

# **Free Robots To Kids Initiative - (F.R.T.K.I.)**

## **Grant Proposal**

### **1. Executive Summary**

Five years ago, David Peins established Robodyssey Systems LLC to address the growing need for high quality robotics platforms and instructional materials to teach skills in science and mathematics. Prior to starting Robodyssey, he taught for twenty-five years and discovered that existing programs simply did not provide the depth of study needed for completion of a post secondary degree in the sciences nor provide the necessary skills needed for direct entry into the job market. In response to this need, together with Brian Patton, he created the Robodyssey Teaching System, a carefully planned program that makes it easy for teachers and students to achieve success.

Robodyssey Systems uses robots as a context for teaching skills in science and mathematics. Students who participate in the program learn important skills by devising solutions to carefully designed robotic challenges. By using robots, students have the means for devising these solutions and observing the outcomes of their efforts. What students learn by building robots is far more practical than merely what they can do with the robots, though robots are becoming increasingly prevalent and indispensable in many applications. Students develop skills for creating systems to acquire and process data and to control processes in every field imaginable using amalgams of mechanical systems, electronic hardware and software. It is not necessary to imagine theoretical uses for these skills because the robots are real and are an end use in themselves, so they teach the process for solving problems in many different areas.

The Free Robots To Kids Initiative provides for corporations a way to fund this program and encourage students who are willing to work by giving them the means to learn skills applicable to practical science and mathematics and practical marketable job skills in computer science. The program provides materials directly to the end users and enables teachers to accept the donations of a program that would be difficult or impossible to obtain otherwise. Robodyssey will administer the program remotely by using printed program materials, video instruction, web help and a training center/classroom that teachers visit to receive training.

Robodyssey Systems, LLC is asking for \$50,000.00 to continue to develop the Free Robots To Schools Initiative started in September of 2005. The program brings the latest educational technologies to students that would otherwise not be able to obtain this innovative interactive medium. Robodyssey will help to facilitate the goal of bringing sponsors together with products and programs by soliciting funds from corporations that would like to become providers of education to help teach math and science.

## **2. Introduction of the Organization**

David Peins established Robodyssey Systems, LLC in April of 2001. Since then, the company has developed a number of products and programs designed to teach the skills necessary for completing a course of study in the sciences or engineering and marketable computer science skills. Robodyssey has just completed phase I of the Free Robots to Schools Initiative, a pilot program designed to test the feasibility of having corporate sponsors donate robotics programs directly to schools, assisting teachers using the instructional materials, and providing a venue for students to demonstrate what they learned from the program. We feel that the program was a success because of our observation of the improvement in skills demonstrated by students attending Robot Madness Day at the Bridgewater Commons Mall in May 2006 and by the surveys completed by participants.

Both David and Brian teach and are involved with and have been active in educational organizations and conferences. They give lectures and workshops on how to use robotics as a means for teaching science and technology. David has been active with professional education organizations, IEEE, and the US Armed Forces sponsored Monmouth Junior Science Symposium. Robodyssey develops and manufactures high quality robotics platforms, mechanical and electronic robotics accessories and printed classroom materials to meet the objectives of providing programs that enable teachers and students to achieve the goal of developing skills in science and mathematics and job entry-level skills in computer science.

Robodyssey products and programs are currently in use in high schools throughout New Jersey, Philadelphia City Schools, and major universities. Robodyssey Systems is a registered New Jersey Service Provider approved for issuing credit for teacher professional development training hours and has provided many teacher-training programs during the last four years.

### **Individual Profiles:**

#### **David Peins, President**

- Founder, President; *Robodyssey Systems, LLC, Trenton, NJ.*
- Teacher of Applied Electronics; *Manalapan High School, Science and Engineering*
- Cooperative Industrial Education coordinator, Industry Advisory Council; *Howell H.S.*
- Co-Author of curriculum for Tech Prep Initiative; *Brookdale Community College*
- Steering Committee Liaison for Middle States Association, *Manalapan H.S.*
- Member of visiting committee for Middle States Association, *Northern Burlington Regional H.S.*
- Executive Committee, Monmouth Junior Science Symposium
- Founder and President, Central Jersey Robotics Group amateur robotics users group
- Founder, annual 'Robot Madness Day' robotics contest and exhibition, now in its seventh year.
- Designer of mechanical components, CAD/CAM manufacture of products
- Engineered manufacturing process and tooling for underwater dive lights
- Supervisor of machine shop; *Yates Industries, Bordentown*
- Adult Education Instructor, Machine Tool and Die Apprentice Program, *Mercer County Vo-Tech*
- Teacher of Skilled Trade, Drafting, *City of Trenton, Public Schools*

## EDUCATION

Teachers College, Columbia University Enrolled in Doctor of Education degree program 1998  
Rutgers University, Ed.M, Vocational-Technical Education (October, 1997)  
Trenton State College, B.S.Ed., Industrial Education (May, 1978)

## CERTIFICATION

Teacher of Technology Education, K-12, Permanent Certificate; *NJ Dept. of Education*  
Teacher of Industrial Arts, K-12, Permanent Certificate; *NJ Dept. of Education*  
Teacher of Technical Occupations: Drafting, Permanent Certificate; *NJ Dept. of Education*  
Teacher of Skilled Trades: Machine Tool and Die, Permanent Certificate; *NJ Dept. of Education*  
Vocational Welding Certificate; *NJ Dept. of Education*  
New Jersey School Supervisors Certificate; *NJ Dept. of Education*

## PUBLICATIONS

"Robotics: A Successful Teaching Strategy," Ties Magazine, March 2002,  
"Robots That Teach - ESRM Motivates," Servo Magazine, February 2004  
"The Importance of Keeping it Real," NJEA Review, November, 2004  
"Building Bridges," NEA Today, April 2005

## MEMBERSHIPS

IEEE, Associate Member since Jan 2001  
Vice Chair, Student Activities Chapter, Shore Region, IEEE, 2001-2002  
Monmouth Junior Science Symposium, Executive Committee, 2001-2005  
Kappa Delta Pi National Honor Society, Education  
President, (Inactive) Delta Chapter, Omicron Tau Theta, Vocational Education Society

## **Brian Patton, Vice President**

- Vice President, *Robodyssey Systems, LLC, Trenton, NJ.*
- Founder, President, *Thin Air Creations, LLC, Trenton, NJ.*
- Teacher of physical science, *Princeton Friends School, Princeton NJ*
- Teacher of embedded electronics and robotics , *Straube Center, Pennington, NJ*
- Author of "PIC Programming for the Impatient", Robodyssey Press
- Visiting middle school classroom robotics instructor
- Visiting high school classroom robotics instructor
- Former science instructor, *George School, Yardley, PA*
- Former research scientist, *Bristol Myers Squibb, Princeton, NJ*
- Former medical student laboratory instructor, *Indiana University, Indianapolis IN*
- Former clinical research scientist, *The Krannert Institute of Cardiology.*
- Skilled in manufacturing technologies including: Vertical or horizontal mill operation, lathe operation, CNC machining, precision part fabrication, molding and duplication, Electronic circuit design and production
- Skilled in educational and industrial robotics including: BasicX, MikroBasic, PicBasic, assembly, automation and high-throughput screening, robotic pharmaceutical development, high throughput screening, viable, non-viable and enzymatic protocol development and automation, software development and integration

- Skilled in biological techniques including: Polymerase Chain Reaction, plasmid preparation, vector construction, DNA isolation and purification, bacterial culture, preparation of mutant DNA for transgenic micro-injection, histological tissue preparation, tissue sectioning, RNA Isolation, northern blot analysis, radioimmuno assays, western blot, FPLC, competitive binding assay, protein isolation and purification, microscopy, mammalian cell isolation and culture, thymidine Incorporation, flow cytometry, laser scanning cytometry, cell-cycle analysis, fluorescence microscopy, micro dissection, confocal microscopy, In-vivo imaging technologies, model development, dissection and tissue isolation.

#### EDUCATION:

Purdue University, West Lafayette, IN,  
 B.S., Environmental Health Science, 1985/1988  
 Indiana University Purdue University at Fort Wayne, Fort Wayne, IN  
 Studies in Biology and Anthropology, 1982/1985

#### PATENTS:

Expressive Feature Mechanism for Animated Characters and Devices  
 U.S. Patent No.7,021,988 B2 Issued: April 4, 2006  
 Apparatus and Method for Positive Closure of an Internal Tissue Membrane Opening  
 U.S. Patent No.5,476,469 Issued: Dec 19,1995  
 Apparatus and Method for Positive Closure of an Internal Tissue Membrane Opening  
 U.S. Patent No.5,304,184 Issued: April 19,1994  
 Apparatus and Method for Positive Closure of an Internal Tissue Membrane Opening  
 EP. Patent No.93923859.8 Issued: Oct 13,1993  
 Apparatus and Method for Positive Closure of an Internal Tissue Membrane Opening  
 PCT. Patent No.PCT-US93-09761 Issued: Oct 13,1993  
 Apparatus and Method for Positive Closure of an Internal Tissue Membrane Opening  
 Japan. Patent No.510224194 Issued: Oct 13,1993  
 Method for Preventing Restenosis Following Reconfiguration of Body Vessels.  
 U.S. Patent No.5,116,864 Issued: May 26,1992

#### PUBLICATIONS:

Huh, N.E., Soonpaa, M.H., Daud, A.I., Patton, B., Franklin, M., Jing, S. and Field, L.J.  
 Functional p53 programs cardiomyocyte death in transgenic mice expressing a truncated SV40 T-Antigen in the heart. Under revision for American Journal of Physiology.

Tsai, S.C., Pasumarti, K., Pajak, L., Franklin, M., Patton, B., Henzel W.J., and Field, L.J. p193: a cytoplasmic SV40 Large T-Antigen binding protein which promotes apoptosis. Submitted.

March, K.L., Patton, B.L., Wilensky, R.W. and Hathaway, D.R.: 8-Methoxypsoralen and longwave ultraviolet irradiation are a novel antiproliferative combination for vascular smooth muscle.  
 Circulation 87:184-191, 1993.

### **3. Needs Assessment**

According to the 1993 US Census Bureau, 90% of all school-aged children in the US were enrolled in public education. Educational census data are hard to pin down because of greater numbers of children entering preschools, drop out rates, and reporting techniques, but it is safe to say that the majority of all school-aged children in the US

attend public schools. Fewer, but significant numbers attend private schools and even fewer but increasing numbers are home schooled. Because the majority of the school-aged population attends public school, for any program have a real impact on the population as a whole, it must have widespread use in the public schools, as difficult as that may be.

Statistics from U.S. Department of Education show that public education needs to improve the effectiveness of science and mathematics education. However, those statistics appear to be skewed to comply with requirements for the legislation, "No Child Left Behind", or *NCLB*. From the perspective of a teacher in an affluent school district, it is evident that statistics from the Department of Education and from the National Education Association tend to be more optimistic than the existing conditions. Because public money funds education in the US, administrators are careful to provide programs that they perceive as appealing to their constituents and appear to provide access to the largest number of students. School districts hold teachers accountable for their student's achievements as evidenced by their scores on minimum standards tests and by the teachers' ability to comply with state mandated paperwork, not by their innovation in the classroom or their successful development of skills in their students. There is a need to re-invigorate teachers that are willing to work and to provide them with the quality tools they need to provide instruction in the skills that students will need to complete courses of study in mathematics and science. The US Department of education does recognize the importance of improving math and science education but the system is so large and cumbersome that it is difficult to make real changes on a large scale.

The Free Robots to Kids Initiative will allow individualized instruction to take place in a variety of educational settings, will improve skill levels and will help to improve the results of the measures that schools and parents currently use. By enabling corporations to sponsor these programs in local schools, industry can improve the chances of more students successfully attending post-secondary science and technology programs and improve job-entry level skills enabling them to hire qualified students, providing career ladders in technology.

#### **4. Project Objectives**

Goals of the program are to:

- Continue to develop a program that enables the greatest number of students to develop the highest level of proficiency in computer science and mathematics as a practical tool for completing a course of study in the sciences and as marketable skills in the job market.
- Give students the tools to succeed in science and technology by using robotics as a context for learning, and do more than just get kids excited. To do this, we will promote the program with people that understand the need and the difficulty of implementation - corporations, engineers and scientists - and obtain funding from corporations to bring programs to children willing to do the work whether they are in public or private schools, home school networks or community after school programs.
- Provide teachers willing to put forth the effort, the means to obtain these educational materials without cost to themselves or their employers.

- To enable teachers that do not have the technical expertise to teach computer science and electronics as tools for doing science, with the books, training and support to succeed by providing a virtual expert in their classroom with them.

## **5. Project Methods**

Phase I of the Free Robots to Kids Initiative began in October of 2005 and ended in May of 2006. During Phase I, Robodyssey in partner with the Straube Foundation and National Starch and Chemical Corporation successfully placed over 30 robots into area schools. Participants of the program met at the Robot Madness Event in May to share their experiences with other participants and to demonstrate their progress to the donors. Robodyssey was able at that time to shoulder much of the financial burden of this pilot launch. This year, we hope to gain financial support to expand this program and grow it into the future.

Funding for Phase II of the Free Robots to Kids Initiative seeks to continue to establish and maintain a program that provides the means by which students can receive a level of instruction that they would not be able to obtain on their own, be it in their public or private schools, their home school situations or after school programs. Robodyssey will administer the program remotely by using printed program materials, video instruction, web help and a training center/classroom that teachers can visit to receive training. The program typically appeals to smaller numbers of students than programs that do not require all members of the team actively participate in all aspects of the instruction. The Free Robots To Schools Initiative uses the PIC Programming for the Impatient text by Brian Patton and requires that no more than two students work with each robot kit. School districts are less likely to fund this teaching paradigm since it is less amenable to teaching large mixed groups of students. Programs that appear to service large numbers of students are often preferred over programs with real but less obvious apparent results.

After the sponsors of the grant commit money, teachers, private schools, individual civic and home school groups will be invited to apply for 'Free Robots to Kids Initiative' robot kits and instructional materials. Robodyssey has already identified many teachers, schools, and groups as potential recipients by personally interacting with hundreds of teachers at many major New Jersey educational conferences and presentations over the last five years as a company, and twenty-five years in education. The Robodyssey staff personally understands the difficulties facing teachers who want to provide a more effective program for their students but find getting the materials that they need nearly impossible. The process of qualifying of teachers will include assessing their commitment to giving at least one afternoon per week to a club or group, agreeing to attend both the pre-contest event and Robot Madness Day and to attend a teacher-training day held at the Robodyssey Community Education Center at the Straube Center. In addition, they will be encouraged to participate in the Central Jersey Robotics Group, a club that will serve as a forum where students and teachers can interact with each other on a daily basis.

After identifying the groups and supplying them with kits, one or both of the project staff will visit each classroom/club/group to demonstrate the construction technique and to inspire the group to demonstrate a variety of autonomous robots since many people have no experience with real robotics. Phase III of the project will not require the initial individual visits to classrooms for startup because the video produced in Phase II will be sufficient to get the groups started.

The Robot Madness Day event is an important part of the program because it enables sponsors to see what they have provided for the recipients and it enables students to interact with other beginners and directly with professionals from the field. In the past, this has been an excellent networking opportunity for both sponsors looking for employees and students looking for work in a related field and it has resulted in job opportunities for students

Phase III of the project will enable more students to participate in the program for less money expended because of one-time costs for the development of a training video which will eliminate the initial visit to each classroom by a project facilitator. Costs for the web and help desk will increase only slightly with the increase of number of programs and fixed costs for the classroom and teacher will remain constant except for inflation. Phase III funding allots one additional day at the classroom to enable fine-tuning of the instructional video. The cost per child per robot is still much lower than hiring an individual tutor for each child and that is the level of instruction that students receive.

The Teacher/Program Qualification questionnaire from Phase I of this project is included in the appendix. The staff will develop a new questionnaire for Phase II.

## **6. Project Evaluation**

Every program needs a measurement tool to demonstrate the progress of the project relative to the goals of the grant. An indication of how well the project has met its goals will be useful both to the non-profit and to the corporations making the donations. Second, it is important for the administrators of the grant to evaluate each step to insure that they meet their goals and to shift strategies if they are not meeting the objectives. It is important to determine what will constitute success when designing the measurement tools. The goal is to improve the chances of student success in mathematics and science in the future by providing them with real-world tools in computer science and electronics and more generally, logical thinking for solving problems, not just to get kids excited about the sciences.

Evaluative tools will be in the form two sets of questionnaires - one for the teachers or facilitators and one for the participants, one pre-test to determine what is known and what skills they possess and a post-test to determine what they may have learned as a result of their participation in the program. A second, more demonstrative tool is the Robot Madness Day event held in May. Every year, Robodyssey sends invitations to all donors to the program to attend the event to see first hand what the student have accomplished. Experience has shown that when engineers and scientists speak with the students themselves, the feedback they get is better than any written test. The intangible transfer of benefit is rich. We understand, also from experience, that the people doing the funding are often very busy people and cannot attend the events. With that in mind, we will produce a professional video that will serve as a metric of the performance by the recipients and as a demonstration of the efficacy of the program for promotion for Phase III funding.

Ideal evaluation would include longitudinal studies that track students through post-secondary education and employment. Public education frequently disallows longitudinal studies citing issues of privacy and excessive costs for benefit received. In reality, these studies seldom reflect favorably on programs and are difficult to attribute to

the result of the program. We will consider methods of establishing a longitudinal study for Phase III of the project because we are confident that it will reflect favorably on the program.

## **7. Future Funding**

Phase III of the project will double the number of robot kits distributed and enable Robodyssey to hire additional teacher training personnel for two days per week at the Staube Center classroom and to free Brian from daily responsibilities of the project to focus on continued expansion. We will also re-evaluate the effectiveness of the instructional video and make changes as necessary.

## **8. The Budget**

<b><u>Phase I</u></b> (Completed) 9/05 to 6/06	Description of expenditure	Cost to Robodyssey	Applied from Grant	Total Program Cost
Accounting	Facilitate donations to Foundation; Accounting	\$225.00	\$0.00	\$225.00
Product	35 robot kits - (includes text, software, support)	\$0.00	\$4515.00	\$4515.00
Facility	Classroom Rent @ \$570.30 per month	\$5,703.00	\$0.00	\$5,703.00
	Classroom Liability Insurance	\$1264.00	\$0.00	\$1264.00
	T-1 Internet access @ \$50.00/month	\$500.00	\$0.00	\$500.00
	Electronic supplies for programs in process	\$125.00	\$0.00	\$125.00
	Web	web work - (8 hrs/week @ \$25.00/hr) for 39 weeks	\$7,800.00	\$0.00
In-House Printing	Printer - Supplies	\$195.00	\$0.00	\$195.00
Outside Printing	Advertising; pre-test /post-test	\$0.00	\$190.00	\$190.00
Personnel -	Teacher Salary- classroom 1 day/week (Est. Cost)	\$12,000.00	\$0.00	\$12,000.00
Robot Madness	Insurance- (one day event rider)	\$0.00	\$360.00	\$360.00
Event	Flyers/Posters at event	\$275.00	\$0.00	\$275.00
	Tee shirts	\$575.00	\$0.00	\$575.00
	Prizes	\$195.00	\$0.00	\$195.00
	Video Production	(In-House)	\$0.00	\$0.00
		Total Cost	\$28,922.00	\$5,000.00
<b><u>Phase II</u></b> (Currently Seeking Funding) 8/06 to 6/07	Description of expenditure	Cost to Robodyssey	To Be Applied from Grant	Total Program Cost
Accounting	Accounting - 18 Hrs @ \$25.00/Hr.	\$0.00	\$450.00	\$450.00
Product	70 robot kits - (includes text, software, support)	\$0.00	\$9,030.00	\$9,030.00
Facility	Classroom Rent @ \$570.30 per month	\$0.00	\$5,703.00	\$5,703.00
	Classroom Liability Insurance	\$0.00	\$1,264.00	\$1,264.00
	T-1 Internet access @ \$50.00/month	\$0.00	\$500.00	\$500.00
	Electronic supplies for programs in process	\$0.00	\$250.00	\$250.00
	Web	web work - (8 hrs/week @ \$25.00/hr) for 39 weeks	\$0.00	\$7,800.00
In-House Printing	Printing - In house supplies	\$0.00	\$390.00	\$390.00
Outside Printing	Advertising; pre-test /post-test	\$0.00	\$375.00	\$375.00
Personnel -	Teacher Salary- classroom 1 day/week	\$0.00	\$12,000.00	\$12,000.00
	Instructional Video Production	\$0.00	\$6,400.00	\$6,400.00
Robot Madness	Insurance- (one day event rider)	\$0.00	\$396.00	\$396.00
Event	Flyers/Posters at event	\$0.00	\$375.00	\$375.00
	Tee shirts	\$0.00	\$1,025.00	\$1,025.00
	Prizes	\$0.00	\$390.00	\$390.00
	Promotional Video Production	\$0.00	\$3,500.00	\$3,500.00
	Project Evaluation	Printing; Collation, Recording, Reporting	\$0.00	\$130.00
	Total Cost	\$0.00	\$49,978.00	\$49,978.00

<b>Phase III</b> (Projected) 8/07 to 6/08	Description of expenditure	Cost to Robodyssey	To Be Applied from Grant	Total Program Cost
Accounting	Accounting - 18 Hrs @ \$25.00/Hr.	\$0.00	\$450.00	\$450.00
Product	140 robot kits - (includes text, software, support)	\$0.00	\$18,060.00	\$18,060.00
Facility	Classroom Rent @ \$570.30 per month	\$0.00	\$5,703.00	\$5,703.00
	Classroom Liability Insurance	\$0.00	\$1,264.00	\$1,264.00
	T-1 Internet access @ \$50.00/month	\$0.00	\$500.00	\$500.00
	Electronic supplies for programs in process	\$0.00	\$500.00	\$500.00
Web	web work - (12 hrs/week @ \$25.00/hr) for 39 weeks	\$0.00	\$11,700.00	\$11,700.00
In-House Printing	Printing - In house supplies	\$0.00	\$500.00	\$500.00
Outside Printing	Advertising; pre-test /post-test	\$0.00	\$575.00	\$575.00
Personnel -	Teacher Salary- classroom 2 day/week	\$0.00	\$24,000.00	\$24,000.00
Robot Madness	Insurance- (one day event rider)	\$0.00	\$396.00	\$396.00
Event	Flyers/Posters at event	\$0.00	\$375.00	\$375.00
	Tee shirts	\$0.00	\$2,000.00	\$2,000.00
	Prizes	\$0.00	\$700.00	\$700.00
	Promotional Video Production	\$0.00	\$4,500.00	\$4,500.00
Project Evaluation	Printing; Collation, Recording, Reporting	\$0.00	\$200.00	\$200.00
	Total Cost	\$0.00	\$71,423.00	\$71,423.00

**Budget Narrative:**

Accounting - These costs refer to accounting cost incurred by outside bookkeeper for accountability to non-profit and are based on bookkeeper currently employed part-time for 18 hours at \$25.00/hour. The increase for Phase II anticipates accounting to non-profit to include detailed reporting separate from Robodyssey accounting.

Product - We have machinery in two locations capable of developing new prototypes as needed and maintaining production on some of the products. The Free Robots to Kids program requires very little assembly by Robodyssey before shipping to the end users. Robodyssey purchases most of the items included in the kits in bulk and they require only minimum unskilled labor to package and ship. We expect the actual cost of materials to drop as volume increases. Retail cost of kits is \$129.00 to allow for profit to manufacturing entity and allow for wider distribution in the future.

Facility - Costs are based on actual rent, liability insurance and fees currently paid for the classroom.

Electronic Supplies for Programs in Progress - During Phase I, it became necessary to provide a small number of miscellaneous electronic components to some of the groups. Because the cost is relatively small for these items when purchased in bulk and because teachers and students just starting out do not know where to purchase these items, it makes sense to keep extras on hand to give to the groups if they lose or miswire and burn out components. Examples are the PIC programmable IC, the motor controller, resistors, capacitors, small motor parts, etc. This helps keep the groups on target.

Web - Cost for maintaining both the classroom portion of the Robodyssey Systems website and the crobotics.org club site is based on 8 hours per week at \$25.00/hour. A forum will be set up on the crobotics.org site and monitored so that if problems arise that the group cannot resolve Robodyssey staff can handle them.

In-House Printing - Costs for in-house printing are based on Phase I costs for communicating with groups, additional updated classroom materials that were used in developing the program.

Outside Printing - Costs for printing are based on curriculum materials and are reasonable locally in these quantities from Kinko's. Robodyssey is currently printing course materials for assembling and programming a PIC based robot textbook on-demand. As quantities increase, costs will be lower from a large production facility.

Personnel - Teacher Salary - Brian Patton will spend at least one full day per week at the Straube Center classroom working with teachers, answering web-based inquiries, and working with a local group of students in one of the after-school programs. Cost is based on one eight hour day per week for (40) weeks of the program at an average teacher rate of \$37.50 per hour

Robot Madness Event - Costs are based on previous events. Robodyssey has held the event every year for the last seven years. The first six years, it was held at Manalapan High school in the gymnasium. The event was held at the Bridgewater Commons Mall in Bridgewater, New Jersey in May of 2006 in the large common area known as the Atrium, at no charge for the use of the space. Feedback from the director granting the use was favorable and early indications are that she will welcome the event back in May of 2007, at no cost to the project. Costs incurred for the event are the one-day insurance rider, provided by Robodyssey Systems liability insurance provider, tee shirts, prizes and advertising posters to encourage attendance by local residents.

Instructional Video - The cost of production of the instructional video is based on quotes from commercial video production companies doing the videotaping and editing and Robodyssey staff providing scripting and direction.

Video Production of Event - We are basing cost estimates on three estimates supplied by local video production companies. It is impractical for one of the principles to video tape the event because they need to direct their attention to running the event. Parents or other involved amateurs are do not see or film the events in the way that is needed to show the donors both present and future specifically what has been accomplished. While it is possible that one of the staff could produce a professional looking production, it would require considerable time and would not be as polished as a professionally prepared video.

Project Evaluation - Cost based on printing, distribution, collection and evaluation of forms and inclusion in reports provided at the conclusion of Phase II.