



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Future Faces of Physics Award Report

Project Proposal Title	SSU SPS/MESA Skills Lab: RedBoards, Soldering, PCBs, Oh My!
Name of School	Sonoma State University
SPS Chapter Number	6474
Project Lead (name and email address)	Amandeep Gill
Total Amount Received from SPS	\$300.00
Total Amount Expended from SPS	\$300.00

Summary of Award Activity

The SPS chapter at Sonoma State University extended upon our existing microcontrollers program with the MESA, Mathematics, Engineering, Science Achievement, group on campus. The extension included adding more sensors, depth discussion on the Arduino language, and a soldering element to the teaching.

Statement of Activity

Overview of Award Activity

SSU SPS put on four skills labs in conjunction with the MESA group to teach microcontrollers and Arduino programming language to underrepresented minorities, of both in the sciences and not. As this was a continuing project from previous semesters, we were able to develop deeper lesson plans to cover more than the basics of microcontrollers. As a chapter we have increased our involvement in the community, we have focused on bettering outreach outside of the sciences especially. This program particularly has helped expand to a new group. We had a couple students who went through the program for multiple semesters and are very interested in adding or switching to the physics major. Skills labs in general have been an excellent method to showcase what the department has to offer. Even more, with the SPS/MESA Skills Labs we have been able to promote the Society and the benefits of joining.

Impact Assessment: How the Project/Activity/Event Promoted Physics across Cultures

By partnering up with MESA on campus we were automatically promoting to an unrepresented in the sciences audience, by also including promotional materials being spread around campus, we had many non-science majors interested and attending too. With this addition to the program, i.e. adding the soldering and prototyping aspects, we were able to grow our audience base. Being able to teach very real-world applicable skills like soldering we were able to show off the engineering angle of physics and really bring the departments together in a way. At the beginning we gave a voluntary questionnaire asking the participants what their level in programming and electronics is and they are given the same questionnaire at the end of the program. Everyone this past semester showed improvement in both areas.

Key Metrics and Reflection

<p>The Future Faces of Physics Award is designed to promote projects that cross cultures. What cultures did your project attempt to bring together?</p>	<p style="text-align: center;">Underrepresented minorities, who may not be science majors.</p>
<p>How many attendees/participants were directly impacted by your project? Please describe them (for example “50 third grade students” or “10 high school volunteers”).</p>	<p style="text-align: center;">10 Sonoma State Students, outside of the Physics Department.</p>
<p>How many students from your SPS chapter were involved in the activity, and in what capacity?</p>	<p style="text-align: center;">4 SPS members presented a topic each and assisted.</p>
<p>Was the amount of money you received from SPS sufficient to carry out the activities outlined in your proposal? Could you have used additional funding? If yes, how much would you have liked? How would the additional funding have augmented your activity?</p>	<p style="text-align: center;">We used the full funding provided, I believe the funding amount was enough. Having won this grant multiple years now has enabled us to develop the project more than just one grant would have.</p>
<p>Do you anticipate repeating this project/activity/event in the future, or having a follow-up project/activity/event? If yes, please describe.</p>	<p style="text-align: center;">Absolutely, SSU SPS has every intention to continue this project for years to come.</p>
<p>What new relationships did you build through this project?</p>	<p style="text-align: center;">More interconnection between science and non-science majors.</p>
<p>If you were to do your project again, what would you do differently?</p>	<p style="text-align: center;">We will promote the skills labs sooner next fall.</p>

Press Coverage (if applicable)

N/A.

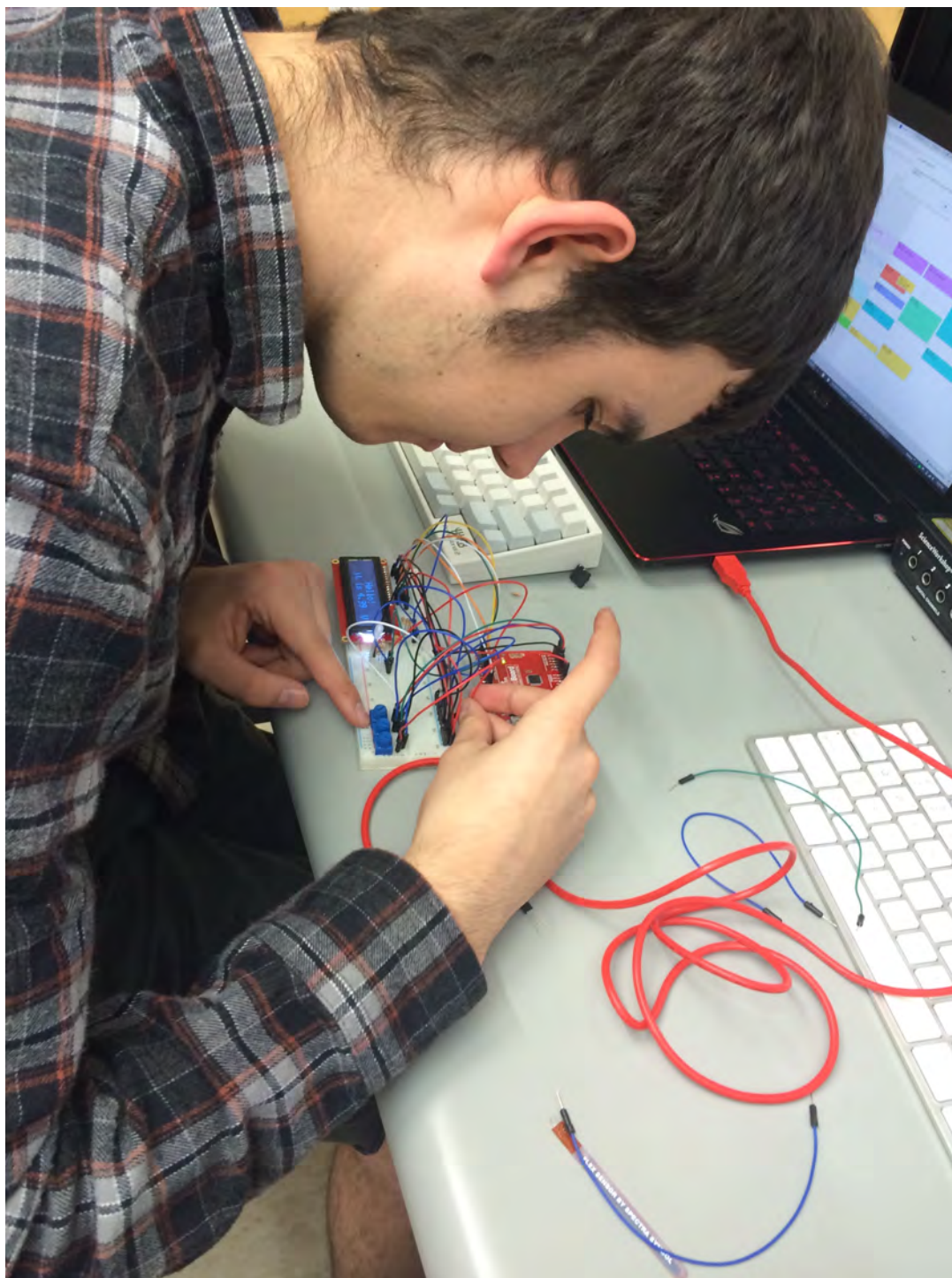
Expenditures

We purchased SparkFun soldering supplies to go with the previously purchased RedBoards and starter kits.

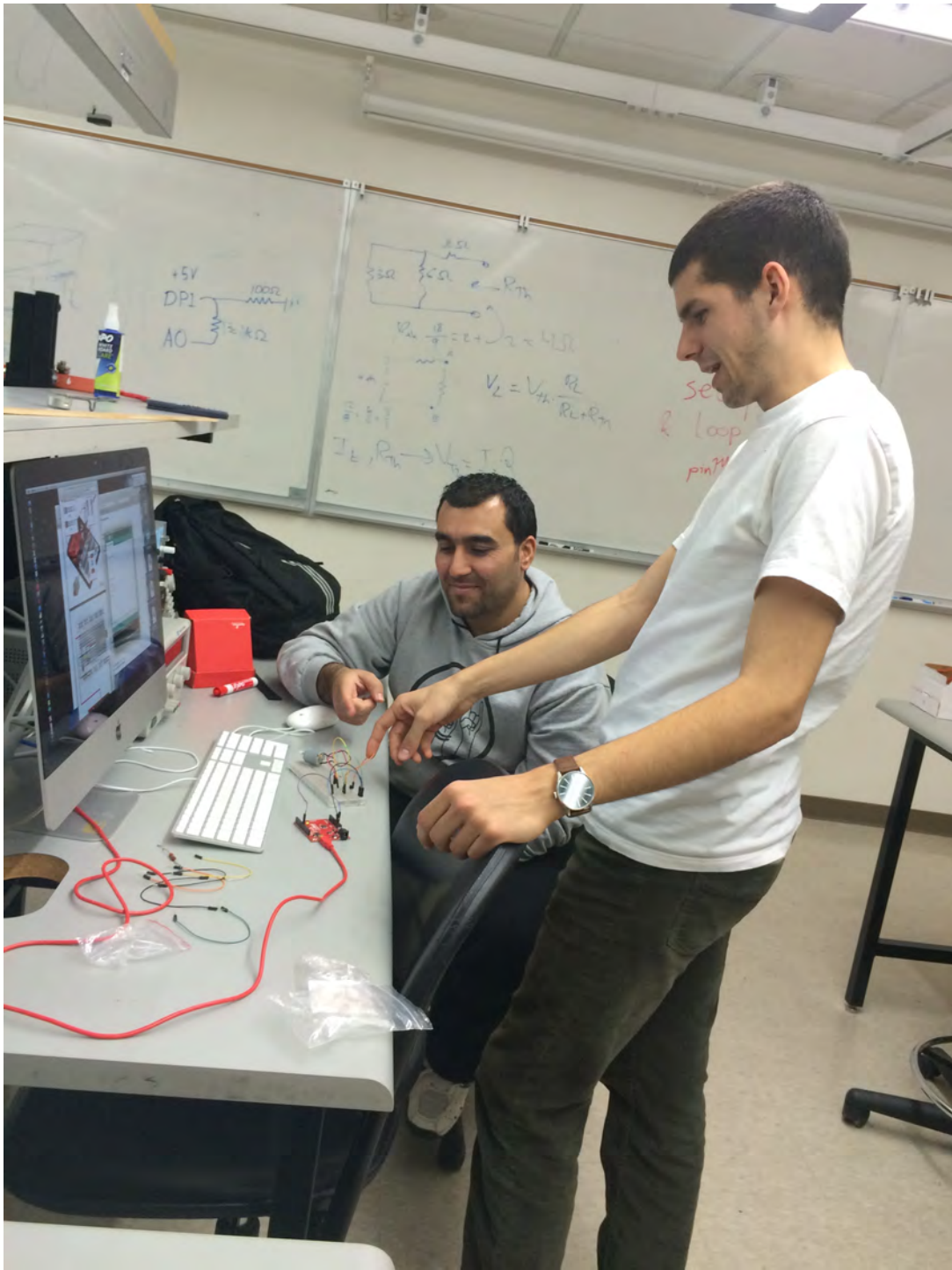
Expenditure Table

Item	Cost
SparkFun- Sensor Kit (1)	139.95
SparkFun- Solderable Breadboard (6)	29.70
SparkFun- Solder Lead Free- 100g Spool (1)	7.95
SparkFun- Soldering Iron (6)	120.00
Plus taxes, anything over \$300 was covered by our chapter.	
Total of Expenses	297.60

Activity Photos



CS major, Jeff, wiring up his temperature monitor set-up.



Wes W., SPS member, helping EE major with his set-up.



SPS members left to right: Rosie O, Stephanie C., Michael D., Tyler W. Presenter Demitri C. is behind them, showing them how to solder.



If you have any questions, please contact the SPS National Office Staff
Tel: (301) 209-3007; Fax: (301) 209-0839; E-mail: sps-programs@aip.org