

National Defense Industrial Association

# CHECKPOINT

Michigan Chapter

October 2007

<http://www.ndia-mich.org/>

Volume 3, Issue 4

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**2nd Annual Power and Energy Symposium Aug. 6-8 Pg. 3**

**GDLS/ HBCT Global Logistics Support Network Pg. 5**

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## 15th Intelligent Ground Vehicle Competition (IGVC), June 11-12

TARDEC and Oakland University hosted the 15th annual IGVC on June 8-12 on the Oakland University Campus.

To compete University student teams must design and construct a mobile robot capable of autonomously navigating a series of obstacle courses using state of the art machine vision, laser scanners, Global Positioning System (GPS), and artificial intelligence.

This years IGVC winners:

**Autonomous Challenge winners:**

1st. Virginia Tech Johnny 5 with a total distance of 853 ft

2nd University of Minnesota Twin Cities AWESOM-O 2007 ,496 ft

3rd University of Detroit Mercy CA-PACITOPS traveled 344 ft

Other Detroit area teams were: 6th University of Michigan Dearborn at 211.5 ft, 11th Lawrence Technological University H2bot II at 100ft (hydrogen fuel cell powered)

**Navigation Challenge:**

1st. Virginia Tech Johnny 5 navigated all 8 waypoints in 4 min & 6 sec

2nd. Hosei University (Tokyo) Omnix 2007 navigated all 8 waypoints in 4 min & 58 sec

3rd University of Detroit Mercy CA-PACITOPS navigated all 8 waypoints in 6 min & 1 sec.

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## President's Message

The Michigan Defense Community comprises Military, Civil Service and Defense Contractors. Many in this community are deployed to multitudes of locations throughout the world executing diverse missions and others remain here at home supporting those deployed.

Our most critical mission is the Global War On Terror. Our Defense Community is stretched to its limit. We have too few people in uniform and insufficient numbers of civil servants for current demands. Additionally, our industrial base is severely stretched. Our budgets, especially the Army and Marines, are grossly under funded.

These severe conditions are compounded by enemies that are smart, well equipped, lack ethical standards and are devoted to the destruction of America. The Michigan Defense Community, in spite of these conditions, years of reductions, RIFs, and declining industrial base, has joined to meet the demands of our war fighters, civil servants and contractors worldwide.

The greatest price paid in any war is loss of life and this war is no exception. We all know the Army and Marine Corps have clearly paid the most dearly with 96% of the combat deaths coming from those two services alone but we must recognize that all branches of the military, civil service and defense

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# “Vision of the Army's Ground-Automotive Power and Energy Strategy”

The 2007 Ground Automotive Power and Energy Symposium, sponsored by the Michigan NDIA Chapter, took place August 6 through August 9, 2007 at the Troy Marriott in Troy, Michigan

The symposium was an opportunity for the Power and Energy community to discuss the latest developments and emerging technologies that will meet current, transitional, and future vehicle power and energy requirements. This event provided a networking forum for engineers, scientists and researchers from government, industry and academia a forum to enhance communication on rapidly changing technologies in military and commercial ground vehicle power and energy.

Conference Proceedings are available at: <http://www.ndia-mich.org/events/pesymp.htm>

- DOD and Army Power & Energy Plans
- Combat, Tactical, Robotic Commercial Vehicles power and Energy Needs and Solutions
- User's view of Power and Energy to include power on the battlefield
- Energy Storage
- Power Management
- Thermal Management
- Power Generation
- Primary Power Engines
- Fuel Cell technologies and Vehicle Applications
- Non Primary Power
- Military Power and Energy Demands and Solutions: USMC, Weapons, Survivability and the Network

## Conference highlights:

General Griffin's keynote presentation was a call for more power, less weight, reduced logistics and lower costs for battlefield power. While DOD is the country's greatest user of energy, it's uses less than 2% of our annual supply. Air Force and Navy demands are greatest, especially at installations. Every \$10 cost increase per barrel of oil costs DOD \$1.3B. Despite an overall reduction in DOD energy usage, cost continues to escalate.

General Griffin challenged the Community” for:

- Fuel Cells and Stirling Engines
- Fuel Efficiency Improvements
- Renewable Energies & Fuels to Reduce Fossil Fuel Dependency
- Power Demand/Fuel Consumption Reductions

Dr. Rogers, RDECOM Proposed government and industry partnerships to creatively leverage military tech base dollars and corporate IR&D to solve our most pressing needs

- Make power management a central component of new and product improvement materiel solutions
- Be forward thinking and look for opportunities to migrate power reduction advancements from the lab to the field

Mr. Paul Cag, FCS Manned Ground Vehicles, drove the point home with a statistical comparisons between the current fleet (Abrams, Bradley, Stryker) and FCS Silent Watch power requirements. Current systems all use <2 kW for silent watch, the number climbs to >50kW for FCS MGVS systems.

While there are plenty of requirements, only the tip of the iceberg is visible for solutions. Exhibitors offered inroads into fuel reductions and energy management. For example – BAE Systems demonstrated PEO Ground Combat Systems' Common Modular Power System (CMPS) installed on a High-Mobility Multipurpose Wheeled Vehicle (HMMWV) to show how CMPS can provide military tactical wheeled vehicles with the ability to generate substantial additional electric power. In this application, CMPS delivers up to 400 amps of 28-volt DC

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## Power & Energy Symposium

electric power at low engine speed. CMPS can provide enough on-board power to operate self-defense, weapons, countermeasures, and route-clearing systems. The system's capability can be expanded to provide up to 30 kilowatts of AC power for use in the field.

While highly informative, the symposium revealed the scope of the problem and the limited technologies available for near term resolution.

Conference Outcomes included:

Inputs and updates to OSD, DA and TARDEC Power & Energy Strategic Plans and Studies

Communications and networking for the power and energy community.

Closer working opportunities with the TACOM LCMC command and staff as the leader for Ground Power and Energy.

Improved communications and networking for the power and energy community.

Conference Proceedings are available at: <http://www.ndia-mich.org/events/pesymp.htm>

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## World Radiocommunication Conference, Oct 22

On Oct. 22, 190 nations will gather in Geneva for the quadrennial [World Radiocommunication Conference](#), which allocates global radio frequency spectrum. Full story available at GovExec.com newsletters [news@govexec-media.com]

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## Presidents Corner

contractors have also paid with loss of life. We are truly a defense community that is fighting this war together and paying the price of this war together.

I like to use my daughter as an example of this teaming concept. Shannon is a Lieutenant in the 82<sup>nd</sup> Airborne Division running convoy ambush and recovery support south of Baghdad. Her convoys mostly consist of KBR Corporation trucks and personnel. The convoys are controlled through a logistics center in theater run by civil servants. The parts that keep those trucks running and most of the supplies on those trucks are managed by TACOM. The trucks are managed by the PEO. All facets of these operations work together to make a strong and efficient team and all members of these teams in theater have experienced loss of life.

These situations are common in the Global War On Terror and our defense community has performed far beyond any prewar expectation. As members of the Michigan Defense Community we should take great pride in the way we have worked together to confront and destroy our enemies and preserve the freedom we cherish most dearly. While greater challenges lie ahead I am confident of continued success and ultimate victory.

Robert Shannon Hoover, Ph.D.

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# Michigan NDIA Chapter Leadership

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# Intelligent Ground Vehicle Competition

## **Design Challenge winners:**

1st. Lawrence Technological University

2nd Hosei University

3rd. University of Central Florida

Office of Secretary of Defense Joint Ground Robotics Enterprise sponsored **Joint Architecture for Unmanned Systems JAUS Challenge:**

Level II Certification JAUS message communication to & from the robot Ecole de technologie superieure (Montreal Canada) Hosei University (Tokyo) Lawrence Technological University University of Cincinnati, Virginia Tech

Level I Certification JAUS message communication to the robot: Bob Jones University Rochester Institute of Technology University of Minnesota Twin Cities University of Texas- Austin University of Wisconsin Madison .

**The IGVC offers a design experience at the very cutting edge of engineering education.** It is multidisciplinary, theory-based, hands-on, team implemented, outcome assessed, and based on product realization. It encompasses the very latest technologies impacting industrial development and taps subjects of high interest to students. Design and construction of an Intelligent Vehicle fits well in a two semester senior year design capstone course, or an extracurricular activity earning design credit.

The deadline of an end-of-term competition is a real-world constraint that includes the excitement of potential winning recognition and financial gain. Students at all levels of undergraduate and graduate education can contribute to the team effort, and those at the lower levels benefit greatly from the experience and mentoring of those at higher levels. Team organization and leadership are practiced, and there are even roles for team members from business and engineering management, language and graphic arts, and public relations.

Jerry Lane

## **Defense Acquisition University (DAU) Online Basic Classes Online Available to Contractors at No Cost,**

If you're interested in expanding your professional acquisition knowledge, I recommend you consider the Defense Acquisition University (DAU) . DAU offerS some web based, basic acquisition classes for which contractors can register at no cost. Basic classes, including Acquisition, Contracting, Logistics, can be completed on the web with no residency requirement. Though somewhat challenging, and very well presented, they do require some self discipline to complete within the 60 to 90 days allotted.

There is no cost to defense industry employees for any DAU course attendance at resident courses. Attendance is on a space available basis. POC is Art McCormick, Industry Student Registrar, may be contacted at (703)805-4498 fax (703) 805-3709 or arthur.mccormick@dau.mil .

**If you have an article of general interest to the Michigan Defense Community, please submit to the editor (chet.bisno@honeywell.com.) Checkpoint every three months in Jan, April, July and Oct. Preferred format is Microsoft Office. Small articles and announcements are invited as they enhance layout options. If an article is not used, a reply with the reason will be sent.**

**Chet Bisno 586 323-0343**

# Meeting Customer Needs with Improved Business Intelligence

## Customer Need Identified -

In the defense industry today, one of the hot topics is Product Data Management (PDM). PDM is the process of defining and managing product data sets and relationships to enable reusability and continuous, seamless update of the source data throughout the product lifecycle. One of the major potential benefits of PDM is accurate, timely delivery of quality product data for servicing, training or operating the vehicle. Support models (such as embedded diagnostic systems) could be designed to interface with PDM implementations. A service oriented architecture is envisioned to provide a seamless solution to deliver the right data at the right time to the user/requester. Using this approach we could ultimately deliver a performance support system for soldiers to access pertinent information to perform their tasks more efficiently. By building the necessary interfaces across selected domains and providing the services, it is expected that some cost avoidance is ensured over the life cycle of the product.

Recently, General Dynamics Land Systems' (GDLS) Logistics Engineering Department ventured into a strategic partnership with Program Manager Heavy Brigade Combat Team (PM HBCT) Logistics Products Management to design and develop a Global Logistics Support Network (GLSN) centering on global vehicle support. Whether it is related to vehicle design or performing a mission critical task; it is imperative we and our customer collaborate to build a service-oriented architecture capable of delivering comprehensive, accurate and timely product information to our troops. By encompassing sound business intelligence solutions, we are enabling the timely delivery of appropriate product data to optimize product design and support. According to PM HBCT, "This represents a conscious effort to shift Army maintenance from a symptom driven, preventive approach to a more routine and predictive approach. By using near real time vehicle information, operators and commanders at all levels will be able to make decisions regarding their platforms. The Vehicle Health Management System approach to maintenance is based on evidence of need before failure occurs."

For our military vehicles, the GLSN could deliver capabilities such as:

Remote and Collaborative Support Assistance and Vehicle Services. Selected Enterprise Integrations. Rapid Distribution and Notification of Accurate Vehicle Information. Agile Sustainment Including Support for Embedded Diagnostics and Prognostics Systems. Reduced and Lightweight Logistics Footprint for Delivery on Mobile Devices. Alliance of modernization and transformation initiatives within the government based on the Force-centric Logistics Enterprise (FLE) concept.

Using this design philosophy, the GLSN will transform today's Integrated Logistics Support (ILS) data silos into tomorrow's data assets. Streamlining this data provides a quick and easy adaptation of government initiatives, such as Tank-Automotive and Armaments Command's (TACOM) Vehicle Health Management, Common Logistics Environment, Performance Based Logistics (PBL), etc. We have a five year approach to developing the building blocks that will eventually provide a mechanism to track and audit the product life-cycle of a platform. It is anticipated GLSN initiatives will align with support/collaboration interfaces to external projects such as Condition-Based Reliability Analysis (COBRA). These types of integrations will provide a robust and seamless solution to meet PM HBCT comprehensive data needs.

## Meeting the Army's Challenges

**Challenge:** *Measuring the results of process changes and the impact of on vehicle design and supportability in the field.*

**Solution:** *Develop coordinated DFSS projects to assist with improving Army processes and systems to gather metrics to demonstrate measurable improvements related to cycle time and overall process streamlining.*

For a full copy of this article or to request additional information, contact Integrated Logistics Information and Training of Logistics Engineering at [ilit@gdls.com](mailto:ilit@gdls.com). Or visit our company site at [www.gdls.com](http://www.gdls.com).

# MICH NDIA Hosts 1<sup>st</sup> Annual Fall Business Event

The NDIA Michigan Chapter held a highly successful Fall Business Event at the Hilton Detroit/Troy on September 12 and 13. The focus of this premier event was Integrating Small Business into the Military Industrial Complex through a statewide look at government and industry opportunities as they relate to current needs and initiatives.

The theme was “*5 Steps to Winning Government Business*” and presented speakers and panel discussions to disseminate information on targeting, identifying, assessing, bidding, and performing on government procurements, both as primes and subcontractor.

The program was geared toward an audience of successful small companies who are positioned, experienced, adequately capitalized and low risk performers who are interested in crossing over from commercial markets to government sector opportunities. The event also attracted a large segment of the major prime contractor community that does business with the U.S. Army Tank Automotive and Armaments Command (TACOM), the US Army Tank automotive Research and Development Center (TARDEC); the Joint Service installation at Selfridge Air National Guard Base (SANGB), and other government and defense related installations and agencies throughout Michigan and their support locations.

The Chapter partnered with Automation Alley, the Michigan Minority Business Development Council (MMBDC), the Procurement Technical Assistance Centers (PTAC), and the Michigan Economic Development Council (MEDC) for this event.

The two-day event provided an optimal level of interaction between attendees and presenters/speakers through town hall meetings and panel discussions. It was also an opportunity for a wide variety of exhibitors to take part in matchmaking and networking sessions. The Corporate Sponsors were *AM General* at the Gold Level and *BAE Systems* and *General Dynamics Land Systems* at the Silver Level.

Keynote addresses included presentations by the Defense Contract Coordination Center Director, Major General Bradley M. Lott, USMC, Retired; and Mr. Harry Hallock, Director TACOM LCMC Acquisition Center. Senator Carl Levin and Representative Candace Miller provided video presentation remarks for luncheon presentations.

The event included a panel discussion featuring Supply Chain Executives from *BAE Systems*, *Am General*, *Boeing Corporation*, *General Dynamics Land Systems*, and *Williams International*; and a panel of Small Business Executives from *Premier Professional Systems*, *Cypress Manufacturing, LLC*, *CYBERnet*, *Onodi Tool & Engineering*, and *Lapeer Industries*. There were government panels representing the *TACOM LCMC Warren and Rock Island*; and some TACOM LCMC PEOs and PMs. The State of Michigan *Office of Management and Budget* provided open audience discussions of the “Buy Michigan Initiative”.

This year’s conference chairperson was Ms. Constance Blair. The Michigan Chapter President, Dr. Robert Hoover, was the Master of Ceremonies. Town Hall moderators included Ms. Mary Kramer, Publisher of *Crain’s Detroit Business*; Mr. Louis Green, President of the *Michigan Minority Business Development Council*; and BG(R) Roger Burrows, President of *Worldwide Development*.

Constance Blair

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## RFID Defense Propagation In Defense Slower than Expected

The Defense Department's requirement that suppliers use radio frequency identification technology may be encountering resistance within the department, indicating that the effort may need time for the technology to mature.

Demand throughout Defense for RFID readers and tags from a contract known as Army Product Manager Joint-Automatic Identification Technology (PM J-AIT) has been so light that the Army does not plan to award new contracts until the first quarter of fiscal 2008, which starts this month, said Jo Manson, PM J-AIT spokeswoman.

The initial PMJ-AIT contract, awarded in September 2005, expired in June, and Manson said demand "was low due to delays in full-scale passive RFID implementation across DoD."

Bob Brewin , National Defense Week e-newsletter

## USMC Major General (Ret.) Bradley M. Lott to head Michigan's new Defense Contract Coordination Center.



*In General Lott's words. "It is my privilege to take on this responsibility as my part in helping to rebuild a vibrant Michigan economy, Michigan has had a strong history of contribution to the industrial might of this nation and is now ready to lead in both technology and industry in the federal sector. I look forward to working with community and industry leaders in making this a reality."*

Marine Corps Major General Bradley M. Lott, a resident of St. Clair County, will head Michigan's new Defense Contract Coordination Center. The Center, administered by the Michigan Economic Development Corporation as part of the 21st Century Jobs Fund, was created through a one-time \$10 million appropriation. Its mission is to increase federal government contracting and procurement opportunities for Michigan companies, leading to new jobs and investments in the state.

In his new role, General Lott will work with the MEDC to develop and implement a business plan for a new operating center and establish an aggressive outreach program that matches Michigan businesses with contracting opportunities. General Lott will work closely with Michigan's network of 12 Procurement Technical Assistance Centers.

## Million-dollar Prize Offered for Soldier 'Power pack'

From CNN

### \$1 million prize for a wearable electric power system for U.S. troops

(CNN) -- Inventors across the country are being asked to find a way to lighten the load U.S. soldiers carry on their backs -- largely due to the high-tech gear that uses batteries -- and the solution will be decided in a \$1 million contest. The military wants to lighten the load troops carry into combat. □

The Department of Defense is asking a person or team to come up with a way to lessen the weight of the 20-40 pounds of batteries a soldier carries on a typical four-day mission. The batteries power everything from soldiers' GPS systems to their night-vision goggles. "In many missions the batteries are heavier than the ammunition they are carrying," said Dr. William S. Rees Jr., Deputy Undersecretary of Defense for Laboratories and Basic Sciences -- whose office, the Director of Defense Research and Engineering, is sponsoring the prize competition. "We'd like to reverse that ratio."

Some missions require as much as 100 pounds of equipment, according to Brig. General Mark Brown who commands the Army's Program Executive Office Soldier program. "Any weight reduction on batteries would really help us out," Army Spc. Daniel Tinsely, currently serving in Iraq, told CNN's Frederick Pleitgen. "It's a challenge we've had in the military forever," said CNN military analyst retired Army Brig. Gen. James "Spider" Marks. Marks says one of the best things to help out the soldiers would be to give them a "power pack" that's miniaturized -- one that can last a long time and doesn't weigh much.

And that's the key to winning the \$1 million. The whole prototype must weigh 8.8 pounds (4 kilograms) or less and produce 20 watts average power for 4 days or 96 hours. It has to be wearable, like a vest, and will undergo rigorous testing.

## Volunteers Needed

**Do you have time to spare? Michigan Chapter NDIA activities are solely volunteer. Your participation would be appreciated. POCs at page 3.**

## 2007 Michigan ROTC Cadet TACOM Visit

The Program Executive Office, Ground Combat Systems (PEO GCS), and TARDEC along with the generosity of the National Defense Industrial Association (NDIA) Michigan Chapter, sponsored an Army ROTC Cadet Visit at the Tank- automotive and Armaments Command for 53 cadets from Michigan Tech, Central Michigan, Eastern Michigan and Western Michigan Universities on 12-13 April.

This was the fifth annual visit for the CMU Cadets. Last year the visit was expanded to include EMU and WMU. This year was the first year for participation of the University of Michigan and Michigan Tech Cadets. The initial visit started in 2002 when CMU ROTC Alumni President, Don Case (TACOM, PM Force Projection retiree) made a request to Randal Gaereminck, Deputy PEO CS&CSS, to host senior cadets to give them a glimpse of the "corporate" side of the Army.

Don Kotchman GDLS and Randal Gaereminck, TARDEC provided guidance and support from NDIA this year. COL Ray Jones, Kristine Molin, Laura Cicotte and Roanna Gatto from PEO Ground Combat Systems worked to develop a workable itinerary, reserve rooms and make dining arrangements. Protocol Officers Donna Hibbard, 127WG, and Keith Appling from TARDEC also assisted in developing the tour.

The visit was designed to give the ROTC senior cadets a look at the research, development and acquisition side of the Army in order to provide them with a better understanding of how Army equipment is developed. Highlights of Thursday's visit included briefings by 927<sup>th</sup> Wing and a tour of the Selfridge Air Museum, Selfridge shopping trip to the PX and military clothing sales store, dinner with MG Lanears and the Michigan Chapter NDIA Board of Directors at Mac & Ray's.

Friday's events at TACOM included briefings by COL Jones, LTC Fouse, LTC Conway, MAJ Agustin and a vehicle display of Combat, Tactical and Construction equipment in building 219 which included Stryker rides and an afternoon tour of TARDEC labs and the National Automotive Center.



**Senior Cadets from Michigan Universities Visit TACOM LCMC and TARDEC**