

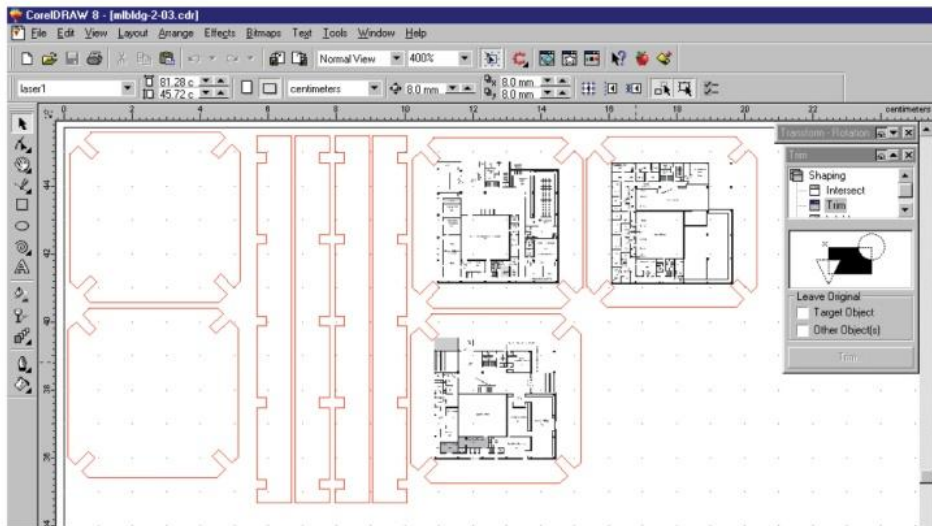
IPRO 333

The Goal: Creating Design-to-Prototype Learning Modules for the Fabrication Laboratory at the Museum of Science and Industry.



DESIGN-TO-PROTOTYPE MODULES

- Projects outlined for varying users of the fabrication Laboratory
- Outline consists of step by step instruction of how to go from computer design to machine fabrication



Part of laser cutter tutorial



USERS OF THE FABRICATION LABORATORY

Museum Members

- Members with an interest in prototyping either pre-made projects, or their own inventions.

Open Access Users

- Visitors to the museum, including families from the community and individuals researching for work or for general interest in digital fabrication.

Student Groups (Grades 3-6)

- Students who will be visiting in class groups to work on projects relating to their curriculum.

Science Achievers

- From local schools
- Being educated on the use of digital fabrication software and hardware
- For 10 weeks



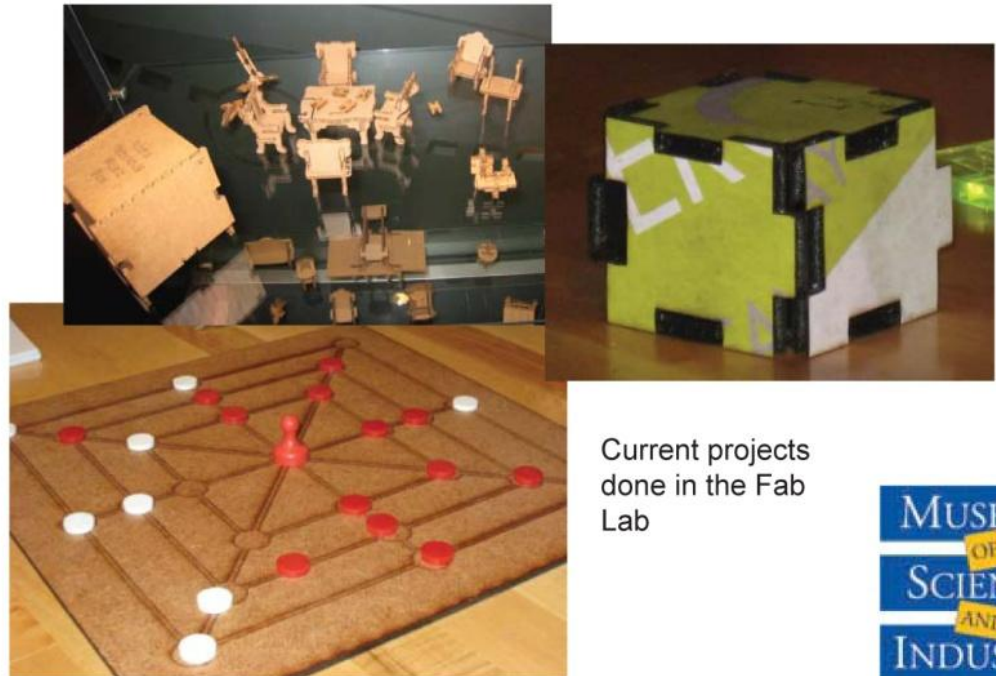
OBJECTIVES

- Assess the needs of potential Fab Lab users
- Educate the Fab Lab employees
 - By:
 - Introducing local expertise and IIT lab managers
 - Researching the machines and their tutorials
- Define potential programs for the various user groups, as previously mentioned
- Align programs with the national and state standards for science education



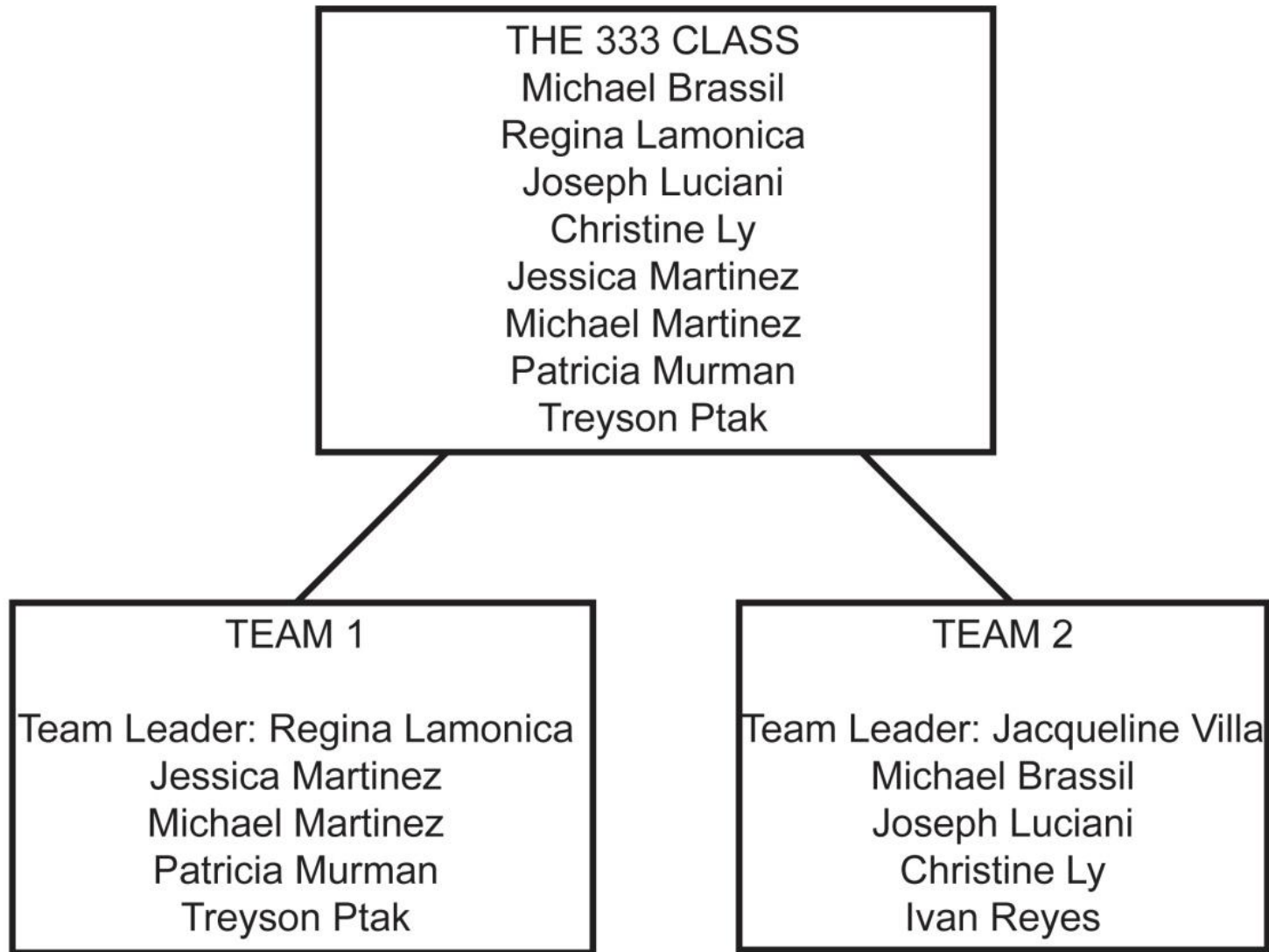
LONG-TERM ASPIRATIONS

- Create a safe workshop in which children can operate the machinery under the supervision of the museum staff
- Establish communication with other Fab Labs to facilitate the sharing of ideas, past experiences, successes, and failures
- Develop programs that are larger in scope and require time windows longer than those currently used by the Fab Lab (i.e., greater than 90 minutes in length)



Current projects
done in the Fab
Lab

TEAM ORGANIZATION



TEAM DESCRIPTIONS

TEAM 1:

Concentrate on designing and testing projects for general visitors to the museum and younger student groups.

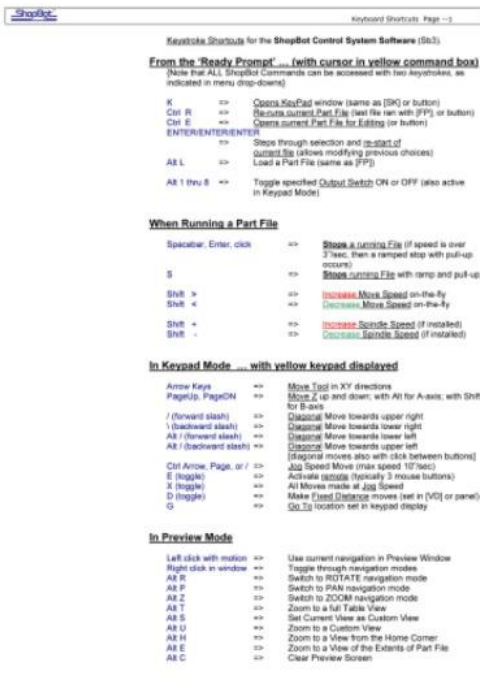
TEAM 2:

Concentrate on designing and testing projects for the Science Achievers and members of the museum.

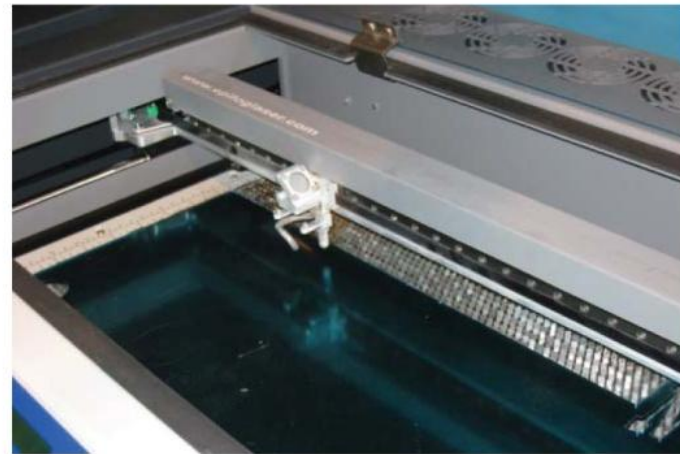
Regina Lamonica, and Jacqueline Villa will be the respective sub team leaders of Teams 1 and 2.

PROGRESS

- Became familiar with the lab and the directors of the lab at the MSI
- Developed an understanding of what they want us to contribute towards the lab, as well as their general goals for the lab.
- Have established contacts with information resources (NSF standards, administration with detailed knowledge of the laboratory equipment, teachers and schools, and the Field Museum)
- Have gathered technical data and instruction on the machinery
- Have arranged for two professors to visit the lab.
- Are in the process of designing projects, and general tutorials



Left: Example of technical information from Shopbot CNC



Right: Laser cutter in process

MAJOR OBSTACLES TO DATE

- The lab directors knowledge of and ability to use the equipment is limited
- They had very limited tutorials set up for the machines, lack of diverse usage
- There is currently no marketing promotion of the Fabrication Laboratory
- The size of the lab is limiting, in that it does not allow for large groups, or addition of machinery
- The lab's current budget is restricted disallowing for the addition of new machines and extensive use of materials
- Current issues with the method of instruction used by the lab directors

ANTICIPATED CHALLENGES

- There are few anticipated challenges, although some potential problems could be
 1. If a machine cannot be fixed, and the lab does not have a budget to buy a new one, or new software
 2. Time constraints: insufficient time when we would be able to use the lab, or see it being used for extensive time periods.
 3. If there is a lack of good informational feedback from the surveys, which limits our ability to improve the programs we will be designing.