Grant Proposal

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I. EXECUTIVE SUMMARY

MISSION

The STEM Urban Outreach project will enable Saint Louis University students studying Science, Technology, Engineering, and Mathematics (STEM) to share their knowledge of STEM subjects with local underrepresented junior high school students. We will impact the lives of students in the St. Louis area by helping students learn about technology through hands-on projects, and by sharing our excitement for STEM subjects. We will provide local students with an opportunity to engage in a challenging and rewarding career path.

VALUES

The core values of the STEM Urban Outreach project are **Education** and **Equality** for local students. Using our strong commitment to **Volunteerism** and **Innovation**, we will create fun and exciting projects to increase local minority student **Engagement** with STEM subjects. We will utilize our **Passion for Science, Technology, Engineering, and Mathematics** to change the futures of local minority students. We will **Inspire** students to pursue STEM as a career and higher education option.

WHAT WE WILL DO

We will demonstrate that STEM careers are exciting, challenging, and rewarding by preparing and presenting hands-on experiments, speakers, videos, and tours of local companies. We will form a regular biweekly volunteer schedule to do demonstrations and help students complete projects at local middle and junior high schools. We will also form a long-term biannual event, the Innovation Competition, in which we will demonstrate more detailed science experiments and hold project competitions for the students. We will encourage students who might otherwise never consider a technological career path by providing a means for them to create and compete in projects and see examples of successful engineers.

WHAT WE NEED

We need to purchase electronics and other supplies to build and organize projects. We will make a large initial investment into the supplies to secure the sustainability of the project for the future. We also need to cover the costs of travel to and from the schools.

VISION FOR THE FUTURE

The goal of the STEM Urban Outreach project is to increase the number of minority students pursuing high-tech careers by providing local middle and junior high school students with the opportunity to engage in fun, exciting projects. We will guarantee the sustainability of the project by preparing a detailed plan for the future to manage our finances and projects, our volunteer base, and leadership transition. Our primary goals for the future include maintaining a biweekly volunteer schedule and hosting large, biannual events.

Our vision is to engage local minority and underrepresented students with STEM education. These students will discover the simplicity and beauty of our world when we share our education in and our excitement for Science, Technology, Engineering, and Mathematics. They will recognize that they too have the ability to change the world through the study of STEM subjects. They will be inspired to follow in our footsteps to become the next generation of scientists, technical innovators, engineers, and mathematicians.

II. Proposal Detail

What is the Need/Problem?

It is widely known that the United States is falling behind in educating students in the fields of Science, Technology, Education, and Mathematics (STEM). While education in these subjects is poor, there is also another problem in technological fields. In most other fields women and minorities are well represented. In technology-based fields such as Engineering, women and minorities are shockingly underrepresented. Often, women and minorities are not given the opportunity to engage with STEM subjects in a fun, hands-on manner. This lack of opportunity to spark interest in technology limits their desire to pursue STEM careers and is part of the reason why they are so underrepresented in technology-related fields.

What is Our Purpose/Solution?

Our solution to this problem begins with a local response. We will provide transportation for Saint Louis University students to volunteer at local St. Louis private and public schools. Through this volunteer work SLU students will assist junior high school students with hands-on projects, provide demonstrations on personal projects, coordinate competitions, and provide mentoring.

We will use a combination of several methods to encourage interest in STEM subjects for women and minority students, including the powerful tools of hands-on projects and mentoring. We will provide videos and speakers to further encourage education in subject areas such as: technology research and development, technology-related news, engineering ethics, why education is essential, the importance of teamwork, the engineering industry, personal success stories, and Saint Louis University student projects. We will also hold biannual Innovation Competitions and organize tours of local companies.

We will incorporate other resources such as local professional engineers and businesses in our outreach program. We will utilize contacts from student groups such as Society of Women Engineers to recruit professional volunteers and to communicate with local businesses. We will be seeking professionals to present inspiring personal stories and to assist with the Innovation Competition events. Also, we will request donations of recyclable computers from local companies and we will collaborate with these technology-related firms to coordinate group tours.

We will be collaborating between several student groups on campus to achieve an excellent volunteer program. We will work with four core student groups, including Society of Women Engineers (SWE), Biomedical Engineering Society (BMES), Math and Computer Science Club, and Micah House. We will draw our volunteers mainly from these student groups, but volunteer positions will be open to all SLU students, faculty, and staff. Our volunteers will interact directly with the junior high school students by facilitating projects, offering personal presentations, mentoring, and coordinating the

Innovation Competitions.

The Innovation Competition will be a biannual assembly of teams of outstanding students who will present the projects they have completed through the STEM Urban Outreach program. The students will compete for awards for team and individual projects, and demonstrations of undergraduate-level projects will be presented by Saint Louis University volunteers. The Innovation Competition will be the culmination of the regular volunteering sessions, and it will inspire students through recognition of accomplishments.

Overall, our goal is to address the poor STEM subject scores in the United States by encouraging interest in these subjects for local students, which will help increase their desire to learn STEM subjects. Overall, the STEM Urban Outreach project will encourage minority and underrepresented students to pursue STEM as a career and higher education option by engaging them in scientific projects and getting them excited about critical thinking.

PROJECT DESCRIPTIONS

The largest and most important component of the STEM Urban Outreach project is the hands-on projects we will provide for local students. We will create several projects to demonstrate various technical fields. These areas include Software Engineering/Computer Science, Electrical Engineering, Aerospace Engineering, Physics, Mechanical Engineering, Computer Engineering, and Biomedical Engineering. An emphasis will be given not just on the hands-on aspect of the projects, but also on the "big picture." The volunteers will explain the simple underlying laws that govern each discipline to the students. Each project was deliberately chosen because of its simplicity, application, and level of fun. We have purposefully developed these projects while considering several factors of sustainability, which we will discuss more in Organization Sustainability (Section V). Below is a short description of each of the projects.

Circuitry Project – Software Engineering/Computer Science

The Circuitry Project will provide understanding of how computers use code to run software. This project will allow students to use Arduino microprocessors and program them to do basic tasks. The project will consist of placing LEDs and other electronics on an easy-to-use breadboard. The students will connect components using a given circuit diagram, and they will use this circuit to run a pre-written program to blink lights, power motors, and enable sensors to detect motion.

The project is entirely reusable, except for the LEDs, and will not require additional purchases. With the exception of loss and breakage, the components for this project can be reused indefinitely. This project will support up to twenty students per session.

Soldering Project – Electrical Engineering

The Soldering Project will demonstrate how circuitry is connected using solder and it will give the students first-hand experience with circuit boards. This project will

allow students to use solder and a soldering iron to practice connecting electrical components. The students will connect LEDs to the circuit boards, which they will then be able to power using batteries.

Because soldering components to a circuit board is permanent, this project will have less reusable parts than some of the other projects. The reusable parts are the rechargeable batteries, soldering irons, and soldering iron stands. We will make a large initial investment into the solder, circuit boards, and LEDs to ensure a long lifetime of the project. This project will support up to ten students per session, for a total of ten sessions, or one hundred students.

Rocket Project – Aerospace Engineering

The Rocket Project will allow students to get excited about model rocketry, which could fuel a life-long interest in Aerospace Engineering. The students will build model rockets in small teams over an extended time period, and they will compete for best launch during the Innovation Competition. Older students will use model rocket kits, hobby knives, sandpaper, and plastic cement glue to build the rockets, which we will provide. Also, we will purchase the necessary components for launch, including a launch pad, parachutes, a controller, and accessory items such as recovery wadding. Younger students will be able to reuse the previously constructed rockets for an indefinite number of launches.

This project is mostly reusable. As stated above, once constructed, the model rockets are entirely reusable, as well as the launch pad, hobby knives, and the controller. The consumable parts are sandpaper, plastic cement glue, recovery paper, and rocket engines. With our initial purchase, this project will support a total of one hundred students (in groups of four to five students).

Egg Drop Project – Physics

The Egg Drop Project will showcase fundamental properties of Physics, and it will require students to use critical thought to apply their knowledge of physical laws to prevent an egg from breaking. The students will be given straws, cardboard, glue, and tape to construct a container which will keep an egg from breaking when it is dropped from a certain height. The students will have to follow specific rules and will be allowed to use other specified materials to construct their egg drop container. The egg drop could be done during regular volunteering, or it could be used as a competition for the Innovation Competition. The students will be provided with eggs on the day of the egg drop.

This project is entirely consumable, but it demonstrates important scientific principles and it will require the students to use critical thought and analysis to succeed in the competition. These principles and skills are essential to technology-related fields, and so this project is very applicable to the STEM Urban Outreach project even though it is not reusable. This project will support up to a total of one hundred and seventy-five students.

Rubber Band Car Project – Mechanical Engineering

The Rubber Band Car Project will enable students see the mechanical action

required to move an object, to understand the difference between potential and kinetic energy, and to analyze how a vehicle is affected by motion and stresses. This project will work as a great example of Physics and Engineering for older students, and it can be reused for younger students. The students will build balsa-wood model cars that are powered by rubber bands. Several different options of cars will be provided, including a hovercraft and a balloon powered car. The students will construct the cars using the kits provided, and they will race the cars at the Innovation Competition. Some other supplies are needed for this project, including glue and hobby knives. These additional supplies are accounted for in the Rocket Project budget.

This project is reusable for younger students, even though the cars can only be constructed once by older students. This project will support up to forty initial students to build the cars, and can continue to be used indefinitely.

Computer Building Project – Computer Engineering

The Computer Building Project will enable students to see how computer parts are engineered to work together and what part computer components play in running a desktop computer. We will provide desktop computer components, donated from local businesses, to the students and show them how to assemble the main components to start the computer. Ubuntu Linux is a free, open-source alternative to an operating system such as Microsoft Windows, and the volunteers will show the students how to use Ubuntu Linux to boot up the computers. We will previously download Ubuntu Linux onto compact discs, and once the computer parts are assembled, we will run Ubuntu from the CDs to demonstrate how computer software interfaces with hardware.

This project is entirely reusable. The project can be reused indefinitely with donated computers and the purchase of CDs. The CDs will also be reusable because Ubuntu Linux only needs to be downloaded once and can be used to run an unending number of computers. This project will support up to twenty students per session.

Electrocardiogram (ECG) Machine Project – Biomedical Engineering

The Electrocardiogram project will help students understand what Biomedical Engineering is about. They will see the connection between the mechanical pieces and the medical field by using a homemade ECG. The ECG is comprised of electrodes connected to a multimeter, which is able to read a heartbeat. An activity the students could do is to measure their heart rate while sitting and then again after exercising.

This project is completely reusable, and could support up to twenty students per session. With the exception of loss and breakage, the components for this project can be reused indefinitely.

WHOM DOES IT BENEFIT?

The STEM Urban Outreach project serves the young minds of the community, specifically local students in junior high school. We will focus on creating programs to reach out to underrepresented students who have shown previous interest in Mathematics or the Sciences, but our program will be available to any interested students. We will be working with local private and public schools and utilizing contacts

that Saint Louis University has already made through previous outreach programs such as “Introduce a Girl to Engineering Day.”

Saint Louis University students will also benefit from this program as volunteers. We will be working with professional members and local businesses, so volunteering in the program will offer valuable networking opportunities for Saint Louis University students as well as providing volunteer hours.

The educators involved in the project will benefit from the knowledge and enthusiasm of the volunteers. Also, the professional engineers who volunteer will benefit by utilizing the project as an outlet for their local outreach and recruiting potential future employees. Finally, we will be benefiting the greater St. Louis community by encouraging the development of Science, Technology, Engineering, and Mathematics leaders, promoting equality in education, and encouraging the pursuit of higher education.

How Will We Measure the Benefit?

We will create a feedback system for the teachers and facilitators of our program, as well as from the volunteers. We will create and provide online evaluations which we will use to gauge the effectiveness of our project. In these evaluations we will ask for general feedback as well as suggestions for improvements and efficiency. We will also provide a separate evaluation for the junior high school students to complete which will allow us to determine whether our efforts to get them excited about technology have been successful. This will be our short-term benefits measurement.

As a mid-length measurement of success, we will record the number of students who participate in the Innovation Competition, as well as the students who excel and receive awards. Also, we will utilize local resources to encourage students to consider STEM fields as a future career and education option. We will refer them to career counselors at their school or programs already in place in St. Louis to plan their higher education careers. Our long-term goal will measure success by the number of students who enroll in a higher education institution to study STEM curriculum.

III. Background and Research

Steps We Have Already Taken

- Organized a strong, knowledgeable, and enthusiastic core group of leaders
- Found a faculty mentor
- Communicated with Saint Louis University staff for educator referrals
- Organized a strong base from which to draw volunteers
- Developed detailed projects
- Raised $1,000 for our project through another source

Research

National Science Foundation Statistics: The NSF has found that STEM achievement in secondary education is decreasing in the United States

- The Program for International Student Assessment (PISA) aims to test students' ability to apply STEM knowledge
- In 2006, PISA found the average mathematics score of U.S. students (15 years old) was lower than scores in 18 comparison nations (out of 24), and higher than those in 4 other countries—3 of them developing economies.
- Between 2000 and 2006, the number of countries scoring higher than the United States on the PISA science assessment rose from 6 to 12.

Source: All statistics found at the National Science Foundation website, http://www.nsf.gov/statistics/seind10/c1/c1h.htm

National Action Council for Minorities in Engineering (NACME): Research on Minorities in Engineering in the United States

- In May, 2008, NACME released *Confronting the "New" American Dilemma—Minorities in Engineering: A Data-Based look at Diversity*.
- NACME has found that “fewer than 12% of baccalaureate engineering graduates in [the United States] are underrepresented minorities,” including women, African Americans, American Indians, and Latinos.

Source: All Statistics found at the National Action Council for Minorities in Engineering website, http://www.nacme.org/NACME_A.aspx?pageid=1

Society of Women Engineers Aspire Program: Other resources

- Society of Women Engineers (SWE) offers many resources to collegiate SWE groups to help outreach programs.
- In the future, we will take advantage of the resources that SWE offers through the Aspire program in addition to the Bright Ideas Grant to help organize our project, educate our volunteers, and possibly apply for additional funding.

Source: http://aspire.swe.org/index.php

COMMUNICATION

We have begun communication with local schools through our contacts in the Parks College faculty and staff. Parks College staff has gathered contact information for educators from local private and public schools from Society of Women Engineers' annual "Introduce A Girl to Engineering Day." These educators have already expressed interest in STEM education and the encouragement of minorities and women to study technology-based fields. We will start our communication with local schools by taking advantage of these acquaintances and expanding our school base through networking with these educators. Special Projects Coordinators Brooke Lund and Amanda Pope in Parks College of Engineering, Aviation, and Technology will be assisting us in making initial contacts and in the continued marketing of our project.

Initially our advertisement will be directed through student groups, but we will also develop a website and utilize contacts with professional engineers. A major part of our communication will be the STEM Urban Outreach website. We will use this website to showcase our projects, to recruit new schools, educators, and professionals to participate in our program, to facilitate feedback, and to recruit new student volunteers. The website will be a main staple of our marketing strategy. We will also utilize related student groups outside of our core groups, professors, and word-of-mouth to advertise our project. We will utilize all of the resources available to us as part of the Saint Louis University community to fully and effectively communicate our message of education and equality to Saint Louis University and the city of St. Louis community.

IV. Action Plan

Goals

1. To increase technology education by creating a volunteer base to showcase STEM projects and increase enthusiasm for these subjects
2. To form a sustainable volunteer system that will continue on a regular basis and seamlessly transition between leadership
3. To create a new biannual event, called the Innovation Competition, which will include competitions and project presentations by SLU student groups

Timeline

Tasks

March – May 2010	Contact local educators to arrange a meeting
	Purchase project parts
	Organize projects and build any necessary components
	Hold an informational meeting for the local educators to provide information about our project and our goals, to gather feedback on ideas, and to plan dates
June 2010 – August 2010	Create a database of educator contacts

	Schedule the first volunteer session
	Make a website or a Google form for feedback purposes
	Develop marketing strategy
	Contact professional engineers and local companies to plan speakers and tours
	Ask for old desktop computer components
	Choose a date and begin planning first Innovation Competition
August 2010 – May 2011	Arrange volunteers from our four base student groups
	Reserve travel (Saint Louis University Transportation Services)
	Present at first school
	Analyze feedback
	Continue marketing strategy
August 2011 – May 2012	Structure sustainable leadership system
	Expand local school contacts

V. Organization Sustainability

Team Members

Current Team Members			
Last	**First**	**Email**	**Year**
Barna	Maria	mbarna@slu.edu	Junior
Malik	Arif	amalik8@slu.edu	Professor
Psimas	Bryan	bpsimas@slu.edu	Senior
Reyes	Phillip	preyes@slu.edu	Sophomore
Scott	Rebecca	rscott8@slu.edu	Senior

We will be recruiting volunteers from four different organizations in which the above students have roles as leaders. Maria Barna is the President of Society of Women Engineers (SWE), Bryan Psimas is the Vice President of Math and Computer Science Club, Phillip Reyes is a Micah House student, and Rebecca Scott is the President of Biomedical Engineering Society (BMES). Dr. Malik is doing research with minorities and women in technology-based fields, and is acting as a mentor to our Bright Ideas Grant proposal.

Leadership

Maria Barna and Phillip Reyes are acting as main team leaders for the project. Both students attended the Social Change and Innovation conference and were inspired to collaborate on this project through a shared passion for education and technology. Because both students have one to two years left at Saint Louis University, a strong base of leadership will be built before they graduate, allowing enough time to ensure continuity of leadership.

The President's responsibilities will include organizing volunteer dates and locations, and keeping steady communication with local school educators. The President will also look ahead into the future of the project and network to obtain new educator contacts, implement new project ideas, and analyze feedback. The Vice President will assist the President in these activities, as well as following through on overseeing other student leaders and working as one of the Financial Officers. We will keep our project in a strong financial position by recording all financial exchanges and keeping an estimation of any necessary future purchases. The financial position will be shared between two Financial Officers to ensure accountability. We will have two coordinators, a Project Coordinator, and a Volunteer Coordinator. The Project Coordinator will be in charge of the project part inventory and predict any necessary purchases. The Volunteer Coordinator will organize travel and maintain contact with all

volunteers, as well as lead volunteer recruitment. We will keep all of our documents electronically and share them using Google documents and email to maintain the most convenient and environmentally-conscious leadership structure. As the project grows, we will look for new leaders to take on organizational and leadership roles. Within two years we will have transferred leadership to other students.

STRUCTURE

- President – Maria Barna
- Vice President/Financial Officer – Phillip Reyes
- Project Coordinator/Financial Officer – Bryan Psimas
- Volunteer Coordinator – Rebecca Scott
- Volunteers – Drawn from SWE, BMES, Micah House, Math & CS Club, SLU students, faculty, and staff
- Mentor – Dr. Arif Malik

PROJECT SUSTAINABILITY AND BUDGET ANALYSIS

We are focusing on environmentally-responsible purchases for our projects and have structured the projects to be as reusable as possible. All of the items we have purchased are listed as either Consumable or Reusable in the budget. This categorization will allow us to consider environmentally-friendly use of our projects and to structure any necessary future purchases.

With the purchases in our budget, we have estimated that we will be able to impact at least Our total budget will enable us to impact over one thousand students within two years, not including continued usage of sustainable projects. The Circuitry project can support up to twenty students per session, and in ten sessions we could impact two hundred students. We have purchased enough components for the Soldering project to impact one hundred students. The Rocket project could impact one hundred students if each team of students contains four or five members per rocket. The Egg Drop project will support up to one hundred and seventy-five students, and the Rubber Band Car project will support an initial forty students (if we assume that the cars will not be reusable and each car building team consists of an individual student). Finally, in two years we could impact two hundred students each with the Computer Building project and the ECG project. Each of these projects is entirely sustainable and can support up to twenty students per session. We have assumed that each of these projects can be completed ten times within two years.

We consider one thousand students to be a conservative and practical estimate. Over an extended period of time such as five years, our impact could grow to affect up to four thousand students or more if we obtain further funding. This very rough estimate gives us the result of 1.17 students being affected for each dollar in our current budget.

PARTNERSHIPS

We have three main partnerships: student groups, professionals and businesses,

and local schools. We will be collaborating between several student groups to recruit volunteers, including Society of Women Engineers (SWE), Biomedical Engineering Society (BMES), the Math and Computer Science Club, and Micah House. We will also be working with local professionals, businesses, and faculty and staff from Saint Louis University. Lastly, we will be partnering with educators from local schools to plan and execute our events.

Additional Funding

Maria Barna received a scholarship from the Parks College Alumni Board in the amount of $1000 for this project. The scholarship is through Society of Women Engineers (SWE), a Parks College student group, but the money is earmarked to be reserved entirely for this project. Also, additional funding could be raised from local businesses or engineering firms, or through outreach programs such as SWE's Aspire program. These sources of funding will take additional time and planning to complete a thorough fundraising campaign, and so at this stage of the project we are not currently counting on these sources for income.

Additionally, we will be seeking out donations from local businesses. We will need several desktop computers to demonstrate the Software Engineering project, and we will be searching for these parts to be donated. Also, several materials such as cardboard, for the Egg Drop project, will be donated. We will be awarding cost-effective prizes such as awards and certificates to the winners of the Innovation Competition. We hope to receive support from Parks College to be able to award exciting, inexpensive prizes such as sessions in the Flight Simulator or tours of Parks College.

VI. BUDGET

START-UP BUDGET

Item No	Item	Source	Type	Unit Cost	Qty	Subtotal
		Circuitry Project				
666	Arduino USB Board	Sparkfun Electronics	Reusable	$26.96	16	$431.36
8802	Breadboard Mini Self-Adhesive Green	Sparkfun Electronics	Reusable	$3.56	8	$28.48
8801	Breadboard Mini Self-Adhesive Blue	Sparkfun Electronics	Reusable	$3.56	8	$28.48
512	USB Cable A to B - 6 Foot	Sparkfun Electronics	Reusable	$3.56	16	$53.40
8546	7-Segment Red LED	Sparkfun Electronics	Reusable	$0.76	100	$76.00
124	Jumper Wire Kit	Sparkfun Electronics	Reusable	$6.26	20	$125.20
9258	Resistor Kit - 1/4W	Sparkfun Electronics	Reusable	$10.95	5	$54.75
533	Basic LED - Red	Sparkfun Electronics	Reusable	$0.28	300	$84.00
COM-00535	Crystal 10MHz	Sparkfun Electronics	Reusable	$0.86	16	$13.76
COM-08928	BJT Transistors - NPN BC547	Sparkfun Electronics	Reusable	$0.86	16	$13.76
COM-00299	16 Channel Multiplexer	Sparkfun Electronics	Reusable	$0.86	16	$13.76
COM-09288	Rotary Potentiometer - Linear	Sparkfun Electronics	Reusable	$0.86	16	$13.76
COM-00097	Mini Push Button Switch	Sparkfun Electronics	Reusable	$0.32	16	$5.12
SEN-09088	Mini Photocell	Sparkfun Electronics	Reusable	$1.35	16	$21.60
					Subtotal	**$963.43**
		Soldering Project				
7949	Battery Holder - 1xAA	Sparkfun Electronics	Reusable	$0.86	20	$17.20
9318	Soldering Iron - 40W	Sparkfun Electronics	Reusable	$5.36	20	$107.20
9477	Soldering Iron Stand	Sparkfun Electronics	Reusable	$5.36	20	$107.20

9162	Solder Leaded 10-gram Tube	Sparkfun Electronics	Reusable	$1.76	20	$88.00
8812	ProtoBoard - Rectangle Wired 3"	Sparkfun Electronics	Consumable	$3.60	100	$360.00
533	Basic LED - Red	Sparkfun Electronics	Consumable	$0.28	300	$84.00
N82E168 12120803	Power Strip	Newegg	Reusable	$24.99	2	$49.98
					Subtotal	**$813.58**
Rocket Project						
est302215	Porta-Pad II Model Rocket Launch Pad	Hobbylinc	Reusable	$20.09	1	$20.09
tes50627c	Hobby Knife	Hobbylinc	Reusable	$4.89	5	$24.45
tes8802	Sandpaper	Hobbylinc	Consumable	$2.19	12	$26.28
sfr710101	Black Widow with Parachute Educators Pack (12)	Hobbylinc	Consumable	$70.19	1	$70.19
sfr710183	Explorer X-13 with Parachute Educators Pack (12)	Hobbylinc	Consumable	$53.59	1	$53.59
tes3501	Plastic Cement Tube 5/8 oz	Hobbylinc	Consumable	$1.49	5	$7.45
est1781	Bulk A8-3 Engine Educator Pack (24)	Hobbylinc	Consumable	$39.99	1	$39.99
est2230	E Model Rocket Launch Controller	Hobbylinc	Consumable	$26.69	1	$26.69
					Subtotal	**$268.73**
Egg Drop Project						
N/A	12-pack Eggs	Walmart	Consumable	$2.89	16	$46.24
N/A	50-pack Straws	Walmart	Consumable	$2.49	25	$62.25
N/A	Tape	Walmart	Consumable	$4.89	20	$97.80
N/A	Glue	Walmart	Consumable	$3.29	10	$32.90
N/A	Cardboard Boxes	Donated	Donated	Donated	Donated	
					Subtotal	**$239.19**
Rubber Band Car Project						
K970DF	The Wind Bag - Balloon Powered Racer Kit	Doc Fizzix	Reusable	$7.95	20	$159.00
K901DF	Zephyr Kit - Rubber Band Racer	Doc Fizzix	Reusable	$7.95	20	$159.00
					Subtotal	**$318.00**

Computer Building Project						
N/A	Old Desktop Computer	Donated	Reusable	Donated	5	Donated
N82E168 17130953	100-pack Operating System CDs (Ubuntu)	Newegg	Reusable	$19.99	1	$19.99
					Subtotal	**$19.99**
Electrocardiogram Project						
N/A	Electrodes	Medical Products	Reusable	$2.99	15	$44.85
N/A	Multimeter	Donated	Reusable	Donated	2	$0.00
					Subtotal:	**$44.85**
Prizes						
N/A	Certificates	Donated	Consumable	Donated	No Limit	Donated
N/A	Simulator Ride/Tour	Parks College	Reusable	Donated	No Limit	Donated
					Subtotal	**$0.00**
Item No	**Item**	**Source**	**Type**	**Unit Cost**	**Qty**	**Subtotal**
Travel						
N/A	SLU Van Rental (7-person for 2 years)	Saint Louis University	Consumable	$15.00	4	$675.00
					Subtotal	**$675.00**
Shipping						
	Sparkfun					$12.79
	Doc Fizzix					$42.05
					Subtotal	**$54.84**
					TOTAL	**$3,397.61**

INCOME STATEMENT

Source of Income	Amount
Parks College Alumni Board Scholarship (SWE)	$1,000.00
Bright Ideas Grant Application Process	$400.00
Bright Ideas Grant	$2,000.00
Net Income	$3,400.00

VII. Conclusion

In conclusion, The STEM Urban Outreach project will be beneficial to both the Saint Louis community and Saint Louis University students. We will be directly affecting the next generation of technology professionals by volunteering our time, effort, and knowledge. We hope to make the greatest impact on local students by mentoring and offering the chance to engage in hands-on projects. We are taking advantage of all of our resources by collaborating with several student groups on campus, the professionals and businesses in the local engineering industry, and our students, faculty, and staff here at Saint Louis University. We will be making a difference by convincing local underrepresented students to become involved in hands-on projects, and encouraging them to consider technology-related fields as higher education and career options. The Bright Idea Grant money will help us to pursue our goal to increase the number of students pursuing high-tech careers, and to offer an equal opportunity for all local Saint Louis students to pursue the study of Science, Technology, Engineering, and Mathematics.

The leaders of the STEM Urban Outreach project thank you for your consideration of our project for the Bright Idea Grant. We appreciate your time and effort in reading our proposal, and we would be very grateful for your support for our project.

Maria Barna_____

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Bryan Psimas_____

Rebecca Scott_____

*Dr. Arif Malik*_____