

Grant proposal for



and



SUBMITTED OCT 7, 2008

Grant Request

Thank you for your consideration regarding this proposal. For the purpose of this proposal the costs are based on today's prices.

History of TEACH

TEACH (Technology Enriched Accelerated Charter High School) is public charter high school located in Alpharetta, GA. The school was founded in 2004 and began accepting students in 2005 and focuses upon Technology. It has 201 ninth through twelfth grade students. Our entire elective courses center around technology and many of our extra curricular activities also focus upon technology. The school's website is fultonteach.org

Robotics Team

Our Robotics team vision is to inspire and enable students to explore their creativity and engineering skills through the use of science and technology in a fun and competitive atmosphere that teaches them both technical skills while focusing on teamwork and leadership.

The team's mission is to inspire young people to be science and technology leaders by engaging them in exciting mentor-based programs that build science, engineering and technology skills, that inspire innovation and that foster well rounded life capabilities including self confidence, communication and leadership.

Currently there are 19 students on the team, five are female. We have found that the girls typically join later in the school year and rarely join at the start of the school year. Mainly they are recruited by the existing members for the non engineering roles needed for the robotics competitions. The team has been very successful in recruiting females for the non engineering roles such as journaling or art and design that is required for the competitions. Once the girls are exposed to the engineering process they want to perform the engineering roles rather than their original non engineering roles. When we have asked the girls why they didn't join earlier in the school year, the most common response was that "I never thought about it" or "I wasn't sure what it was about" or "I just didn't think I would like robotics".

Another obstacle for the girls on the team is that they often don't want to "drive the robot" as they are intimidated by the controls.

Robotics competitions often provide extra points for community outreach and as a team the TEACH Robotics team has decided our outreach program would be focused upon exposing younger girls to engineering. We believe we can have a strong influence on our community by developing robotics camps and competitions for middle school girls.

Our plan is to develop a robotics camp aimed at girls. This summer as a fund raiser, we held three robotics camps. However, only two girls attended the camp. To encourage more girls to attend the camps, we decided to have a camp focused on middle school age girls. Below is a description of the camp the TEACH robotics team has determined they would like to put on.

GIRLS Robotic Camp

The Girls Robotic Camp would be a day long camp focused upon building a robotic puppy. There would be up to four teams of five girls each. Each team will build a robotic puppy and decorate their puppy with paper and art supplies. During the day, the girls would individually build a picture frame. At the end of the camp, each of the girls would maneuver their puppy through an obstacle course while being timed. At the end of the camp the team would take a picture of their puppy to place in their picture frame.

The girls would be coached by our team members and led through the robotic design and build process, which cover the following:

- Explanation of Robotic Principals
- Design of robot
- Building robot
- Programming robot
- Art/ Covering of robot
- Construction of picture frames
- Completion of obstacle course
- Review of items learned during camp
- Certificate of Completion.

The camps would be held on a Saturday from 9:00 am to 5:30 pm with lunch provided for all participants.

Partnership with GIT

We would like to develop a long term partnership with Girls in Technology to put on these robotics camps for middle school girls in both Washington DC and the Atlanta region with the ultimate goal of having a team of middle school age girls participate in a

First Tech Challenge (FTC) competition within three years. See Appendix A regarding FTC (<http://usfirst.org>).

Pictures and Videos of our workshops are posted on teachrobotics.com (work session #1)

Plan of Approach:

Year One

Objective: To obtain the interest of middle school girls in robotics by familiarizing them with the robotic design and build process and operating a robot.

Develop and test robotic puppy concept at TEACH during one quarterly robotics camp. (This workshop is already scheduled for Nov 15, 2008)

Review camp and obtain feedback from girls attending camp (Feedback forms can be made available to GIT). Make changes to camp per feedback. Depending upon feedback and if needed hold one additional camp to work out any “bugs”

Locate High School Robotics Team in Washington DC or surrounding area to partner with TEACH Robotics Team in putting on workshops by contacting local FTC teams in Washington and surrounding area.

Hold information session on how the camp works with high school in Washington DC and share plans for obstacle course layout and design. TEACH High School would provide an exact list of the equipment needed and the location of where to get the items.

Determine location of camps and targeted girls (disadvantaged, partnership with a particular middle school) Partnering with a targeted middle school would work well since the girls will have consistency in the program and can enter advanced workshops.

Advertise for the camps in targeted areas Maximum 20 girls per camp (four teams with five girls each). However, ideal number of girls would be 16 or less. (Four teams with four girls each) TEACH will make a charge of \$45 per attendee. Depending upon structure, the team in Washington D.C. would not charge a fee.

Have partnership school put on “trial” camp to assure the camp is working well.

If everything works well, Hold the next camp and have a North/ South Competition in which the girls would race their puppy through the course. The North would race four teams and the south would race their four teams. Both locations could view the others through video streaming on a web hosted server. The teams would have a scoreboard and the winning region would get a trophy to keep until the next camp.

There would be a total of four “ Robotic Puppy” camps the first year affecting from 128 to 160 girls in each region. (64 to 80 Girls in the Washington DC area, depending on number attending camps)

At the end of the workshops, the girls will be familiar with robotic design and operation and they will become familiar with “driving/ operating” a robot with controllers.

Materials needed for workshop:

Year One

Four TETRIX kits for partner camp. (\$945.00 each)
Two TETRIX kits for TEACH Team (\$945.00 each)
Four foam boards with Dry Erase boards for Partner school (\$50)
Obtain extra parts and supplies for partner high school and TEACH \$400 each. (\$800.00)
Obtain art supplies for puppy for both high schools (\$45-\$65 per camp depending upon supplies)
Obtain competition field for both high schools (TBD – information is not available at this time. Expect it to be less than \$500 per school)
Obtain camcorder with picture taking ability and use free server for video streaming for both high schools (Camcorder Priced Sony Model **Model:** DCR-SR45 Price: \$449) we would need access to a laptop for the Washington DC school and large screen/projector)
Stop watches for each team. (Avg. price \$10-12. each)
Provide food and snacks for camps. (Avg. price \$10.00 per child)
Certificates(Free except for paper and ink (\$60)
Trophy (Avg. price \$15.00)- one needed.
Website Hosting costs for both school (\$200/year)
Photoshop for both Schools (\$1,500)

Program Total Year One\$13,989

Year Two:

Objective: To develop an advanced understanding of robots for middle school girls by having them design, build and operate a robot that performs a specific function.

Hold two advanced robotics camp for the girls that have completed the puppy course and have an interest in learning more about robotics by August 30th.

During the advanced camp the girls would build a “regular robot” that performs a function. For instance moving or pushing an object through an obstacle course. This will allow them to learn at a pace they are comfortable with and understand the FTC competition process. If possible, a past or current FTC competition format would be used to familiarize the girls with the FTC format.

At the end of year two we expect to have affected an additional 64 girls from the robotic puppy workshop (32 from Washington DC area) and have at least 20 girls enroll in the advanced robotics camp from each region.

New Materials needed for Year Two workshops:

Advanced Workshops:

Competition field: (Cost to TBD but should be less than \$1,000)

Additional Robotic Parts for each school: (\$800/ both schools)

Camp Food: 10/ per child per camp: (\$800/ both Schools)

Robotic Puppy Workshops

Camp Food: \$10 per child per camp: (\$800/ both Schools)

Art Supplies: \$300 / both Schools)

Additional / Replacement Robotic Parts: (\$800/ Both Schools)

Program Total Year Two: \$5,500

Year Three:

Objective: To develop an advanced understanding of robotics by competing against other teams in an organized setting which requires the girls to design, build, operate and compete with a robot.

Continue with two Robotic Puppy camps and two advanced Robotic Camps

Recruit team of girls from previous advanced classes to participate in Fall FTC club in which they would compete in at least one FTC competition.

Enroll in local FTC competition and mentor the team to build one robot. This will take approximately two months of continuous group meetings and an adult mentor from a local school will be needed to help this effort.

To continue to build the girls interest in robotics, continue to hold at least two to four puppy workshops per year and inform the new girls of the advanced workshops. The simultaneous North /South camps and competitions will continue to be held with TEACH Robotics Camps.

At the end of year three we expect to have affected an additional 64 girls from the robotic puppy workshop (32 from Washington DC area) and have at least 20 girls enroll in the advanced robotics camp from each region and have at least a 10 member FTC team..

New Materials needed for Year Three workshops:

Two Advanced Workshops:

Competition Field Upgrade/ Replacement parts: \$100 per school

Additional Robotic Parts for each school: (\$800/ both schools)

Camp Food: 10/ per child per camp: (\$800/ both Schools)

Certificates: \$30 (both schools)

Two Robotic Puppy Workshops

Camp Food: \$10 per child per camp: (\$800/ both Schools)

Art Supplies: \$300 (both Schools)

Certificates: \$30 (both schools)

Additional / Replacement Robotic Parts: (\$800/ Both Schools)

FTC Team:

FTC Registration Fee: \$275 per school

FTC kit: \$900 (per school)

Competition Costs (from \$100 to \$500 depending upon Competition)

Program Total Year Three: \$7,140

Year Four through Five:

Objective: To continue to build the interest of middle school girls in the robotics field, provide additional opportunities for girls to advance their knowledge of robotics and have at least one team compete in local robotic competitions.

We would like to continue this program for at least five years. We will conduct two beginning level robotic camps for middle school girls and hold two advanced robotics camps for girls each year going forward and register at least one FTC team in year four and five. Costs of the program will be the same as Year Three.

Program Total Year Four: \$7,140

Program Total Year Five: \$7,140

Annual Report

TEACH Robotics team will present an annual report in October (or other designated month) each year regarding the progress of the proposed program.

Appendix A

FIRST Information

FIRST was founded in 1989 to inspire young people's interest and participation in science and technology. Based in Manchester, NH, the 501 (c) (3) not-for-profit public charity designs accessible, innovative programs that motivate young people to pursue education and career opportunities in science, technology, engineering, and math, while building self-confidence, knowledge, and life skills.

Gracious Professionalism is part of the ethos of *FIRST*. It's a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community.

With Gracious Professionalism, fierce competition and mutual gain are not separate notions. Gracious professionals learn and compete like crazy, but treat one another with respect and kindness in the process. They avoid treating anyone like losers. No chest thumping tough talk, but no sticky-sweet platitudes either. Knowledge, competition, and empathy are comfortably blended.



In the long run, Gracious Professionalism is part of pursuing a meaningful life. One can add to society and enjoy the satisfaction of knowing one has acted with integrity and sensitivity.

Please visit the FIRST website for additional information