team Member Assignments

Name	Major	Skills	Experience
Brian Chung	Electrical Engineering	AutoCAD, MS Office, C++, MatLab, OrCAD, MC68000	Currently working on fuel cell research
Matthew Cosenza	Mechanical Engineering	AutoCAD, MS Office, C++, Java, MatLab	Interned at R. R. Donnelley and Sons, Camras Student Advisory Board
Jerry Jose	Aerospace and Mechanical Engineering	MS Office, C++, MatLab, ProEngineer	Capable of speaking Spanish, customer service
David Khem	Computer Engineering	MS Office, C++	Customer service, project management for community events
Chaitanya, Murti	Electrical Engineering	JMP, LaTex, MS Office, MatLab	Co-president of Amnesty International, member of Rotaract Club

8.0 Designation of Roles

Name	Role	Task Group	Tasks
Brian Chung	Team Leader, Meeting Minutes, iGroups Organizer	Project Management	Research, Scale modeling, Testing Procedures Supplies
Matthew Cosenza	Engineering Notebook, Midterm Report	Exhaust Design	Research, Testing Procedures
Jerry Jose	Engineering Notebook, Documenting	Stove Design	Research, Testing Procedures, Scale modeling
David Khem	Time Organizer, Midterm Presentation	Insulation	Research, Testing Procedures, Supplies
Chaitanya Murti	Engineering Notebook, Midterm Presentation	Combustion Chamber Design	Research, Testing Procedures

Shelter – Evaporative Cooling Subgroup

1.0 Objective

IPRO 325 focuses on creating solutions to the problems of water, energy, and shelter for the 2 billion inhabitants of the world's rural poor regions. The objective is to isolate one of the three main themes that the IPRO highlights and help design, build and field test solutions that can be constructed, implemented, and maintained by people of a targeted region utilizing local materials and priced at under $5.00 in construction costs.

IPRO 325 shelter subgroup's objective is to develop and help implement a more effective and efficient way for the world's rural poor to store food. Over the semester, the primary objective of this group will be to plan, design, and create a working prototype of an evaporative cooling refrigeration system that will successfully store food for extended periods of time. The team will be focusing on adobe and brick evaporative cooling structures and will be pitting those systems against the already successful and globally implemented double-pot evaporating cooling method. The teams primary focus will be on utilizing local materials from a targeted region to develop the more effective cooling/storage method, and will ensure that the design remains relatively cheap, efficient, and above all self-sustainable.

IPRO 325 shelter subgroup also plans to design and create a manual that will not only encompass the benefits of the developed food storage method, but also provide directions for using and assembling the system as well. The team's manual will be comprehensible regardless of the language and level of literacy of the targeted region. In the end, the shelter team hopes to pave the way for IPRO 325 to conduct in-depth research and development at sites chosen in South America for on-the-site field-testing and implementation.

2.0 Background

According to research done at Stanford University, although the world's supply of basic food has roughly doubled over the last half century this fluctuation causes an increase in consumer demand severely hurting the world's rural poor who already spend a majority of their income on food. Couple this with the fact that living in rural areas, they must travel many miles in order to acquire any food supply often with the lack of a decent means of travel. Having to travel this far for food it's no surprise they try and stock up with as much as they can, but often the case is that most of the food they stock pile will spoil before they have the chance to eat it. With this in mind finding the means to store this food for prolonged periods of time become essential to their survival.

In response to this rapidly growing problem, we are attempting to develop an affordable, sustainable, and energy efficient solutions that can be implemented by the local populace. To accomplish this, we must understand the cultural and economic differences involved, and not force our ways of life onto them but rather develop a solution that they can easily adapt to and improve their lives.

Sustainable and energy efficient evaporative cooling devices provide tremendous economic, environmental, and health benefits to the users and their communities. The cooling devices will

utilize the already sunny environment to evaporate the water in the device in order to keep food cold and give them the ability to store that food for prolonged periods of time. Needless to say this would greatly reduce the amount energy that would be needed to keep the food in storage. Evaporative cooling uses a combination of strategies to both cool and store food. These include converting the heat of the sun in order to evaporate water from the medium of the device, and utilizing the insulative properties of the adobe clay to keep the food cool. If the poor had access to these technologies, they could effectively store their food for prolonged periods of time and improve their overall way of life.

There are currently locations all over the world that are using food cooling and storing technologies, and they are achieving positive results. However, there is still much more that can be done. Implementation of our developed prototypes will begin June 2008 when students from our project team will be traveling to Nicaragua and Peru to begin field testing.

3.0 Methodology

A. The primary problems:

Design a lasting and functional yet inexpensive evaporative cooling system for rural poor to store food.
Design a straightforward and comprehensible evaporative cooling system manual for utilization and assembling of the desired system.

B. In order to solve these problems, IPRO shelter group is divided into two groups: A "Research team" and a "Development and Construction" team.

The research team will handle the overall gathering of conceptual evaporative cooling system designs, and will provide analysis and viability of testable cooling and storage methods. This entails a "data surge" of information pertaining to potential design proposals which will encompass various cooling and storage "no-energy" methods. This team will propose plans, provide potential designs, and research the various prototypes on evaporative cooling methods. This team will also gather construction of cooling method proposals, and will begin data gathering for a manual that illustrates and instructs how to assemble the evaporative cooling design.

The Development and Construction team will be studying proposed plans and potential designs. This team will begin development of these ideas, eventually leading to prototype construction and implementation of a desired evaporative cooling design. Gathering the data collected from the Research team's work on the instruction manual, the Development and Research team will finalize work on creating a comprehensible instruction manual.

C. Our goals as an IPRO are as follows:

For the Research team; provide as much information on evaporative cooling methods and designs; providing several viable options to solving the food storage problem.

For the Development and Construction team; develop and construct a practical design based on the functionality and effectiveness of the system derived from the initial "data surge" research.

Both teams will produce a manual for the full scale prototype, demonstrating the final design and solution to the food storage problem.

D. The testing of possible solutions to our problem will be fairly straightforward yet rather time-consuming. For example, the Research team will be facing a time crunch in order to successfully test a viable design before the semester is over. This means the Research team will have to research last semester's accomplishments and drawbacks to prevent repeating unnecessary work. This team will also have to decide on the most viable design, ensuring that it meets all the criteria that are created by constrictions of the targeted region. Once this is accomplished, The Development and Construction team will have limited time to build a full-scale prototype in order to exhibit the real life feel of the method.

The shelter group's intention is that a "Field Team," or on-site group of volunteers, will be able to fully implement our system in the targeted region during the field testing phase of the IPRO in the summer. There is the intent to send a small number of students to rural regions of South America to meet with the communities that are in dire need of food storage methods. This field testing will provide extremely valuable information regarding the specific needs of targeted rural poor communities and will assist future IPROs in fine-tuning our design for greater efficiency and effectiveness.

E. The results from prototype researching will be documented and posted on the shelter subgroup's folder on iGroups. The Research team will work individually as well as together to produce plans, drawings, designs, and models that will be discussed and revised at IPRO meetings and gatherings outside of class. The Development and Construction team will work collectively to build a prototype for testing and development data gathering. The time used towards developing these IPROs solutions will be recorded in the iGroups timesheet folder.

F. Analysis of research and testable results will occur at every meeting of the IPRO. Analysis of test data will be the discussion of whether or not the data/input we received helps or hinders our
objective and how the teams should respond to these results. If the data is positive, the teams will figure out what the next step is to take advantage of the results. If the data hinders our objective, the teams will discuss how to fix the problem, and evaluate what direction to take towards greater efficiency and design viability.

G. The tasks involved in generating IPRO deliverables will be assigned amongst individuals in the shelter group and dividing the remaining work evenly amongst the two teams. Deadlines will be set by the shelter group's lead, and the leaders from each of the teams will present their initial findings to the group for peer editing. This will allow everyone to have the opportunity to review mistakes and or critique both the team's and group's overall progress. Scheduling of tasks will be handled by each team's leaders, and will be reviewed and updated at each IPRO meeting.

4.0 Expected Results

IPRO 325 shelter subgroup intends to develop and implement a more effective and efficient way for the large portion of the world's rural poor to store food. Because IPRO 325 is constrained by rural poor region's lack of electricity, financial restrictions, and various other associated problems, the shelter group intends to ameliorate these limitations by creating a zero-energy refrigeration system using the process of evaporative cooling.

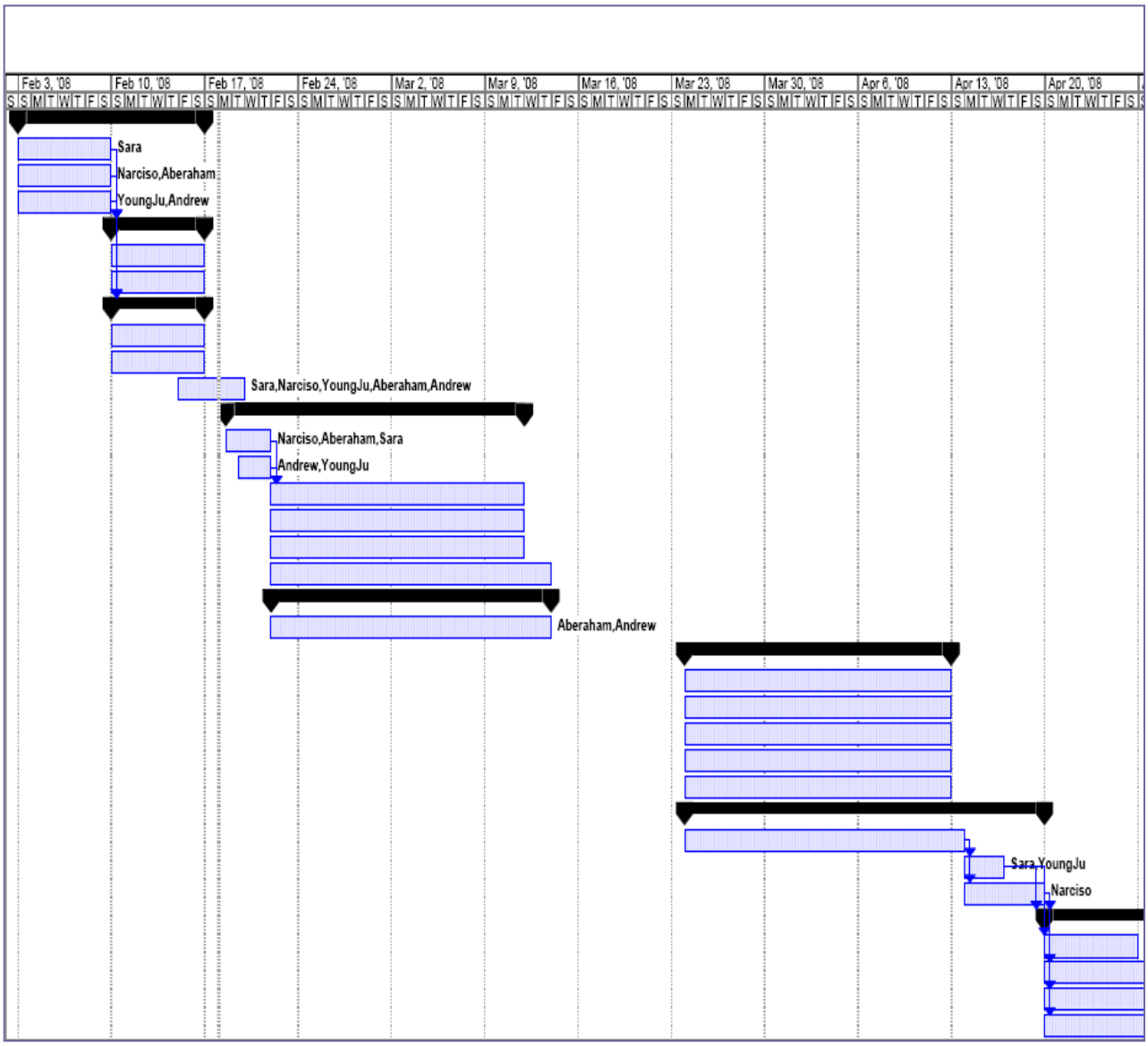
The shelter subgroup will provide a system that is simplistic, and energy-efficient. The system will be constructed from materials and resources indigenous to the targeted region, which will make the storage method both cost-efficient and self-sustainable. This team also intends to provide a prototype that performs in accordance to the team's projected goals and set guidelines. These criteria may include, but are not limited to, costs, time constraints, and availability of resources. In the end, IPRO 325 expects to design a cooling and storage prototype that is more efficient than existing "no-cost" refrigeration systems already implemented globally.

IPRO 325 shelter subgroup also expects to design and create a manual that will provide directions for using and assembling the evaporative cooling system. The team's manual will be comprehensible regardless of the language and level of literacy of the targeted region.

5.0 Project Budget

Prototype materials	Cost	Amount	Total cost
Sand	$25	1	$25
Brick	$0.79	100	$79
Clay pot	$300	1	$300
Lumber for molds	(4$)	5(If needed)	($20)
Water	Free		
Pottery wheel	($600)	1(If needed)	($600)
Clothes	$3	2	$6
Metal barrels	Free	If needed	
Plastic	$10	2	$20
Testing Supplies			
Fruits& vegetables	$40		$40
Thermometer/Hygrometer	$25	2	$50
Humidifier	Borrow	1	
Sunlamp	$49.98		$49.98
Manual Supplies			
Printing	$100.00		$100.00
Estimated project total cost			**$669.98($1289.98)**

6. Schedule of Tasks and Milestone Events



ID	Task Name	Duration	Start	Finish	Resource Names
1	**Phase 1:Research**	**11.2 days?**	**Sun 2/3/08**	**Sat 2/16/08**	**Sara,Narciso,YoungJ**
2	Past cooling system	5.6 days?	Sun 2/3/08	Sat 2/9/08	Sara
3	Background Research	5.6 days?	Sun 2/3/08	Sat 2/9/08	Narciso,Aberaham
4	Prototype Research	5.6 days?	Sun 2/3/08	Sat 2/9/08	YoungJu,Andrew
5	**Pot in pot system**	**5.6 days?**	**Sun 2/10/08**	**Sat 2/16/08**	
6	Research	5.6 days?	Sun 2/10/08	Sat 2/16/08	
7	Design	5.6 days?	Sun 2/10/08	Sat 2/16/08	
8	**Brick system**	**5.6 days?**	**Sun 2/10/08**	**Sat 2/16/08**	
9	Research	5.6 days?	Sun 2/10/08	Sat 2/16/08	
10	Design	5.6 days?	Sun 2/10/08	Sat 2/16/08	
11	**Project plan**	4 days?	Fri 2/15/08	Tue 2/19/08	Sara,Narciso,YoungJu
12	**Phase 2: Build**	#########	**Mon 2/18/08**	**Tue 3/11/08**	**Sara,Narciso,YoungJ**
13	Get materials	2.67 days?	Mon 2/18/08	Thu 2/21/08	Narciso,Aberaham,Sa
14	Find place to test and build	2 days?	Tue 2/19/08	Thu 2/21/08	Andrew,YoungJu
15	Construct pot in pot systems	15.2 days?	Fri 2/22/08	Tue 3/11/08	
16	Constuct brick system	15.2 days?	Fri 2/22/08	Tue 3/11/08	
17	Clean up	15.2 days?	Fri 2/22/08	Tue 3/11/08	
18	**Midterm report**	16.8 days?	Fri 2/22/08	Thu 3/13/08	
19	**Midterm presentation**	**16.8 days?**	**Fri 2/22/08**	**Thu 3/13/08**	
20	Practice midterm presentation	16.8 days?	Fri 2/22/08	Thu 3/13/08	Aberaham,Andrew
21	**Phase 3:Test & Analysis**	**16 days?**	**Mon 3/24/08**	**Sat 4/12/08**	
22	Optain testing equipment	16 days?	Mon 3/24/08	Sat 4/12/08	
23	Test Pot in pot system	16 days?	Mon 3/24/08	Sat 4/12/08	
24	Test Brick system	16 days?	Mon 3/24/08	Sat 4/12/08	
25	Test additional system	16 days?	Mon 3/24/08	Sat 4/12/08	
26	Document	16 days?	Mon 3/24/08	Sat 4/12/08	
27	**Phase 4: Review & improvement**	**21.6 days?**	**Mon 3/24/08**	**Sat 4/19/08**	
28	Evaluation & improvement	16.8 days?	Mon 3/24/08	Sun 4/13/08	
29	Make manual	2.4 days?	Mon 4/14/08	Wed 4/16/08	Sara,YoungJu
30	Translate manual into Spanish	4.8 days?	Mon 4/14/08	Sat 4/19/08	Narciso
31	**Phase 5: IPRO day preparation**	**10.4 days?**	**Sun 4/20/08**	**Fri 5/2/08**	
32	final report	5.6 days?	Sun 4/20/08	Sat 4/26/08	
33	prepareing materials for IPRO	10.4 days?	Sun 4/20/08	Fri 5/2/08	
34	Prepare presentaion	10.4 days?	Sun 4/20/08	Fri 5/2/08	
35	Question and Answer Practice	10.4 days?	Sun 4/20/08	Fri 5/2/08	

7.0 Task Assignments

Name	Major	Skill	Interests	Assignments
Abraham Akutagawa	architecture	CAD Drawing Illustrator, Photoshop	Golf, tennis. Keyboard, Drawing	-Worked on research -Get materials
Andrew Rust	biology	Construction, Computing,	Computing, Botany, Architecture, Graphic Design	-Leader of Group -Worked on Design
Narciso Corral Jr	Political science	Microsoft office, Autocad, Internet familiar, Fluent Spanish	Civil/Combat Engineering Military background	-Worked on project plan actively -Went to ethics workshop -Communicates with foreign nations in Spanish -Will make manual
Sara Wilde	Psychology	Microsoft office, Problem solving, Group projects	Psychology, Travel	-Went to ipro games -going to learn Spanish to help in country -Invited previous Ipro team for cooling subgroup. -Worked on research
YoungJu Jo	electrical engineering and applied mathematics	Microsoft Office Specialist, Photoshop, Illustrator, Matlab Flash Fluent Korean	Drawing, Graphic Design, Mathematics, Digital and data communication, Travel	-Project Plan Workshop -Contacted with 2007 Ipro member. -Worked on design

8.0 Designation of Roles

Group Roles	Team Members
Subgroup Leader	Andrew Rust
Minute Taker, Site maintenance, Ethics Code Coordinator	Narciso Corral Jr
Agenda maker , Field test and implementation messenger	Sara Wilde
Project & Testing manager Field test and implementation messenger	Young Ju Jo
Timesheet collector & Keeper	Abraham Akutagawa

-Minute Taker: Keep track of Group meetings by providing summary of prior work and recording progress on paper for referencing.

-Site Maintenance: Ensure gathering and testing site are safe and properly accounted and maintained for.

-Ethics Code Coordinator: Coordinate group with work towards developing code of Ethics for IPRO.

-Agenda maker: Scheduling meetings, places and times to build and test our prototype.

-Field and implementation messenger: Make sure the cooling subgroup gets all of the information and announcements that we talk about in the field testing group.

-Project & Testing manager: Planning and execution of the cooling system project to minimize risk throughout the lifetime of the project.

-Testing manager: Coordination of all testing efforts across the Cooling projects and driving to the details within each project for the testing effort.

-Timesheet collector & Keeper: Collects timesheet from team members for consistent check-up for individual contribution.

Research team	Development & Construction
Sara Wilde (Past IPRO cooling system research) Abraham (Background research) Narciso Corral Jr (Cooling system research focus on zeer pot)	Andrew Rust (Prototype design so far) YoungJu (Prototype design so far)

Project Plan Report: Field Testing and Implementation Subgroup

1.0 Objective

IPRO 325 field-testing and implementation subgroup's objective is to test and implement low-cost solutions addressing the water, shelter, and energy needs of the world's poor. Our first objective is to evaluate the various political, social, economic, and cultural aspects of the locations being considered, which include Peru, Nicaragua, and India. In addition, we will evaluate the weather, resources, and other physical characteristics of these areas. The second objective is to organize and plan the trip for the individuals that will go to the chosen location. The third objective is to determine the feasibility of the barrel stove, evaporative cooling, and composting toilet designs in the chosen location by running tests of the developed designs. The finally objective is to develop a method of implementing the designs in a way that the local populace will be able to understand the methods required of them to make the products themselves. This includes developing a manual that is understandable to people of any language or level of literacy.

2.0 Background

Many ideas and designs have been developed to help the rural poor of the world. However, many of these ideas were not developed with the culture and the resources of the local populace in mind. In addition, many of the products developed to help the poor are expensive and/or difficult to rebuild or replace since the materials that comprise the product is not found locally. Finally, if a design is found that is affordable and can be made from local materials, it will not work if the people in the area do not know how to use the product.

The previous IPRO developed fully functional devices to aid the poor that were both low cost and were made from local materials. However, when students went to Peru and Nicaragua, the needs of the people were different from what had been anticipated. For example, although a product was made to reduce water turbidity, the water in both locations was clear enough for the device to be unnecessary. On the other hand, the rocket stove was a solution that was developed and implemented with great success due to there being a need for a more efficient method of cooking.

Therefore, planning for the trip is important to implement the developed solutions in the chosen locations in an effective manner. Having members of the group learn Spanish is also very important in implementing the water, energy, and shelter solutions, since speaking with the local people is necessary in many situations. Moreover, learning about the countries and locations to which the group will be traveling allows the members of the group to better prepare for the time that is spent there. Furthermore, field-testing allows the developed solutions to be redesigned in order to be more effective and increase the chance of the success of the product, making a difference in the lives of the people in these locations.

Finally, developing a field manual that is easily understood is important for the developed solutions to be used by more people than the individuals traveling overseas can teach. The developed designs can then be spread quickly and easily, allowing the rural poor in various villages and communities to better their lives.

3.0 Methodology

The Field Testing and Implementation (FTI) Subgroup is concerned with the organization and preparation for a group to fly abroad and conduct work to provide assistance. IPRO 325 is comprised of students and not professionals therefore exposing themselves to cultures besides our own. To even begin to implement any type of aid, the group must become culturally aware of their surroundings respecting customs such as mannerisms, traditions, and laws. For that reason, the FTI subgroup will research, prepare, and establish a ground for students to be capable on entering countries and understand what it means to implement. Research and team organization will be conducted to achieve three main goals: Cultural awareness, trip itinerary, and field manuals. To be able to provide these solutions for the group we:

- Applying methods according to recent IPRO experience
- Conduct research on the country of destination and study economic structure, the village's main issue, the natives, and the culture
- Compiling detailed product outlines from all three subgroups and produce a clear and concise manual
- Synchronize a schedule with UMass
- Trip planning which consists of visas, tickets, immunization dates, shelter arrangements

The FTI subgroup is composed of members from three main subgroups, Energy, Composting Toilets, and Cooling and to successfully achieve these goals, the group must be well organized and resourceful. Maintaining clear communication between the three groups will allow the members arrange important documents and set dates for the trip plan. All material will be provided in iGroups and iKnow websites allowing IIT students to analyze previous work. To successfully document all materials in an organized fashion we:

- Simplifying the matter into clear designs
- Keep an organized manner in combining all documents

When analyzing the itinerary, manuals, and research, the recent IPRO experience will be used as a comparison upon making judgment in regards to revisions and alterations. Professors, contacts, and members with similar experience can also provide an image of what is necessary and essential for a completed prototype.

- Utilize resources to make the best judgment and as a group, come to a unanimous decision

IPRO deliverable reports will summarize the entirety of the project which summarizes the semester as a whole. For each IPRO deliverable, members are expected to complete the assignment within two weeks. Preparation is critical where constant feedback and updated results can help complete tasks.

- Time management will keep the member focused
- Making Power Point slides of results and key points every team meeting can keep ideas focused

4.0 Expected Results

The team shall research potential trial sites and communities to understand the different legal, political, social, economic, cultural and physical factors that could affect the field testing and implementation group. The focus is to improve the health and living condition in the chosen location, with the locations in consideration being Nicaragua, Peru and India respectively. We will be on implementing the barrel stove, evaporative cooling and composting toilet designs, and providing the local population with proper information in the form of visual field manuals, workshops and other educational materials that are simple for them to understand and employ even after our departure.

Achieving the Expected Result will help these rural poor communities to conserve water, reduce health risks and have energy options that are simple and safe.

5.0 Budget

ITEM	DESCRIPTION	QTY	PRICE
Building Materials: Barrel Stove, Composting Toilets and Evaporative Cooling.	Materials needed to build prototype. May include, but not limited to wood, plastic, barrel, sealant, etc.	3	$430
Educational Materials	Materials to educate local population. May include, but not limited to laminated handouts, videos, puppets, etc.	3	$30
Vaccinations and Visas	Vaccinations and visas based on Foreign Travel rules	9	$900
Spanish Speaking	Spanish learning classes or learning software like tapes.	9	$900
	TOTAL		$9910

6.0 Schedule of Tasks and Milestone Events

1. 01/20-01/26
2. 01/27-02/02
3. 02/03-02/09
4. 02/10-02/16
    - Destination Research (10 hrs)
        - Contacting Dr. Duffy from UMass
5. 02/17-02/23
    - Draft of Project Plan 02/21 (8 hrs)
    - Destination (5 hrs)
    - Final Project plan due 02/22 (2 hrs)
6. 02/24-03/01
    - Learning Objective Test 02/26
7. 03/02-03/08
    - Code of Ethics due 03/07 (5 hrs)
    - Midterm Presentations (8 hrs)
8. 03/09-03/15
    - Trip Decisions 03/09 (5 hrs)
        - When/Who/Duration of the trip
    - Midterm Presentations
    - Midterm Written Report 03/14 (8 hrs)
        - Research
        - Preliminary Analysis
        - Benchmark Selection
        - Proposed Solutions
        - Testing Procedures Draft
9. 03/16-03/22
    - Spring Break
10. 03/23-03/29
    - Subgroup materials for manuals (5 hrs)
    - Descriptive outline of procedure (5 hrs)
11. 03/30-04/05
12. 04/06-04/12
13. 04/13-04/19
    - Complete Field Manuals (15 hrs)
    - Complete Itinerary (15 hrs)
    - Minutes Due 04/18
14. 04/20-04/26
    - Abstracts, Posters and Presentations due (15 hrs)
15. 04/27-05/03
    - IPRO Day 05/02
    - Final Reports 05/02 (8 hrs)
    - iKNOW uploads 05/02 (5 hrs)
16. 05/04-05/10
    - Team Debriefings

- Cultural Awareness (2 hrs)
- Field Planning Summary (2 hrs)

7.0 Task Assignments

Name	Major/Minor	Skill	Interests & Experience
Brian Chung	Electrical Engineering	AutoCAD, MS Office, C++, MatLab, OrCAD, MC68000	-Learning other culture (ex. Chinese culture , Indian culture) Work for the Office of Technology Service at IIT and Hot Wok Village in Hoffman Estates, Illinois.
Chaitanya Murti	electrical engineering	MathLab, JMP. proficient at LaTex, Microsoft Office (Word, PowerPoint and Excel)	-Interacting with people of other disciples and cultures.
Daniel Hutchinson	molecular biophysics and biochemistry	Leadership, exceptional customer service	-Mentoring, tutoring his fellow students and helping other people, -Work part time as a residential door guard for IIT and a cook for Pizza Hut.
Jerry Jose	aerospace engineering and mechanical engineering	exceptional customer service, multi-tasking skills, Microsoft Office (Word, Excel, Office, PowerPoint, Publisher), MatLAB , familiar with C++	-Worked with cement and channeling water, Learning Spanish
Josh Bergerson	architectural engineering	Drafting, AutoCad, MathCad Microsoft Office (Word, Excel, PowerPoint & Internet Explorer)	A day camp counselor for the Northwest Family YMCA in Shoreview Minnesota.

Reema Paranthan	architecture	AutoCAD, AutoDesk, Viz, Adobe Photoshop CS2, Microsoft Office (Word, PowerPoint and Excel Fluent Hindi, Malayalam and familiar with Arabic.	-Worked as a medical sales representative for LasikPlus Vision Center and patient screener coordinator for Radiant Research in Cincinnati, Ohio most of her time dealing with the public.
Sara Wilde	psychology	Microsoft office, Problem solving, Group projects	-A valuable member of a lifeguard team at Breakers Water Park -Active member of varsity soccer at IIT
YoungJu Jo	electrical engineering and applied mathematics.	MOS Master (Microsoft Office Specialist), Photoshop, Illustrator, Matlab, Flash	-Drawing, -Graphic Design, -Mathematics, -Travel -Tutoring kid in orphanage house

8.0 Designation of Roles

Itinerary	Brian Chung, Daniel Hutchinson	
Manual	**Energy part**	Chaitanya Murti, Jerry Jose
	Compost Toilet	Reema, Josh Bergerson
	Cooling system	Sara Wilde, YoungJu Jo

Fundraising Subgroup

1.0 OBJECTIVE

While the other IPRO325 subgroups – energy, water, shelter and field-testing & implementation are working hard to come up with the best solutions possible for the presented problems in the rural poor communities around the world, the fundraising subgroup is dedicated to raising an amount of $5,000 which would aid these subgroups in financing the overseas travel cost. Once the successful testing of the prototype design is accomplished during the course of the semester, IPRO325 wants to ensure that those who volunteer to do the field tests at the selected communities/locations will be able to do so without having to worry about the building material and travel costs.

2.0 BACKGROUND

IPRO325 is grateful to the anonymous donor who supports 50% of the overseas travel cost. We do not want to impose this extra financial stress, over their college expense.
Last semester, IPRO325 did a commendable job in designing and producing their prototypes. However, out of seventeen members, only four students did the field-testing in Peru and Nicaragua. One of the reasons that might have led to them missing out on this opportunity to get a first hand experience on implementing their work and see the results could be the travel cost. A mistake that the previous IPRO325 made was not to plan the travel budget early – there was no fundraising or field-testing & implementation subgroup. Two of the members who went overseas were fortunate to receive a grant from the chemistry department while the other two had to depend on their parents to sponsor their trip.
This semester is going to be different. We have learned from their mistakes and we have made an early start. None of the students on the fundraising subgroup has had any fundraising experience; so we have sought advice from those who are very familiar with the process, such as the Director of IPRO, Dr. Jacobius and the Director of Research from the Office of Institutional Advancement, Ms. Melissa Lee.

3.0 METHODOLOGY

"Fundraising" is not as easy as one might have thought sine nobody wants to giveaway their money. However, if we can clearly express our mission into a more personalized and touching way, we can get people to listen to us. Once we have some listeners, we are more likely to get them involved in our program. Even if they are unable to support us financially, they will help spread the word.

Our initial steps are:

- To have a clear objective of what IPRO325 is all about.
- To know what was accomplished during the previous semesters.
- To be able to describe the procedures in designing and building all the prototypes from this semester.

- To know exactly how the travel budget is allocated.
- To put together a brief presentation with a summarized information of the IPRO.

Fundraising subgroup is composed of members from the three main subgroups- energy, water and shelter. To successfully achieve the initial step, the group must be well-organized, resourceful, flexible and expressive. Keeping clear communication between all the subgroups will help speed up the process and avoid unwanted frustration and errors. After all, we are working against time. All the messages will be kept in iGroups and iKnow.

After doing an extensive research on how to successfully do a fundraising, the members start discussing possible ways, including pros and cons of the different fundraising methods and then decide which would be the most effective. We choose to explore: the Board of Trustees, the Department Chairs of all the members represented in IPRO325, alumni, "bake sales", scholarship extension, and a few other clubs. Since we are not guaranteed to get the fund and time is sensitive, we:

- Divide and conquer.
- Assign each member to specific methods according to their expertise or volunteerism.
- Assist each other when the other is unable to deliver a task.

In order to present to the Board of Trustees, we must follow the following protocols:

- Meet with Dr. Jacobius.
- Persuade the staff in the Office of Institutional Advancement.

In order to get any alumnus to sponsor us, we must:

- Talk to a staff member in the Alumni Relations which is under the Office of Institutional Advancement.
- Be able to demonstrate our leadership.

To successfully do the "bake sale", we must

- Start early since the profit is small.
- Be very organized.
- Be able to convey our messages.
- Do it often.
- Seek help from the various organizations on campus.

All fundraising members must be able to:

- Be patient, patient and patient.
- Take rejection without getting frustrated or angry.
- Appreciate the prospects' time even if there is no contribution.
- Be grateful and cheerful for the opportunity.

4.0 EXPECTED RESULT

A wise man once said: "When there is a will there is a way." Giving up is not the answer. Fundraising subgroup will continue to be active until time expires, or the goal is achieved. If all the protocols are followed, we will be able to realize our goal, or to raise a decent amount of money to the very least. In the occasion that we exceed our expectation, we still stick to our budget plan and whatever left will be saved for the future project of IPRO325.

What makes fundraising subgroup works even harder is that the members want to be apart of transforming lives, not just regular lives, the world rural poor's lives, which is to comply with IIT's mission: "To advance knowledge through research and scholarship, to cultivate invention improving the human condition, and educate students from throughout the world for a life of professional achievement, service to society, and individual fulfillment." Those who volunteer to field-test sacrifice their valuable time from a summer vacation, job, internship, or friends and family. Whether it is through fundraising, or the other four subgroups, together we can make a difference. That is what IIT and IPRO325 is all about.

5.0 PROJECT BUDGET

Item	Description	Price
Cooking Materials	Ingredients, cooking utensils	$50
Other Miscellaneous		$50 Total = $100

6.0 SCHEDULE OF TASKS AND MILESTONE EVENTS

Week I (01/22 – 01/25)

- N/A

Week II (01/28 – 02/01)

- N/A

Week III (02/04 – 02/08)

- N/A

Week IV (02/11 – 02/15) - 5 hrs

- Form the Fundraising Subgroup.
- Discuss about fundraising methods.
- Assign tasks

Week V (02/18 – 02/22) – 15 hrs

- Reassign tasks
- Draft, finalize and submit the project plan.
- Talk to Mr. Jacobius about how to meet one of the Trustees.
- Talk to Mr. Baker from the Rotary Club.
- Talk to Ms. Lee from the Office of Institutional Advancement about asking an alumnus to be a donor.
- Find effective methods of "Bake Sales".
- Progress report.

Week VI (02/25 – 02/29) – 10 hrs

- Learning Objective Test.
- Continue the process of meeting a Trustee and an alumnus.
- Discuss about the ideas received from the Rotary Club.
- Discuss about possible scholarship expansion.
- Discuss about the most effective "Bake Sales".
- Progress report.

Week VII (03/03 – 03/07) – 20 hrs

- Codes of ethics
- Continue the process of meeting a Trustee and an alumnus if necessary.
- Start approaching the Department Chairs if necessary.
- Initialize the "Bake Sales" action if necessary.
- With the ideas from the Rotary Club, put them into action.
- Progress report.

Week VIII (03/10 – 03/14) – 20 hrs

- Midterm written report
- Continue the process of meeting a Trustee and an alumnus if necessary.
- Continue talking to the Department Chairs if necessary.
- Continue the actions from the "Bake Sales" and the Rotary Club if necessary.
- Progress report.

Week IX (03/17 – 03/21)

- Spring Break

Week X (03/24 – 03/28) – 15 hrs

- Continue the process of meeting a Trustee and an alumnus if necessary.
- Continue talking to the Department Chairs if necessary.
- Continue the actions from the "Bake Sales" and the Rotary Club if necessary.
- Progress report.

Week XI (03/31 – 04/04) – 10 hrs

- Continue the process of meeting a Trustee and an alumnus if necessary.
- Continue talking to the Department Chairs if necessary.
- Continue the actions from the "Bake Sales" and the Rotary Club if necessary.
- Progress report.

Week XII (04/07 – 04/11) – 10 hrs

- Reevaluate our approaches of fundraising if we still haven't achieved our goal by then.
- Start a new process of meeting a Trustee and an alumnus if necessary.
- Continue talking to the Department Chairs if necessary.
- Continue the actions from the "Bake Sales" and the Rotary Club if necessary.
- Progress report.
- Reorganize meeting minutes.

Week XIII (04/14 – 04/18) – 10 hrs

- Submit meeting minutes
- Continue the process of meeting a Trustee and an alumnus if necessary.
- Continue talking to the Department Chairs if necessary.
- Continue the actions from the "Bake Sales" and the Rotary Club if necessary.
- Progress report.
- Start working on abstracts, posters & presentations.
- Start working on final report.

Week XIV (04/21 – 04/25) – 10 hrs

- Submit abstracts, posters & presentations.
- Continue the process of meeting a Trustee and an alumnus if necessary.
- Continue talking to the Department Chairs if necessary.
- Continue the actions from the "Bake Sales" and the Rotary Club if necessary.
- Continue working on final report.
- Progress report.

Week XV (04/28 – 05/02) – 15 hrs

- Submit final report.
- IPRO Day
- Continue the process of meeting a Trustee and an alumnus if necessary.
- Continue talking to the Department Chairs if necessary.
- Continue the actions from the "Bake Sales" and the Rotary Club if necessary.
- Progress report.

Week XVI (05/05 – 05/09) – 10 hrs

- Team debriefing
- Continue the process of meeting a Trustee and an alumnus if necessary.
- Continue talking to the Department Chairs if necessary.
- Continue the actions from the "Bake Sales" and the Rotary Club if necessary.

7.0 INDIVIDUAL TEAM MEMBER ASSIGNMENTS

Name	Major	Skills	Interests
David Khem	Computer Engineering	• Vim • JUnit • Basic C++ & Java	• Chess • Culture
Tomomi Tsukioka	Architecture	• Japanese • AutoCAD, Max 3D • MS Office • Photoshop & Illustrator	• Designing • Sustainable architecture • Water consumption
Blake Hellman	Architecture	• AutoCAD • Rhino	• Cross country • 3D Design
Narciso Corral	Political Science	• AutoCAD • Drafting • Word, Excel & Power Point	• Military • Helping the community
Abraham Akutagawa	Architecture	• AutoCAD 08 • MS Office	• Guitar • Keyboarding
Andrew Rust	Biology	• Plumbing • Basic Carpentry	• Carpentry • Nature
Matt Cozensa	Mechanical Engineering	• AutoCAD • MatLAB • C++ & Java • Word, Excel & Power Point	• Active at school with various clubs • Design

8.0 DESIGNATION OF ROLES

Name	Role	Task Group	Tasks
David Khem	Team Leader	• Department Chairs • Board of Trustees	• Talk to Department Chairs • Co-project plan • Approach the Board of Trustees
Tomomi Tsukioka	iGroup Organizer Project Plan leader	• Department Chairs	• Talk to Department Chairs • Co-project plan
Blake Hellman	Team member	• Board of Trustees	• Talk to past IPRO 325 members. • Write an abstract of IPRO325. • Approach the Board of Trustees
Narciso Corral	Team member	• "Bake Sales" • Board of Trustees	• Find effective ways for "Bake Sales" • Approach the Board of Trustees
Abraham Akutagawa	Team member	• "Bake Sales"	• Find effective ways for "Bake Sales"
Andrew Rust	Meeting minute taker	• Rotary Club • Scholarship Expansion	• Scholarship expansion • Collaborate with Matt on the ideas from the Rotary Club
Matthew Cosenza	Team member	• Rotary Club	• Approach Rotary Club