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**ASEE 08 Convention Workshop:
Introduction to the Newly Developed PIC Microcontroller Training System and Its Associated Curriculum**

Workshop Report for ECETDHA Mini-Grant

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September 30, 2008

Introduction:

The mini grant of \$960.00 was used to support the operation of the ASEE 08 conference workshop, “Introduction to the Newly Developed PIC Microcontroller Training System and Its Associate Curriculum”, in Pittusburgh Convention Center Room 327, June 22, 2008, 2:00PM-5:00PM, Pittsburgh, Pennsylvania. There were 18 attendees from different colleges and university in the US and Australia who joined in this workshop. The grant was used to support a portion of the expenses that are presented in the following Table 1.

Table 1. Workshop Expenses

Item #	Name	Unit Cost	Total Number	Shipping Charge	Total
1	Customary Charge	\$25.00	22	\$0.00	\$550.00
2	Extension Cord Service	\$15.00	3	\$0.00	\$45.00
3	Kingston 2G Flash Drive	\$10.95	25	\$13.99	\$287.74
4	Stepper Motor	\$2.25	26	\$3.50	\$62.00
5	DC Motor	\$2.50	26	\$3.50	\$68.50
Grand Total					\$1,013.24

There were five presenters from three different institutions who presented and demonstrated during this 3 hours workshop. The presenters were: Steve Hsiung, John Hackworth, John Ritz, and Cheng Lin from Old Dominion University, VA, Jim Eiland from Blue Ridge Community College, VA, and Russ Puskarcik from Olympic College, WA.

Workshop Result/Survey/Conclusion:

An evaluation survey was required at the end of the workshop to evaluate the effectiveness of the workshop presentation, PIC Training System, and course curriculum designs. There were a total of 18 attendees and only 15 responded to the survey. Not everyone answered all the questions. The survey instrument and summary of the survey results is presented in Table 2. The results were positive of the workshop and project designs. It justified the need of a common platform for teaching and learning of the microcontroller related course in distance and on-campus classes. The only uncertainty was the actual implementation of the PIC Training System in distance learning. This was due to the lack of experience in real-time hands-on distance learning of the participants. There were several attendees who did not have previous experience with PIC MCU but are willing to learn and adapt the application in their institutions.

A summarized bar chart of the survey results is presented in Figure 1.

Table 2. Workshop Survey Instrument and Results

ASEE08 Workshop Evaluation Results (6/22/08): A Newly Developed PIC Microcontroller Training System and Supporting Curriculum Package

Note: Mark your choice (5 is strongly agree and 1 is strongly disagree) for each question and comment at appropriate row.

#	Question	Rating					Mean N	
		5	4	3	2	1		
1	Do you think the interface connectors' layout is sufficient for this training system?	9	6				15	4.60 Strongly Agree
2	Does this training system design fit your program needs?	3	7	4			14	3.93 Agree
3	Does this training system meet your current lab exercise needs?	3	6	4		1	14	3.71 Agree
4	Does this training system provide sufficient options in peripheral circuits' for different interface exercises?	8	6	1			15	4.47 Agree
5	Does the price of \$130 justify this training system cost?	9	6				15	4.60 Strongly Agree
6	Does this training system software provide sufficient options for your lab exercises?	4	10				14	4.29 Agree
7	Do you think a wireless RF module is necessary for this training system?	5	3	3			14	4.00 Agree

8	Do you think a wireless IF module is necessary for this training system?	4	4	4			12	4.00	Agree
9	Do you feel the curriculum package is sufficient to cover your uP/uC courses?	3	7	4			14	3.93	Agree
10	Do you think you would like to adapt this training system for your face to face campus courses?		9	2	2		13	3.54	Agree
11	Do you think you would like to adapt this training system for your distance learning courses?		4	4	1		9	3.33	Uncertain
12	Does this workshop assist you in the lab courses preparation and implementation?	8	3	3			14	4.36	Agree
13	Is this workshop useful to your academic needs?	5	7	3			15	4.13	Agree
Overall Workshop Assessment		9	4	1			14	4.27	Agree

Comments:

- Not enough time to understand the potential of the system. System seems well designed and provides detailed documentation.
- Great work so far; could use a user-centered design revision so other institutions could use it without developer's knowledge.
- Need to find an appropriate textbook to parallel the system.
- Excellent workshop and excellent project.
- It is very comprehensive and informative for my future use with digital control of electric machinery.
- Excellent workshop. Hands-on is important tool to learn better.
- Need to be able to reprogram without taking out wires.
- The training board has some connecting bugs with the software. Sometimes it can connect; sometimes it cannot.

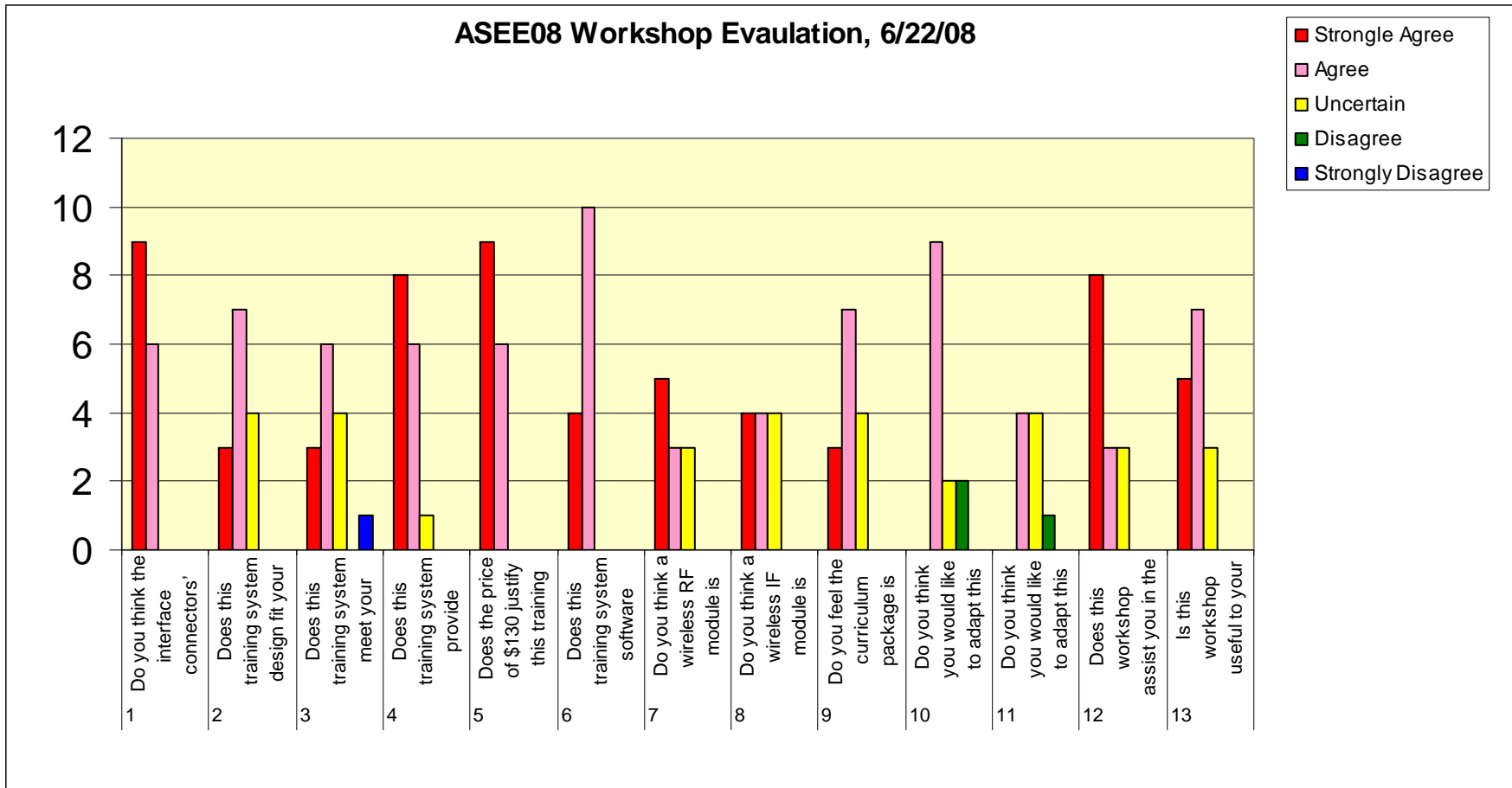


Figure 1. Bar Chart of the Workshop Survey Results