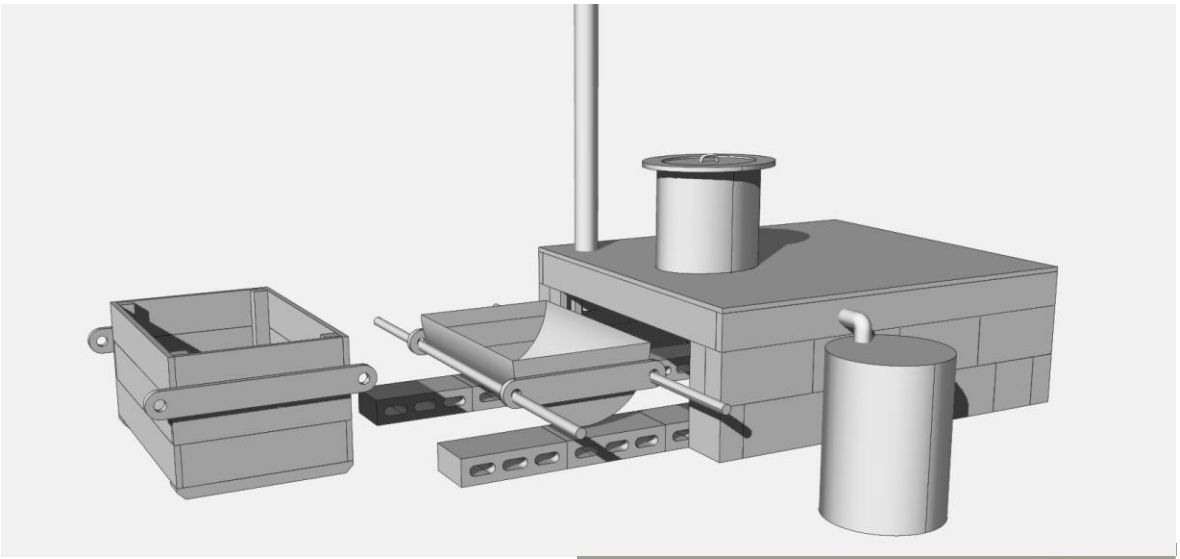
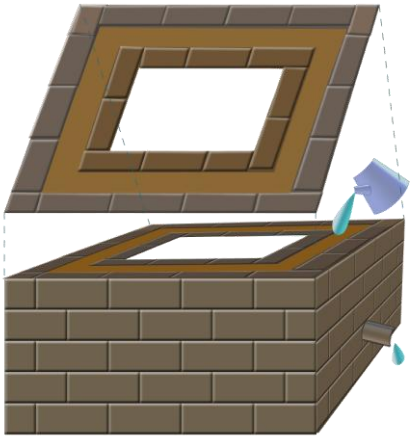
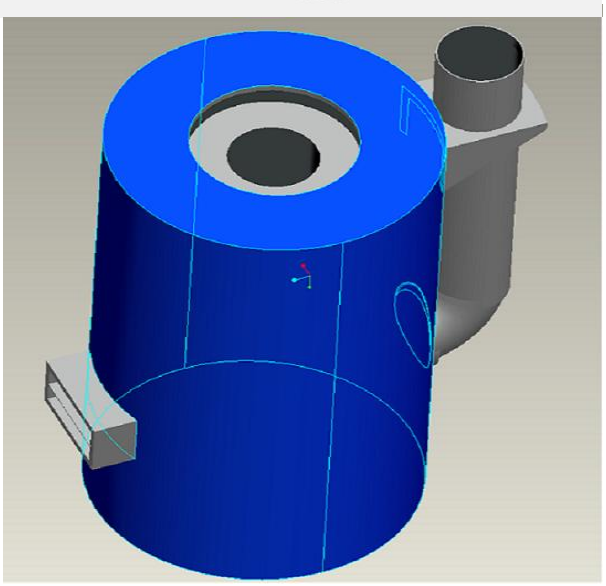
Midterm Report







Friday, March 14, 2008

OVERALL 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.

The overall objective of IPRO 325 has not changed since the project plan.

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 rocket 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.

Table of Contents:

WATER: COMPOSTING TOILET SUBGROUP

1.0. REVISED OBJECTIVES

IPRO 325's composting toilet subgroups objective is to 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. It would also help in improving their environmental and sanitation condition, reduce water consumption, reduce health risks and create valuable compost that can be reused.

We looked at alternative designs of the composting toilets that is being practiced, and are currently building a prototype using materials that can be substituted with the local materials found in the targeted locations and hence the design is adaptable to suit them.

Our second objective has been extended to include an implementation scheme that will overcome the obstacles posed by language, education, and cultural barriers. While our primary objective has not changed, our specific objectives have progressed as our design has been completed and we have moved on to the construction phase.

2.0. RESULTS TO DATE

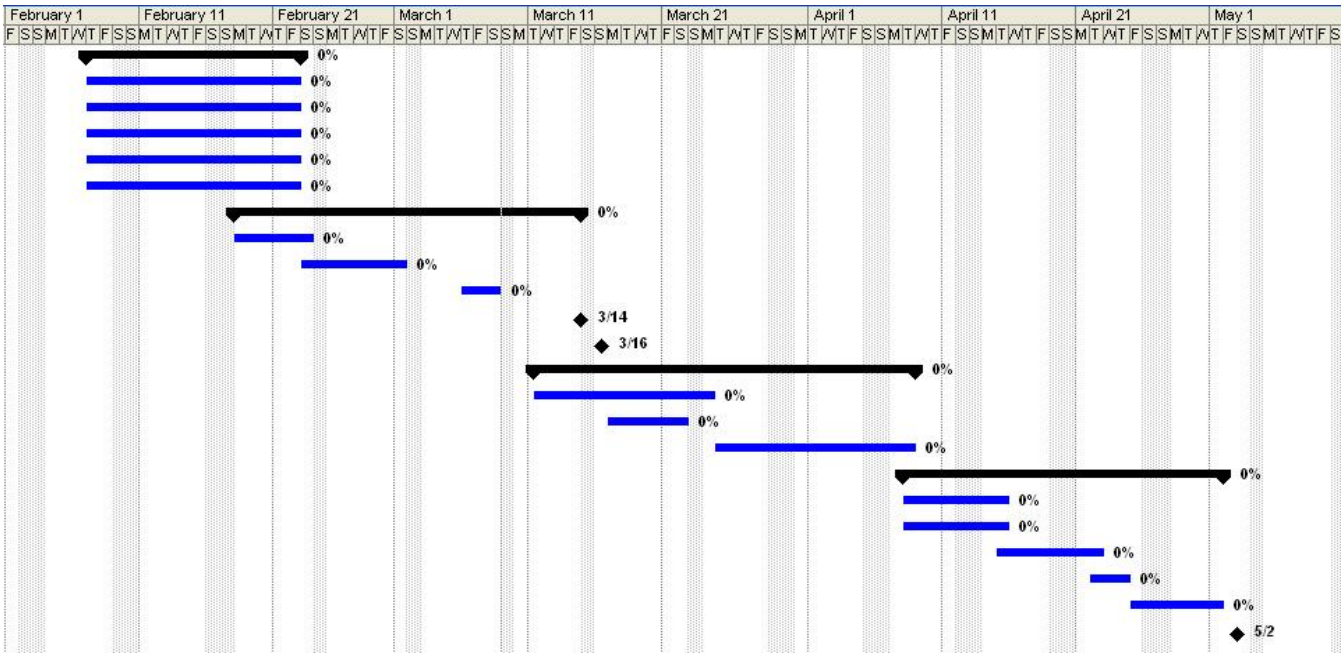
In our first phase, our goal was to research current composting toilets in rural areas and commercially available models. The team also researched the efficiency of each of the designs. With this research, we needed to compile and design a new, efficient composting toilet that can be easily built in our target locations.

Until now, we were successfully able to finish our tasks for designing a new composting toilet which we believe is the most efficient and can be built with locally available materials. Tomomi Tsukioka researched information regarding composting toilet in different countries ranging from the basic pit type toilets to the advanced urine diverting systems. The subgroup researched the current composting toilets 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. Josh Bergerson and Daniel Hutchinson researched the variations in soil composition in the US and target countries, their dependence on design, temperature effects on the composition of soil and the bacterial composition of the soil and compost. Reema Paranthan researched the toilets based on number of chambers that can be alternated between and continuous removal systems. Blake Hellman researched potential test sites for building the prototype and the state standards so the IIT prototype will be in compliance with them.

With the help of Dr Schug, we were able to obtain a test site on campus in the Wishnick Hall. Joshua Bergerson, Blake Hellman, Daniel Hutchinson and Reema Paranthan acquired prototype construction materials which included 35 CMU blocks, PVC pipes, a 55 gallon barrel, two 5 gallon buckets, 2 x 4 plywood and nails. The CMU blocks were assembled to form the support for the plywood base, which would hold the pedestal constructed of the 5 gallon bucket. The bucket pedestal has a squat plate to separate the urine, which will flow through the PVC pipes and be collected in the 5 gallon bucket. The human feces is intended to be collected in the 55 gallon barrel, which is cut into half and is housed in the base enclosure formed of CMU blocks. A PVC pipe acts as a vent pipe from the enclosure to prevent the accumulation of odor or flies.

3.0. REVISED EVENT/TASK SCHEDULE

Task Name	Duration	Start	Finish	Resource Names
Phase 1: Research	**12 days?**	**Thu 2/7/08**	**Fri 2/22/08**	
Current Examples	12 days?	Thu 2/7/08	Fri 2/22/08	Reema ,Dan,Tomomi,Josh,Blake
Material Costs	12 days?	Thu 2/7/08	Fri 2/22/08	Blake,Dan,Josh,Reema ,Tomomi
Location Information	12 days?	Thu 2/7/08	Fri 2/22/08	Blake,Dan,Josh,Reema ,Tomomi
Regulations	12 days?	Thu 2/7/08	Fri 2/22/08	Blake,Dan,Josh,Reema ,Tomomi
Benchmark Selection	12 days?	Thu 2/7/08	Fri 2/22/08	Blake,Dan,Josh,Reema ,Tomomi
Phase 2: Design & Build	**23 days?**	**Mon 2/18/08**	**Fri 3/14/08**	
Indivisual Design Process	6 days?	Mon 2/18/08	Sat 2/23/08	Blake,Dan,Josh,Reema ,Tomomi
Analysis of New Prototype	7 days?	Sat 2/23/08	Sat 3/1/08	Blake,Dan,Josh,Reema ,Tomomi
Collection of Materials	3 days?	Thu 3/6/08	Sat 3/8/08	Blake,Dan,Reema ,Josh
Building Prototype	6 days?	Sat 3/8/08	Fri 3/14/08	Blake,Dan,Josh,Reema ,Tomomi
Midterm Report	2.5 days?	Thu 3/13/08	Sun 3/16/08	Reema ,Tomomi
Phase 3: Testing and Analysis	**.67 days?**	**Tue 3/11/08**	**Tue 4/8/08**	
Testing Prototype	1.67 days?	Tue 3/11/08	Mon 3/24/08	Blake,Dan,Josh
Build Small Scale Model	6 days?	Mon 3/17/08	Sat 3/22/08	Reema ,Tomomi
Prototype Modification	11 days?	Tue 3/25/08	Tue 4/8/08	Blake,Dan,Josh,Reema ,Tomomi
Phase 4: Conclusion	**18 days?**	**Tue 4/8/08**	**Thu 5/1/08**	
Abstract	6 days?	Tue 4/8/08	Tue 4/15/08	Josh
Poster	6 days?	Tue 4/8/08	Tue 4/15/08	Josh
Presentation Practice	6 days?	Tue 4/15/08	Tue 4/22/08	Blake,Dan,Josh,Reema ,Tomomi
Question and Answer Practice	3 days?	Tue 4/22/08	Thu 4/24/08	Blake,Dan,Josh,Reema ,Tomomi
Final Written Report	5 days?	Fri 4/25/08	Thu 5/1/08	Blake,Dan,Josh,Reema ,Tomomi
IPRO DAY	1 day?	Fri 5/2/08	Fri 5/2/08	Blake,Dan,Josh,Reema ,Tomomi



Budget Plan:

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

Note: The budget has not changed since the project plan.

4.0. TASK ASSIGNMENTS AND DESIGNATION OF ROLES AND TEAM ORGANIZATION

Name	Major	Skills	Interests
Joshua Bergerson	Architectural Engineering	AutoCad, Mathcad, MS Office	Simple, effective structures
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
Blake Hellman	Architecture	Rhino, AutoCad, Photoshop, Illustrator, shop tools, construction	Sustainable design, resource management
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

Team Responsibilities:

1. Obtain necessary resources and information
2. Set efficiency standards for composting toilet through extensive research
3. Design and Build a Working Prototype
4. Test Prototype
5. Design Field Manuals for education on and implementation of the Composting Toilet.

Individual Member Responsibilities

Name	Role	Task group	Tasks
Joshua Bergerson	Midterm report	Research Design Testing Educational Material	Research, Set efficiency Standard, prototype building, Testing of prototype and education material.
Daniel Hutchinson	Field Test leader, Timesheet keeper	Research Design Testing Educational Material	Set efficiency Standard, prototype building, testing of prototype and midterm presenter.
Blake Hellman	Midterm Presenter, Engineering Notebook	Research Design Testing Location	Set efficiency Standard, Lead prototype construction, Testing of prototype and Midterm presenter.
Reema Paranthan	Class Leader, Ethics organizer and Agenda Maker, Minutes	Research Design Testing Educational Material	Code of ethics, Research, scale model, Set efficiency Standard, prototype building, Testing of prototype and Education materials.
Tomomi Tsukioka	Team Leader, Project Plan Leader, Minutes	Research Design Location Testing	Research, scale model, Set efficiency Standard and Testing of prototype, Secure Funding for Project and take minutes.

Minor changes have been made in division of responsibilities or tasks within the group in order to divide the work equally between the members and to better fit our time and work schedule. Tomomi Tsukioka has taken over as composting toilet group leader because Reema Paranthan has become the group leader for the entire IPRO 325 and thus has less time to devote specifically to the composting toilet subgroup.

5.0. BARRIERS AND OBSTACLES

The obstacles that our team have encountered while trying to complete the planned tasks are accessing a test site, obtaining the building materials to construct the prototype and dealing with challenges related to the testing of the designed prototype.

We wanted an outdoor site to construct the prototype and test the actual functioning, by converting the human feces into compost. Blake Hellman contacted Mr. Jacobius and the architecture department trying to find a site, but in the end we decided to build an above ground prototype at the site provided by Dr Schug.

One of the challenges related to the testing of the prototype that we have had to deal with has been the limited amount of time to actually test the composting toilet. Because the composting process can take several months to complete, we will not have time to run extensive test which conclusive data can be collected from. To deal with this obstacle, we have considered using simulated conditions to test the feasibility of our design.

Another challenge we have faced related to the testing of our design has been complying with the numerous state and federal regulations regard the collection, testing, handling, and decomposing of human feces. We have considered using substitutions like dog feces to test the composting process in order to avoid the regulations.

We are also considering building a non-working but efficient model to test how easily and fast the toilet could be built, and constructing it in a way such that it could be easily disassembled, moved and reassembled on IPRO day. The results could be tested by simulating the conditions on a smaller scale architectural model using heat lamps in a lab.

An additional problem the composting toilet subgroup has faced is having a limited amount of information regarding the types of materials available at the field locations. It is crucial to design the toilet in a way that only uses local materials so that it can be properly maintained by the community. To deal with this obstacle, the team has used information that was passed over from the previous semester concerning Peru and Nicaragua. Also Daniel Hutchinson has local contacts in one of the potential sites and these contacts have been extremely helpful in providing us with information of what materials would be available in these countries.

Obtaining and transporting the required materials to the test site at IIT campus has been an additional challenge. Brian Chung, from the barrel rocket stove subgroup, helped by providing us with the 55 gallon barrel which he found at a recycling center. Sara, from the evaporative cooling subgroup, also provided help by lending us her vehicle. The CMU blocks were not available at the expected location, but we finally managed to locate them at Home Depot. We then rented a truck to deliver them to campus. This process required a lot of manpower and commitment from the team as we had to load each block into the truck and then up the two floors of Wishnick Hall.

The last significant obstacle we must deal with is the language barrier at the field location. Our group has decided to approach this barrier because it not only applies to the people of target rural poor countries, many of whom are Spanish speakers, but also to the poor, uneducated

people throughout the world. To overcome this obstacle, our group is developing an entirely picture-based instruction manual that will inform the villagers how to prepare, build, maintain, and replicate our solution. Because our solution can be built from entirely local materials it will be possible for an individual to, just by sharing the manual, spread our solution to neighboring villages far more efficiently than we ever could.

Energy: Barrel Rocket Stove Subgroup

1.0 REVISED OBJECTIVE

IPRO325 energy subgroup's purpose is to take recent IPRO325 experience in Peru and Nicaragua and construct a low-cost solution that directly relates to the world's rural poor. There have been no changes to the objectives and the solution remains the same: a barrel-rocket stove hybrid that combines the best features of both the rocket stove and the barrel stove. The main concerns in regards to the project are the heat efficiency of and the emissions produced by the barrel-rocket stove, and in diverting any emissions using an exhaust vent. The team is aiming to construct the stove completely out of indigenous materials which could be built for five dollars or less.

2.0 RESULTS TO DATE

Currently the energy subteam is still in its construction period where a prototype is to be completed and ready for testing by the first week of April. In terms of progress, all materials have been purchased and construction on the barrel has already been started. In regards to testing, a miniature prototype of the hybrid stove was designed and tested by Brian Chung. The mini-stove was made to imitate the gas flow in the system. The sole purpose of this experiment was not to obtain any quantitative data but rather to test whether the basic functionality of the design works, specifically the exhaust pipe. The test proved successful, as the gases upon entering the chamber exited the exhaust pipe validating the project's feasibility.

Additional testing was facilitated on last year's rocket stove to analyze empirical data and to gain insight on what is expected when constructing our model of the rocket stove. Due to weather conditions and lack of dry wood, a fire couldn't be produced resulting in a test failure. The weathering of the old rocket stove had lowered our expectations of efficiency and quality of a clean burning fire. However, we do not have concrete evidence to show that the weathering had decreased the performance.

Design factors, design feasibility, and efficiency all contributed to the final design of the project. Hours were spent on watching videos, viewing pictures, and reading recent documents in order to successfully design and construct a simplistic cooking stove. However, setbacks have occurred. Creating the most efficient stove and make it readily available for all types of cooking pots led to the realization that only a handful of efficient attributes could be considered in our design. Also the fully constructed prototype should produce the same efficiency, if not better as current models. According to the design's feasibility, there should be little to no heat loss when transferring heat from the rocket stove to the outer shell.

Regarding construction, the team's goal is to produce a working hybrid stove and prepare it for testing by the week after spring break. The stove's construction process should be a simple method facilitating easy implementation on the field. Furthermore, the stove should be constructed from indigenous materials allowing the five-dollar project to become a reality.

3.0 REVISED TASK

The original project schedule has not diverted far from the original plan. Due to incomplete task assignments, the construction date has been extended up until the week after spring break.

Schedule of Tasks and Milestone Events

02/24-03/01

- Purchase materials needed for the project (5 hrs)
- Learning Objective Test 02/26

03/02-03/08

- Code of Ethics due 03/07 (5 hrs)
- Midterm Presentations (8 hrs)

03/09-03/15

- Construction (5 hrs)
- Midterm Presentations
- Midterm Written Report 03/14 (8 hrs)
    - Research
    - Preliminary Analysis
    - Proposed Solutions
    - Testing Procedures Draft
    - Benchmark Selection

03/16-03/22

- Spring Break
- Construction (5 hrs)

03/23-03/29

- Fully constructed prototype (10 hrs)
- Rocket Stove testing (15 hrs)
    - Analysis of tests

03/30-04/05

- Barrel rocket stove testing (15 hrs)
    - Analysis of tests
    - Reconstruction

04/06-04/12

- Final testing of the final prototype (8 hrs)

04/13-04/19

- Minutes Due 04/18
- Exhibit Materials (8 hrs)
- Presentation Slides (5 hrs)

04/20-04/26

- Abstracts, Posters and Presentations due (15 hrs)

04/27-05/03

- Final Report 05/02 (8 hrs)
- IPRO Day 05/02
- iKNOW uploads 05/02 (5 hrs)

05/04-05/10

- Team Debriefings

Budget Plan:

Items	Quantity	Price
Working gloves	2	$ 8.92
3/4'' x 2'' Black Steel Pipe Nipple	1	$ 0.72
3/4'' x 3'' Black Steel Pipe Nipple	1	$ 0.84
3/4'' 90 degree elbow	1	$ 0.64
Wiss -compound action snips	1	$ 14.49
4'' x 35" B vent pipes	1	$ 12.97
3" x 35" B vent pipes	1	$ 10.97
3" B vent 90 degree	1	$ 12.98
tube, pop, slinky	1	$ 1.25
tin cartoon fish w/ lid	1	$ 0.75
tin cow w/lid	1	$ 0.75
Yankee 16 gallon barrel	1	$ 75.00
Other		$ 00.00
Tax		$ 5.88
Total		$ 146.16

The current budget plan is less than the proposed one due to the fact that most of the materials, such as cans, insulator, small barrels, etc, were acquired from dumpsters and contributed by friends and family.

4.0 TEAM AND TASK ASSIGNMENTS

Individual Team Member Assignments:

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

Designation of Roles

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

Changes Made to Team Organization:
_ Jerry Jose was given exclusive responsibility of the Engineering Notebook.
_ All team members were asked to aid in the procurement of materials.
_ Initially, Brian Chung was asked to complete the subgroup's midterm report; however, after injuring his finger, the responsibility was given to Chaitanya Murti.
_ The design of the exhaust was left to Jerry Jose and Brian Chung.

Causes of Changes in Team Organization:
_ Matt Cosenza left the IPRO
_ Brian Chung injured his finger

Both events caused a redistribution of work amongst the remaining members. Obviously, the extent of the reorganization required was far greater in the case of Matt Cosenza's departure from the group.

5.0 BARRIERS AND OBSTACLES

Materials:
Despite the fact that the materials used to build the barrel rocket stove at selected test sites are abundant, they are either expensive or hard to find. One of the primary obstacles faced by the team thus far was to fulfill what was needed. Brian successfully obtained a couple of metal barrels and two plastic five-gallon buckets from dumpsters. David continuously looks for ash from various wood-oven restaurants in his neighborhood. Chai collected cans, varying in diameter from four to six inches, from supermarkets and dumpsters.

Departure of Matt Cosenza:
As mentioned earlier, the departure of Matt Cosenza was one of the biggest obstacles faced by the team thus far. All the work that Matt would have completed had he still been on the team needed to be redistributed among the team members. It slowed us down a bit as each member's tasks increased. However, once the reorganization was completed and we are used to the increased load, work returned to normal.

Language:
Another significant barrier faced by the team (as a whole, not just the energy subgroup) was the language barrier. Since three of the considered target locations are Spanish-speaking countries, members of the team are attempting to learn Spanish through tapes or lessons. Furthermore, the development of pictorial manuals will aid in the implementation and education process in the target region.

Testing Location:
Finding a location to build and test our prototype(s) was another obstacle the team has faced. Initially, the team decided to use Brian's house as a construction/testing location. This plan, however, was scrapped because of the time required to reach the residence. This secondary problem was then solved by sharing a lab with the composting toilet subteam. Since our construction is in a building, another potential problem is that we are not going to be able to test it there because even if our prototype has an exhaust pipe, the windows cannot be opened. Our proposed solution is to obtain permission from IIT to test it outside provided that the weather is favorable.

SHELTER: EVAPORATIVE COOLING SYSTEM

1.0. REVISED OBJECTIVES

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 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.

Our group has finished the plan and design phase of the brick and pot-in-pot systems and has removed those steps from our objectives.

2.0. RESULTS TO DATE

From discussion with past groups, they told us that although it was very informative building the adobe bricks and terracotta pots themselves they spent way too much time making them and were not able to get many results from testing. So we decided that it would be much more efficient to focus our time into building with pre-made materials in order to gather data on how the system actually works rather then make the materials ourselves and test which materials might work better.

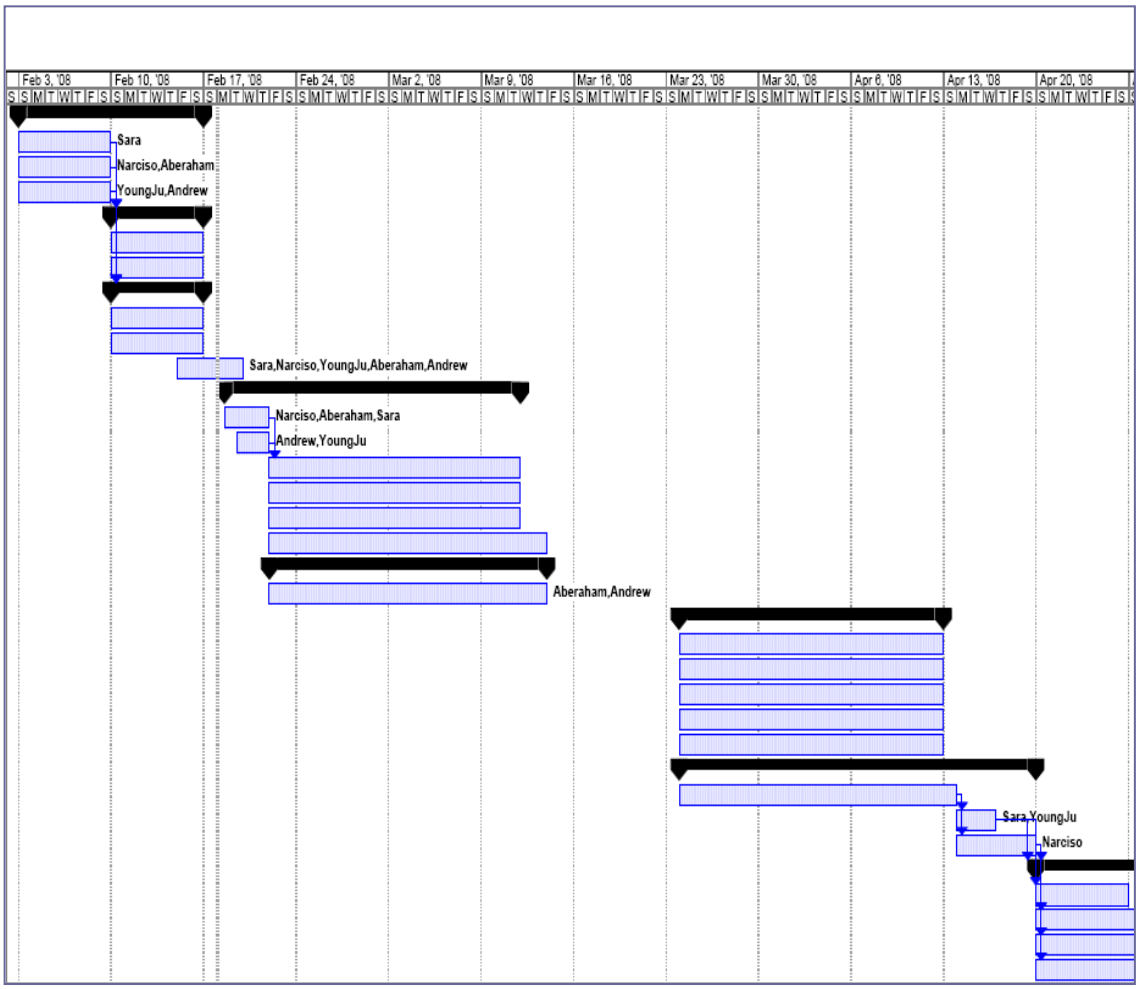
From past research and research of our own, we discovered a brick cooling structure would work best for our solution. In areas we plan to visit, adobe brick is in plentiful supply and would be ideal to use in our design. From past research the brick system proved to keep food a few degrees cooler then the pot in pot system and also allowed more room for food storage. We hope to improve on the effectiveness of this design.

To date we have begun purchasing the supplies needed to construct our working prototype and plan on construction this week. We have yet to begin prototype testing but we believe it will

address the need for food storage in an efferent and affordable manner. We plan to have a working prototype by midterm.

By using pre-made materials we can focus our efforts in gathering data and results from the prototype rather than wasting time constructing the different materials used in the prototype.

3.0. REVISED TASK / EVENT SCHEDULE



No changes. A few problems came up that set us back a few days, but none that warranted a change in the task and event schedule. Phase 1 has been successfully completed.

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	

Budget Plan:

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)**

The budget plan remains the same.

4.0. CHANGES IN TASK ASSIGNMENTS AND DESIGNATION OF ROLES AND TEAM ORGANIZATION

Task Assignments:

Name	Major	Skill	Interests	Assignments
Abraham Akutagawa	architecture	CAD Drawing Illustrator, Photoshop	Golf, tennis. Keyboard, Drawing	-Worked on research -Find area for prototype construction
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 -got materials
Sara Wilde	psychology	Microsoft office, Problem solving, Group projects	Psychology, Travel	-going to learn Spanish to help in country -Invited previous IPRO team for cooling subgroup. -Worked on research -got materials
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

Role Designations:

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	YoungJu Jo
Timesheet collector & Keeper	Abraham Akutagawa

No changes in role designation. No problems have arose that would warrant any changes in the role designations.

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

- Task assignment changes:
  - Abraham assigned to prototype build location for relations with architecture shop supervisor and M and M building area (last semesters location)
  - Sara and Narsico assigned to obtain materials because of their readily available vehicles for transportation.

5.0. BARRIERS AND OBSTACLES

Getting our information together was a minor challenge as it was hard for everyone to meet together and discuss them. For the research portion of our plan everyone was able to research their individual portions successfully. We managed to work out getting the information together via e-mails.

For the build phase finding a place for construction proved to be rather difficult. The area in the M and M building that was used by last year's group was currently being used by the school of Architecture. Other places such as the architecture model shop didn't allow a space large enough for our prototype or allow us to store anything there that large over the course of a semester. For finding a space to work in we were fortunate enough to have Prof. Schug allow us to use a vacant chemistry lab.

Obtaining funds for supplies as well as finding a way to get them to our construction location has been a challenge. We were able to have our budget approved and got the money we needed for supplies. Sara and Narsico were able to lend the use of their vehicles to transport the materials back to the chemistry lab.

Getting together to finally begin the construction phase is our final barrier to achieving our goals for midterm. Through a series of e-mails and phone calls we decided on a date and time we are all available in order to complete this task and overcome our final barrier.

Writing the manual could prove to be rather difficult. We must write it so that the people of the countries in which we plan to implement our systems will understand and be able to construct themselves. In order to accomplish this, our manual will utilize illustration, rather than demonstration with words.

Getting our prototype out of the chemistry lab will prove to be a challenge as it will weigh close to 500 lbs and may not fit into the elevator in one piece. Currently, we are trying to locate a test site on ground level in order to make transporting easier.

FIELD TESTING AND IMPLEMENTATION SUBGROUP

1.0 REVISED OBJECTIVES

IPRO325 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. The first objective is to research methods of creating effective field manuals and workshops for teaching construction and maintenance of the products developed. The research completed will then be used to create a template for both manuals and workshops which will be passed on to the product development teams to assist in their individual creations of manuals and workshops. The second objective is to organize a trip to the field site. This includes contacting village leaders, obtaining required visas, purchasing flight tickets, obtaining transportation to field site, and setting up on site housing. The final objective of the field testing and implementation subgroup is to develop a schedule for the entire trip, including planning all activities and scheduling workshops to take place at the field location(s).

The objectives of the field testing and implementation subgroup have changed from the initial objectives because the researching of the potential test sites has been completed and the selection of a field site is now a responsibility of the individuals planning on traveling to the field locations. Additionally, the objectives of testing the developed products and creating product manuals and workshops are now objectives of each product development team.

2.0 RESULTS TO DATE

The field testing and implementation subgroup has accomplished many things so far. Daniel Hutchinson, Sara Wilde, Chaitanya Murti, and Josh Bergerson researched four potential sites, one in Nicaragua, one in India, and two in Peru. All data collected was presented to the IPRO, and is still waiting on instructor final approval to come to a vote for final site selection. The research included information on local climate, geography, demographics, safety, soil compositions, resources and contacts as well as an estimated cost for travel. All research compiled was put into a matrix for easy comparison and posted on iGroups.

The field testing and implementation subgroup also has successfully made contact with groups either on site or that will be on site for both locations in Peru. Josh Bergerson contacted Dr Duffy from UMass to acquire information on the UMass trip to Huarmey, Peru in the coming summer, which is currently planned for June 2-16. Since then, Professor Ferguson has continued corresponding with Dr Duffy and he and Dr Schug will be meeting with Dr Duffy on March 18. Daniel Hutchinson has been in continual contact with local contacts, Marisela Perez and Sara Mascola regarding the Sincape, Peru location.

Although not a specific objective, it was decided on that it would be necessary for all students traveling to the field testing location to attempt to learn the local language. Because there is such a wide variance of languages in India and because it was agreed upon that learning a useful amount of one of these languages during only one semester would be extremely difficult, the group decided to only look into learning Spanish. Sara Wilde looked into methods for these students to learn Spanish including Spanish classes and Spanish CDs. Through information found, it was decided that Spanish classes were too expensive and thus Spanish CDs were selected as the method of learning Spanish.

3.0 REVISED TASKS

Contacting agencies about field manuals and workshops

Week I (01/20 – 01/26)

N/A

Week II (01/27 – 02/02)

N/A

Week III (02/03 – 02/09)

N/A

Week IV (02/10 – 02/16)

- Destination Research (10 hrs)
    - Contacting Dr. Duffy from UMass

Week V (02/17 – 02/23)

- Draft of Project Plan 02/21 (8 hrs)
- Destination (5 hrs)
- Final Project plan due 02/22 (2 hrs)

Week VI (02/24 – 03/01)

- Learning Objective Test 02/26

Week VII (03/02 – 03/08)

- Code of Ethics due 03/07 (5 hrs)
- Midterm Presentations (8 hrs)

Week VIII (03/09 – 03/15)

- Midterm Presentations
- Midterm Written Report 03/14 (8 hrs)
    - Research
    - Preliminary Analysis
    - Benchmark Selection
    - Proposed Solutions
    - Testing Procedures Draft

Week IX (03/16 – 03/22)

- Spring Break

Week X (03/23 – 03/29)

- Complete Research on Field Manuals and Workshops (15 hrs)

Week XI (03/30 – 04/05)

- Complete Field Manual and Workshop Templates (15 hrs)

Week XII (04/06 – 04/12)

N/A

Week XIII (04/13 – 04/19)

- Complete Itinerary (15 hrs)
- Minutes Due 04/18

Week XIV (04/20 – 04/26)

- Abstracts, Posters and Presentations Due (15 hrs)
- Product Development Teams Complete Field Manuals and Workshops

Week XV (04/27 – 05/03)

- IPRO Day 05/02
- Final Reports 05/02 (8 hrs)
- iKNOW Uploads 05/02 (5 hrs)

Week XVI (05/04 – 05/10)

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

The above schedule has been modified quiet a lot since the project plan. One of the reasons is that now there is no longer a date set for trip decisions of who is traveling, where is the group traveling, and when are we traveling. These questions are still up in the air and the decision will be eventually made by all members of the IPRO that will actually be traveling to the field site sometime within the next month. Another change is that the dates for starting and completing manuals and workshops were pushed back. This is because the field testing and implementation group is no longer actually creating the manuals and workshops. Finally, the field testing and implementation group is no longer collecting any data from product development teams for writing manuals and workshops, so the associated due date has been removed from the schedule.

Budget Plan:

ITEM	DESCRIPTION	QTY	PRICE
Educational Materials	Materials to educate local population. May include, but not limited to laminated handouts, videos, puppets, etc.	3	$30
Spanish Speaking	Spanish learning software like tapes or CD	9	$900
	TOTAL		$930

Changes to the budget have been removing products development subgroups' budgets and all the travel expanses.

4.0 REVISED TASK ASSIGNMENTS AND TEAM ORGANIZATION

Name	Major/Minor	Skill	Interests & Experience
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.
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.
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.

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.

The field testing and implementation subgroup has undergone major changes in team organization. The team was reduced in size from eight members to four members. This was due to the large decrease in work required from the initial high level of research of the field locations and travel requirements. Also, it was agreed that each product development team should create their own workshop and field manuals rather than having the field testing and implementation subgroup create them. This change in responsibilities also greatly decreased the amount of work needed from the field testing and implementation subgroup resulting in the reduction of the size of the group.

Subteam Tasks:

- Research methods for creating simple and effective field manuals and workshops for teaching uneducated, illiterate people with a limited amount of the people's native language.
- Finalize trip details
- Develop itinerary for time at field location

Individual Tasks:

Name	Role	Tasks
Joshua Bergerson	Midterm Report Organizer	Research field manuals and workshops; research field locations; finalize trip details
Daniel Hutchinson	Subgroup Leader, Timesheet Keeper, Midterm Presenter for Composting Toilet Group	Research field manuals and workshops; research field locations; finalize trip details; develop itinerary
Brian Chung	Energy Subteam Leader, Project Plan Coordinator,	Develop itinerary
Reema Paranthan	Engineering Binder for Composting Toilet Group, Ethics Organizer and Agenda Maker	Research field manuals and workshops; finalize trip details; worked on project plan

5.0 BARRIERS AND OBSTACLES

Throughout the semester, the field testing and implementation subgroup has faced some a few obstacles. A major obstacle faced was a lack of information about field locations. The field locations researched at the beginning of the semester were rural, poor villages. Because most of these villages have no information online or printed in an easily accessible publication, it was nearly impossible to obtain specific information. The subgroup got around this obstacle by contacting volunteers on site and by interviewing group members who had previously traveled to the location.

Another obstacle encountered was financial restrictions for planning the trip. The group members traveling to the field location need to provide all costs that are not covered by the fundraising subgroup. Because of this, it is essential for all costs to be kept to a minimum. This will be dealt with by looking for discounts on all parts of travel, especially the airline tickets and car rental.

Time has also been another obstacle the field testing and implementation subgroup has needed to deal with. Because each member of the subgroup are also in a primary product development group, finding times for meetings and for completing group work has been difficult. The subgroup has gotten around this in a few ways. One way was by utilizing the campus wide lunch break because all members had available time. Another way the subgroup has dealt with scheduling conflicts is by communicating electronically rather than face to face. While time will continue to be a barrier the field testing and implementation subgroup will need to face, scheduling conflicts should be less of an issue now that the team is much smaller.

A potential upcoming obstacle is researching the manuals and workshops. Contacting various volunteer organizations and obtaining specific information will potentially be difficult due to a lack of direct communication. This will be dealt with by phone calls as well as emails to specific volunteer organizations.

Another potential barrier will be learning Spanish. Although the group has the tools necessary to learn Spanish, it will come down to each individual traveling to spend the required time to learn the language. One possible way to deal with this is to have weekly meetings/quizzes which will check the progress of every person learning Spanish, ensuring that no one falls behind or starts neglecting their responsibility to learn Spanish.

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 RESULTS TO DATE

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.

All the initials steps were realized without much difficulty since each fundraising member is composed of all the members from the other subgroups, except field-test and implement subgroup. We did, and still do, however collaborate with them closely. Beside iGroups, both the fundraising and field testing & implementation subgroups have a weekly meeting.

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

- Divided and conquered.
- Assigned each member to specific methods according to their expertise or volunteerism.
- Assisted each other when anyone was unable to deliver a task.

The goal of meeting with the Office of Institutional Advancement (OIA) is to be further advised on how to successfully fundraise or referred to any alumnus or Board of Trustee. The process was very time-consuming. First, two of our members, Blake Hellman and Narciso Coral, representing IPRO325, had to present our project plans related to designing, building and testing specific low-cost solutions to the Director of IPRO, Mr. Thomas Jacobius. He was pleased with our ideas and helped us modify the presentation. Then, on behalf of IPRO325, Mr. Jacobius contacted most of the staff at OIA. This resulted in us being invited to present our ideas at an all-staff meeting.

Since OIA is one of our best ways to get the funding, we had three members represented IPRO325, Narciso Coral, Blake Hellman, and David Khem. Mr. Jacobius was also there to brief the OIA staff about IPRO and the upcoming IPRO activities. With the help of Ms. Stephanie Kiddle, the IA Administration and System Director, for the setup of our slides, the presentation went smoothly and quickly. Most of the staff was very engaged and interested in our project by asking questions, offering comments and taking notes. After the presentation, some of them approached us and recommended to us a few other fundraising ideas, such as approaching the Rotary Club, approaching Engineers Without Borders, and online fundraising. Although most of their suggested ideas have already been put into action, we were still glad for their inputs. The offer that made our day was the one from Vice President Betsy Hughes. She asked us to make a one-page abstract about IPRO 325 that she would pass on to any prospects, or perhaps even one of the Trustees. Blake Hellman willingly and enthusiastically took the assignment.

Doing well on the presentation with OIA did not necessarily translate into getting the needed funds. Therefore, the fundraising subgroup is still actively exploring other options as planned. One of IPRO325's main goals is to bring more awareness of world poverty to the IIT community and the world. Approaching one of the biggest social networks on the World Wide Web, Facebook, as a fundraising medium was a no-brainer. Causes, built by Project Agape, is an application on Facebook, used exclusively by Facebook users who want to help raise money for any 501(c) non-profit organization. As of the time of this report, not only we are able to spread the message of world poverty, recruiting 50 members, but we also made IIT history by being the first IIT group to raise money through Facebook. Although the amount donated is small ($75), we believe that "drop by drop fills up the container." Our Cause Project on Facebook is entitled: "Developing Affordable Water, Energy and Shelter Solutions for the World's Rural Poor" and was created by David Khem and maintained by Tomomi Tsukioka. We continue to post information and activities related to this project on

http://apps.facebook.com/causes/view_cause/65876?h=plw&recruiter_id=7830154.

List of Donors on Facebook

Name	Network	Location	Amount
Katie Ngo	Loyola Chicago	Chicago, IL	$20.00
Tito Vann	Northeastern	Boston, MA	$15.00
Ryan Oblenida	Illinois Tech	Chicago, IL	$10.00
Audrey Galo	Illinois Tech	Chicago, IL	$10.00
Selinna Peng	York University	Toronto, ON	$10.00
Daniel Price Jr.	Illinois Tech	Chicago, IL	$10.00
			Total: $75.00

Doing a "bake sale" is also on our agenda. 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.

Abraham Akutagawa and Narciso Coral, who are responsible for the "bake sales" ideas, encountered strong resistance to the "bake sale" idea. After doing a survey and research on which ideas would be most effective with IIT students, the fundraising subgroup had agreed to go with either selling Jack Link's Beef Jerky or using a Scratch-N-Give-Donation card. In order to raise $5,000, we need to sell twenty cases of Jack Link's Beef Jerky. One case consists of twelve packs and each pack has thirty sticks, costing one dollar per stick. It is 50% profitable, but we must sell 9,000 sticks in order to reach our goal. Like Facebook, we do not expect to raise the required funds through just selling the beef jerky. The idea got widely rejected by the rest of IPRO 325 members.

Another "Bake Sale" idea is to do the Scratch-N-Give-Donation. The name of this idea is pretty self-explanatory. Basically, donors scratch a circle or two on a card to reveal the amount they should donate, from five cents to three dollars. If they scratch two or more circles, they will be given a "Giving is Living" bracelet or a phone card good for 90-minutes locally. This idea was also turned down by the rest of the other IPRO325 members. One reason was that almost

everyone has a cellular phone, making the phone card useless. Although the phone card is good for 90-minutes locally, the time would be significantly less for a long distance or international call. The "Giving Is Living" bracelet was viewed as junk which would be thrown away after worn a few times.

When one door is closed, another is opened. Sara Wilde, a member of the shelter subgroup, suggested that we should be selling something that is universally liked, such as donuts. Since we are desperate and want to raise some money through "bake sales", selling donuts was quickly and unanimously approved by the whole team. According to Andrew Rust, who is in charge of this project, the best way to sell donuts is to get preorder sheets from Krispy Kreme's website and set up a table on the MTCC bridge and take orders with a specific pickup date. We will also buy some extra's for people who did not place a preorder and would like to buy some on the pickup day. We will also be going around to the offices with a sheet of paper. We will call our local Krispy Kreme to find out what our discount is for fundraising doughnuts. Once we know the selling price and profit, we can determine how many dozens we need to sell. Basically, we will be pre-selling the doughnuts, starting a couple of weeks before the date we and our local store agree on for pick-up. This plan is going to start after spring break.

David Khem has sent out some e-mails to VP David Baker, head of Rotary Club, and to the chairs of each area of discipline of the members of IPRO325. Some of them responded promptly and were interested in our project. Narciso Coral and Andrew Rust met with Professor Fred Hickernell, the chair of applied mathematics. The presentation was quick, but the result satisfying. See section five for further elaboration. We also have set an appointment to meet with VP David Baker and Professor Jamal Yagoobi, the chair of Mechanical, Materials, and Aerospace Engineering.

All of the above tasks have happen rapidly and are still in working progress until the spring semester is over or we reach our goal of raising $5,000. Although we haven't raised anywhere close to the goal, our effort has greatly broadened our network of potential donors. We strongly believe that this has brought us much closer to our goal.

3.0 REVISED TASK/EVENT SCHEDULE

As stated in the project plan, time is not on our side. Although the projects described in section 2 are independent of one another, the time spent on them can vary greatly depending on how fast or frequent our prospects respond. In term of the schedule, it has not changed much.

Here are our milestones to date:

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 with 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 Trustees and alumni.
- Discuss ideas received from the Rotary Club.
- Discuss possible scholarship expansion.
- Discuss most effective "bake sales".
- Progress report.

Week VII (03/03 – 03/07) – 20 hrs

- Codes of ethics.
- Reassign tasks.
- Create a Cause on Facebook.
- Continue the process of meeting Trustees and alumni.
- Start approaching the Department Chairs if necessary.
- Further discuss "bake sales" ideas.
- Progress report.

Week VIII (03/10 – 03/14) – 25 hrs

- Midterm presentation and written report.
- Peers review.
- Present our plans and ideas to OIA.
- Maintain the Cause on Facebook.
- Meet with the department chair of MMAE and Applied Mathematics.
- Finalize the "bake sales" ideas.

- Meet with Mr. Baker from the Rotary Club
- Progress report.

Week IX (03/17 – 03/21) 5 hrs

- Spring Break
- Maintain the Cause on Facebook.
- Create and maintain a commercial website.

Week X (03/24 – 03/28) – 20 hrs

- Continue the process of meeting Trustees and alumni.
- Maintain the Cause on Facebook.
- Maintain a commercial website.
- Continue talking to Department Chairs.
- Initialize the "bake sales".
- Progress report.

Week XI (03/31 – 04/04) 5-15 hrs

- Continue the process of meeting Trustees and alumni if necessary.
- Maintain the Cause on Facebook.
- Maintain a commercial website if necessary.
- Continue talking to Department Chairs if necessary.
- Continue the actions from the "bake sales" if necessary.
- Progress report.

Week XII (04/07 – 04/11) 8-15 hrs

- Reevaluate our approaches of fundraising if we still haven't achieved our goal.
- Continue talking to the Department Chairs if necessary.
- Maintain the Cause on Facebook.
- Maintain the commercial website if necessary.
- Continue the actions from the "bake sales" if necessary.
- Progress report.
- Reorganize meeting minutes.

Week XIII (04/14 – 04/18) 5-15 hrs

- Submit meeting minutes
- Continue the process of meeting Trustees and alumni if necessary.
- Continue talking to Department Chairs if necessary.
- Maintain the Cause on Facebook
- Maintain the commercial website if necessary.
- Continue the actions from the "bake sales" if necessary.
- Progress report.
- Start working on abstracts, posters & presentations.
- Start working on final report.

Week XIV (04/21 – 04/25) 5-15 hrs

- Submit abstracts, posters & presentations.
- Continue the process of meeting Trustees and alumni if necessary.
- Maintain the Cause on Facebook.
- Maintain the commercial website if necessary.
- Continue talking to Department Chairs if necessary.
- Continue the actions from the "bake sales" if necessary.
- Continue working on final report.
- Progress report.

Week XV (04/28 – 05/02) 10-25 hrs

- Submit final report.
- IPRO Day
- Continue the process of meeting Trustees and alumni if necessary.
- Continue talking to Department Chairs if necessary.
- Maintain the Cause on Facebook
- Continue the actions from the "bake sales" if necessary.
- Progress report.

Week XVI (05/05 – 05/09) 5-15 hrs

- Team debriefing
- Continue the process of meeting Trustees and alumni if necessary.
- Maintain the Cause on Facebook.
- Maintain a commercial website if necessary.
- Continue talking to Department Chairs if necessary.
- Continue the actions from the "bake sales" if necessary.

Note: The Cause on Facebook is going to be maintained regularly regardless of how much we have raised because there are some online donors who would like to keep up with our progress. It will be maintained until the completion of the field-test and implementation in Peru and/or Nicaragua.

Budget Plan:

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

The budget is the same as the one submitted in the project plan.

Sadly, one of our team members, Matt Cozensa, is longer in the IPRO. His assignment of meeting the Rotary Club has been reassigned. We chose not to pursue Engineers Without Borders because we are approaching VP David Baker who helps fund them.

Team Members' Skills

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

4.0. CHANGES IN TASK ASSIGNMENTS AND DESIGNATION OF ROLES AND TEAM ORGANIZATION

"The only constant in life is change". The assignments of each team member have been modified significantly. In the beginning, each member was assigned with specific tasks. However, this did not work out as planned. For instance, when meeting with a prospect like a department chair, we must set up an appointment according to the prospect's availability, not ours. This can lead to scheduling conflicts. Therefore, the fundraising team has become more flexible with task assignments. Also, each member has greater time commitments from other classes due to examinations.

The following table is a brief summary of each member major tasks:

Name	Role	Task Group	Tasks
David Khem	Team Leader Midterm Written Report	• Department Chairs • OIA • Facebook • "bake sales" • Rotary Club	• Oversee the overall tasks. • Midterm written report
Tomomi Tsukioka	iGroup Organizer Project Plan leader	• Department Chairs • Facebook • "bake sales"	• Present IPRO325's plans/ideas to department chairs. • Maintain the Cause on Facebook • Assist Andrew with "bake sales"
Blake Hellman	Midterm Presentation Leader	• Board of Trustees/ Alumni • Department Chairs	• Compose and maintain the abstract of IPRO325. • Approach the Board of Trustees • Participate in "bake sales" • Midterm presentation
Narciso Corral	Ethic Code	• "bake sales" • Board of Trustees/ Alumni • Department Chairs	• Present IPRO325's plans/ideas to department chairs. • Approach the Board of Trustees • Participate in "bake sales"
Abraham Akutagawa	Team member	• "bake sales" • Department Chairs	• Find effective ways for "bake

		• Website	sales" • Participate in "bake sales" • Create and maintain a commercial website • Present IPRO325's plans/ideas to department chairs.
Andrew Rust	Meeting minute taker	• Rotary Club • Department Chairs • "bake sales"	• Contact the Rotary Club • Doughnuts fundraising • Present IPRO325's plans/ideas to department chairs.

5.0 BARRIERS AND OBSTACLES

There are obstacles in everything we do, but these are just temporary setbacks rather than insurmountable barriers. It took us more than two weeks to just get a hold of OIA. Once we delivered our presentation, the process of getting potential donors, such as alumni or Trustees, depends on OIA. All we can do is sit and wait for good news from the OIA such as referrals. We will, however, keep in close contact with them. Fortunately, one of our members, David Khem, works for them. Therefore, we will have continually updated information on any progress made.

Approaching the department chairs also takes time. At this time of the year, the department chairs usually have their hands full and rarely reply to e-mails or meet with anybody outside of their respective areas. Dropping in to their offices unannounced is considered unprofessional and rude. Plus, most of the department chairs hold office hours by appointment only. When we do finally get to see a department chair are not necessarily fond of us and are skeptical, knowing that we are there for funding. When Professor Hickernell, the chair of Applied Mathematics, was visited by two members of the fundraising team, he wanted to see an applied mathematics student presenting. Unfortunately, our only mathematic major was

unavailable at the time of the meeting. Professor Hickernell insisted on talking to the math major in our IPRO despite our explanation of her scheduling conflict. We scheduled another appointment so that Professor Hickernell will be able to speak to her. This showed us that it is ideal to have a member from a certain department talk to his/her chair. However, this is not always possible because of scheduling conflicts. The best way to resolve this problem is to explain the scheduling conflict to the chair and hope for his/her understanding.

Another possible scheduling conflict that our team might encounter is that no fundraising team member will be available at a particular time to meet with a potential donor. One way to deal with this problem is by utilizing the other IPRO 325 members. For instance, Joshua Bergeron, who is not a fundraising member, is going to fill in when meeting with VP David Baker.

IIT is registered with guidestar.org as a 501(c)3 nonprofit organization. Since IPRO is a program at IIT, it cannot be registered by itself as a nonprofit. Therefore, IPRO is not found on Causes. The funds raised will be made out to Illinois Institute of Technology (IIT) and sent to the main building. According to Professor Ferguson, IPRO 325, or the IPRO program in general, will never see that fund. We contacted Causes about sending the check to the IPRO office located on the 4th floor in the Central Building, but have not yet received a reply. We will send them another e-mail if we do not hear from them during spring break. We wanted to call them, but a number was not given on their website. If desperate, we will write them a letter.

Determined not to let this problem stop us from fundraising on Facebook, we contacted the Controller/Accounting Department who were very helpful. We explained to them that we are expecting a check from Causes or Network For Good at the end of April. The amount of the check will be unknown until the end of this month.