

Introduction / Objective

As technology advances at almost an exponential rate the ability to create robotics for industrial, home, and even education purposes is increasing day by day. From the introduction of vacuum robots, such as the Roomba, and entertainment robots, such as Sony's Aibo, it is very clear that robotics is becoming an increasingly popular phenomenon. In our preliminary research the group has assessed that the market with the most potential and opportunity seems to be that of the education/hobbyist market. Our goal is to research this market and assess who are the key players in this area as well as examining the weaknesses these companies may have. Once that has been established the team will create a business plan centered around a microprocessor prototype, that the team will also be creating simultaneously. The group will also be investigating the potential of putting this product to market by itself or simply creating a foundation for future IPROs to create a robot kit that can accompany the microprocessor.

Background

The current market for educational/hobbyist robots is currently dominated by a few competing companies. However current projections of the robot industry predict that the demand for robots will triple by the year 2010, and grow to nearly 10 times by 2025. The biggest of this growth is in the personal robotic industry according to the United Nations Economic Commission (UNEC) and the International Federation of Robotics (IFR).

Some of the key competitors in this market are Lego, Robix, Fischertechnik, and the MIT Handyboard. These robots are mostly marketed to individual hobbyists, but have found their way into the education market. Some of these competitors build kits, which is the case with Lego, Robix, and Fischertechnik, while others only develop a microprocessor to be used in conjunction with these kits, such as MIT's Handyboard. Although some of these kits are pretty advanced they still fall short of what the team feels everyday users may want. An example of this is the ability to program the microprocessor in C++, a language more common than the specialized languages the competitors use. There is also the opportunity to create a microprocessor that offers more flexibility and reliability than some of the current offerings.

Research Methodology

A key source of information needed for this project will be from the Internet and previous IPRO's. The Internet research will help in regards to finding more information on competitors as well as trends in the education/hobbyist market. This information will be examined thoroughly and the team will need to ensure that the information gathered is accurate and reliable. The previous IPRO information gathered will assist in exploring what previous teams have already found and thus be able to build on that for our current project. Another source will be one of IIT's electrical engineering professors, Professor James Stine. He will assist the team in creating the microprocessor prototype and offer his knowledge in answering questions in regards to how it should be and can be created. Samples of competitors' products will be borrowed from groups at IIT or purchased outside to gain hands-on experience and allow side-by-side comparisons of performance versus our prototype. The final source of information will be that of the IIT robotics club as well as robot shops and schools. The team will be looking for their input on what a microprocessor should have as well as what they would like to see in one. This

information will be valuable because they are each a subgroup of the market the team is trying to break into.

Expected Result

- I.) Assessment of the education/hobbyist market and establishing who the competitors are and what they currently bring to the market. As well as establishing the needs of users of these products and what they feel is lacking with their current options.
- II.) II.) Creation of a working microprocessor prototype that will meet the demands of the current market.

Tasks/Milestones

<u>Task/Milestone</u>	<u>Due Date</u>	<u>Completed By</u>
Project Plan	02/05	Miguel A. Rodriguez
Mid-Semester Review	03/25	Entire Group
Microprocessor Prototype	04/14	Technical Group
Website	04/22	ChungYun Kim
Exhibit	04/25	Purvi
One Page Abstract	04/25	Entire Group
Oral Presentation	04/27	Entire Group
Final Business Plan	05/06	Miguel A. Rodriguez
Deliverables CD	05/06	Andy Meyers

Budget

<u>Item</u>	<u>Cost</u>
Robix Kit	\$600.00
Lego Kit	(IIT - No Cost)
Handiboard	(IIT - No Cost)
Robot Components upgrades	\$400.00

Total Budget = \$1000.00

Assignments

The group is going to be divided into two groups the commercial group and the technical group. The commercial group will be working mainly on the business plan and solving the problems and issues that come along with it. The technical group will be dealing mainly with the creating of the prototype. This evenly divides the group as well as the workload, since the prototype and business plan need to be established in parallel.

Commercial Activities (Commercial Group)
Group Leader -Miguel A. Rodriguez
Nick Chillemi
Angel Guma

Microprocessor Prototype (Technical Group)

Group Leader -Andy Meyers

Jaewoo Kim

Purvi Patel

Website Development

ChungYun Kim