

THE REPORTER

Journal of the Central-Indiana Section • IEEE

Two Central Indiana FIRST Robotics Teams Claim \$500 Sponsorships

Two local FRC Teams have claimed \$500 Sponsorships in the Central Indiana Section's Annual Essay Contest.

The FIRST Robotics Competition (FRC) challenges high school students to build a competitive robot during a six-week build season using a standard "kit of parts" and a common set of rules. The teams and robots then compete in games designed by Dean Kamen, Dr. Woodie Flowers, and a committee of engineers and other professionals. (<http://www.usfirst.org>). FIRST Robotics Competition (FRC) is a unique varsity sport of the mind designed to help high-school-aged young people discover how interesting and rewarding the life of engineers and researchers can be.

This year's essay contest challenged teams to find a technology in their robot that was named for its inventor.

The winning essay from Warren Robotics (Warren Central High School), written by Mariel Weidman and Sean Ward, described the team's use of Ackermann steering in their robot.

The winning essay from Team Roboto (Madison County Community Foundation), written by Sara Niccum, described the team's use of a Lazy Susan bearing and pondered the interesting stories of how that bearing was named.

The winning essays can be found elsewhere in this issue of The Reporter.

TISP at Pike Township Math & Science Cohort

On January 13 Will Kassebaum, a Director of CIS-IEEE, conducted a Teacher In-Service Program workshop entitled Rotational Equilibrium for about forty-five teachers. After this training teachers are able to conduct the lesson in their classrooms. Here are some pictures from that event. See more about TISP on page ?



* * *

2009 – Power & Energy/Industry Applications Societies Activities

Please join us for the joint awards banquet for CIS and PES/IAS on April 14, 2009 at 6:30 pm, Indianapolis Power & Light Safety Room, 1230 Morris Street, Indianapolis, IN

Registration information will soon be available on the CIS website: [Section web page](#)

* * *

Central Indiana Section Announces Grants for Teachers

The Central Indiana Section is encouraging area teachers to utilize the large selection of free lesson plans available through the Teacher In-Service Program. (TISP) Lessons focus on Science, Technology, Engineering, and Math and are designed for classroom presentation for under \$100. The grants are available to any school located in the Central Indiana Section geographical area. The grant only covers those lessons available from www.tryengineering.org, and the lesson must be presented by the classroom teacher. (Not by an IEEE Volunteer)

Central Indiana Section will reimburse costs for presentation of an eligible lesson up to the \$100 limit. Teachers should first get a pre-approval for the reimbursement by supplying the information requested below. Pre-approved lessons will be given an address for submittal of related lesson expenses, up to the \$100 limit.

To apply, send an email with the following information to Brad Snodgrass at bsnodgrass@ieee.org

- Name and address of the school
- Teacher sponsoring the lesson
- Grade level(s) targeted for the lesson
- Name of person who will be presenting the lesson
- Date lesson will be presented
- Name of the lesson that will be presented.

About the Teacher In-Service Program

The Teacher In-Service Program (TISP) features IEEE Section volunteers developing and presenting technologically oriented subject matter to local pre-college educators in an in-service or professional development setting. TISP allows IEEE volunteers to share their technical expertise and to demonstrate the application of engineering concepts to support the teaching and learning of science, mathematics and technology disciplines. For more information on the TISP initiative, contact Brad Snodgrass at bsnodgrass@ieee.org.

Learn to control signal return currents on PCB's

and learn how EMC and signal integrity are interrelated

using *textbook* by Dr. Bruce Archambeault of IBM

"PCB Design for Real-World EMI Control"

and videos showing simulation of current flowing on PCB's



Now part of Don Sweeney and Roger Swanberg's

EMC by Your Design

An EMC Practical Applications Seminar and Workshop

with a free 45 min. individual product design evaluation,
take home proprietary computer program,
and second textbook at no extra charge

April 23, 24, 27 & 28, 2009

Hilton Hotel, Northbrook, IL



Due to hard economic times, we are offering a special discount

\$1090 (21% discount for the first person) and \$790 (43% discount for additional persons from same company)
if you register for the April 2009 seminar/workshop by March 25, 2009

Classes fill quickly so register early

email cgorowski@dlsemc.com or call 847-537-6400

www.dlsemc.com/1001

VOLUNTEER OPPORTUNITIES

The Central Indiana Section needs help in a few areas. This is your opportunity to give back to an organization that has helped you in your career and a chance to network with your peers and gain recognition. The following positions are currently looking for help:

- Computer Society Chapter Chair
- Communication Society Chapter Chair
- Constitution and Bylaws Chair
- Fund Raising Chair
- Section Treasurer

Becoming an IEEE volunteer can be a gratifying and memorable experience. Whether your skills are suited for organizing conferences and meetings, financial reporting, communicating or maintaining web sites, CIS can use your skills.

Additional opportunities for involvement include fund raising, awards, educational activities and the development of new programs.

As an IEEE volunteer, you can take pride in participating in activities that interest you, while expanding your knowledge of the IEEE, gaining valuable management and leadership skills, and connecting with others in your profession.

If you are interested in serving in any of the above listed positions please contact any of CIS' officers listed near the end of this newsletter.

* * * * *

FIRST Robotics Competition (FRC) Sponsorship Winning Essays

Team 829 - Warren Robotics (Warren Central High School)

by Mariel Weidman and Sean Ward

Ackermann Steering

“829’s Lunacy Steering”

- Patented by Rudolph Ackermann in 1810
- Created to help improve horse and buggy steering
- Reduces the amount of scrub¹ during steering
- In the steering principle you will see that the inner wheel always turn in a shaper radius than the outer wheel
- If both wheels where set at the same radius the steering effect would be limited and the wheel would scrub
- Many cars and race cars use modified versions of Ackermann’s principle
- Ideal for maneuverability without much friction

¹ Scrub- is the act of the wheels sliding sideways, this creates much friction, which in turn causes much heat, and tire ware.

* * * * *

Team 447 - Team Roboto (Madison County Community Foundation)

by Sara Niccum

Like cult movies and the theater, myths and legend can surround the components of robots. One interesting story is that of the lazy susan. The invention of this helpful turn table is commonly attributed to Thomas Jefferson, our country's third president. Jefferson's daughter, Susan, used to leave the supper table hungry because, she complained, she was consistently served last. To assuage her qualm, Jefferson built a revolving device to be placed on top of the table so she could reach the food easier. Jefferson also built his own revolving chair and revolving bookstand.

Another theory about the origin of the lazy susan is that it was invented by Thomas Edison, who also had a daughter named Susan. Regardless of its creator, the lazy susan was not christened so until 1917, when *Vanity Fair* magazine used the name to describe a dumb waiter, although today a dumb waiter is usually very different from a lazy susan.

In technology, such as a robot, a lazy susan bearing allows a part to pivot or swivel without having to be removed from the main frame. The best example of a lazy susan on Team 447's 2009 robot is the camera system. The sensor is supposed to search for the colored top on opponents' trailers. To do this, the camera is mounted on a lazy susan bearing so it can swivel to seek out other trailers without having to turn the whole robot, which is helpful since the slippery playing surface makes it difficult to turn the robot.

* * *

2009 Meeting Calendar

Date	Host	Subject	Location
March 26, 2009 6:00 pm	CIS	Executive Committee Meeting	IUPUI, ET 209 Indianapolis
April 14, 2009 6:30 pm	PES/IAS/CIS	Awards Banquet	IPL/Indianapolis
April 23, 2009 6:00 pm	CIS	Executive Committee Meeting	IUPUI, ET 209 Indianapolis

... Check the [Section web page](#) for details and current information. 

* * *

**Central Indiana Section Active Volunteers
(effective January 1, 2009)**

Director (812) 877-8154
Niusha Rostamkolai
Nius.Rostamkolai@rose-hulman.edu

Director (317) 225-4126
Will Kassebaum Will.Kassebaum@ieee.org

Chair (317) 706-9125
Steve Shen sshen@itt-tech.edu

Vice-Chair (812) 877-8622
Phil Walter Phil.Walter@ieee.org

Treasurer (812) 877-8657
Carlotta Berry
Carlotta.Berry@rose-hulman.edu

Secretary (317) 985-5360
Karl Huehne khuehne@ieee.org

Power Engineering/Industry Applications Society
Earl Hill (317) 726-1236
eshill@loma-consulting.com

Computer Society
OPEN

Signal Processing Society (765) 494-5916
Ilya Pollak ipollak@ecn.purdue.edu

Central Indiana Section Active Volunteers (cont'd)

Webmaster (317) 838-2268
Bob Evanich b.evanich@ieee.org

GOLD Coordinator (765) 350-0113
Arun Kumar kumar16@ieee.org

Communication Society
OPEN

Constitution and Bylaws
OPEN

Historian (317) 274-7881
Marv Needler mnpn@juno.com

Education Society
OPEN

Pre-college & Student Affairs (317) 679-6194
Brad Snodgrass bsnodgrass@ieee.org

IUPUI Student Branch CIS-IEEE representatives
Sarah Koskie skoskie@iupui.edu

**ITT Tech Student Branch CIS-IEEE
Representative**
Mohammed Boudaia MBoudaia@itt-tech.edu

Engineering in Medicine and Biology Society

Jake Chen (317) 278-7604
jakechen@iupui.edu

Central Indiana Engineering Consultant's Network

Will Kassebaum (317) 225-4126
Will.Kassebaum@ieee.org
Duane Mattern d.mattern@ieee.org

Membership Development (317) 726-1236

Earl Hill eshill@loma-consulting.com

Professional Activities (317) 879-1561

Al Razban arazb3@aol.com

Newsletter Editor (317) 985-5360

Karl Huehne khuehne@ieee.org

Communications Information Officer

Pam May (317) 274-2363
may2@iupui.edu

Rose-Hulman Institute of Technology Student Branch

Robert Throne throne@rose-hulman.edu

Purdue University Student Branch

Tom Talavage tmt@purdue.edu

Editorial Policies

Each issue of The Reporter typically references three months - the month in which it is published and the following two months. The Reporter is typically published in March, June, September, and December.

Material to be included should be submitted mid-month prior to the month it is to be published. For example, material intended for the September issue should be submitted to the Editor by August 15. The Editor will send a reminder to all IEEE Central Indiana Section entities by the 15th of the month to submit their updates.

Copy should be submitted electronically. Photographs are desirable. Advertisements are welcome. Contact the editor for layout sizes and rates.

Distribution: The Reporter is made available electronically to the approximately 1800 IEEE members within the Central Indiana Section including student members and faculty of Purdue, IUPUI, Rose-Hulman Institute of Technology and ITT Technical Institute. Limited copies of The Reporter may be selectively distributed to non-members when it serves the aims of the Section. Examples include public, industrial, and school libraries, and other engineering societies and professional organizations.

Central Indiana Engineering Web Links

ACEC	American Council of Engineering Companies, Indiana	acecindiana.org
ASCE	American Society of Civil Engineers	sections.asce.org/indiana
ASME	American Society of Mechanical Engineers	http://sections.asme.org/central_indiana/
ASM-INDY	American Society for Metals - Indianapolis	asm-indy.org
CINLUG	Central Indiana Linux Users Group	cinlug.org
IBEN	Indiana Biomedical Entrepreneur Network	indianabionetwork.org
ICES	Indiana Council of Engineering Societies	in-ces.org
IHIF	Indiana Health Industry Forum	ihif.org
INCOSE	International Council on Systems Engineering	www.incose.org
INDSPE	Indiana Society of Professional Engineers	indspe.org
INDYASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers	indyashrae.org
NSBE-IAE	National Society of Black Engineers - Indianapolis Alumni Extension	nsbe-iae.org
PIMCIC	Project Management Institute - Central Indiana Chapter	pmcic.org
SAE	Society of Automotive Engineers, Indianapolis	http://www.saesections.org/indiana/
Sciencetech	Sciencetech Club in Indianapolis,	sciencetechclub.org
SIM	Indianapolis Chapter of Society for Information Management (SIM)	SimNet.org
SWE-CI	Society of Women Engineers - Central Indiana Section	swe-ci.com
Techpoint	A diverse collection of technology-based Indiana industries.	Techpoint.org