October 2009 officially became the deadliest month for U.S. forces in Afghanistan since the start of the war on terror. The death toll was pushed over that grim marker by improvised explosive devices (IEDs), the single deadliest weapon used against U.S. forces in Afghanistan. IED deaths have increased alongside U.S. troop increases every year since the U.S. invaded. A lesser known fact is that according to a recent United Nations report IED’s have become the single greatest conflict-related killer of civilians as well.

Dr. Len Litowitz and a team of students in the Department of Industry and Technology have spent this semester developing a prototype device in an attempt to help out with this problem. The idea behind the research activity was that there are large amounts of money and effort being dedicated to detecting to IED detection, but little is being done to develop a platform from which these devices operate. Litowitz was assisted with this project by senior Greg Wheeler, junior Greg Betz, and sophomore Brendon Fowler and developed a prototype vehicle.

The project was proposed to the State System of Higher Education and received $7,500 in funding for a Keystone innovation Grant. Additional student research monies were provided by campus entities.

The initial problem that the team faced is how to make this device practical given the amount of funding available. One of the guiding ideas shared by the researchers was that this detection platform should be very affordable and easily assembled with off the shelf components in order to determine proof of concept.

The backbone of the device under development was ultimately selected. The platform comes in the form of an ATV manufactured by Powermax Sports. The budget conscious solution ended up being the 260 cubic centimeter model GK-K002, a robust machine that is capable of speeds of up to 40 miles per hour. The reason this platform was selected is that it satisfied the performance characteristics identified in the project – the vehicle must be able to operate for two hours, travel as slow as two miles per hour and as fast as thirty miles per hour operating over a variety of terrain including paved roadways and unpaved surfaces.

The real challenge came into the project when it came time to develop the control system for the vehicle. In order to minimize the IED risks to the soldiers assigned to clear such dangers, it

4th Annual Event for Girls is a Success!
by: Dr. Sharon A. Brusic, Associate Professor

Girls in grades 6 through 10 gathered on the Millersville University (MU) campus again this spring for the 4th annual Science, Technology, & Me (ST&Me) event. ST&Me aims to spark girls’ interest in, and curiosity about, science, technology, and engineering studies and careers. On April 10, 2010, about 160 girls, mostly from Lancaster County, Pennsylvania, participated in the ST&Me event which engaged them in hands-on sessions related to a wide array of sciences and technologies.

The event kicked off at the MU Student Memorial Center where MU President Francine McNairy challenged all of the attendees to be pioneers and seek out new opportunities. Her message was furthered by the keynote speaker, Cindy (Rowe) Taylor, the pioneering woman who started the Cindy Rowe Auto Glass enterprise. Cindy started her business in the trunk of her car. When she retired about a year ago and sold her business, her company had become an 80+ employee operation with 12 locations and multi-million dollar volume. It was an awesome story about how one woman can pursue her dreams – even when it’s in a field that is traditionally male-dominated.

MU-TECA Support Toys-for-Tots

Early in December of 2009 the Department’s Chapter of the Technology Education Collegiate Association (TECA) held its annual Toys-for-Tots production run. As part of its service outreach efforts, TECA builds some type of toy for the local Toys-for-Tots program. This year’s toy was a wooden designer kit that contained all of the basic drawing supplies a child would need to spark their first steps as a product designer. The contents of the kits included wooden rulers and stencils that were made using the department’s new laser cutter, inventor notebooks, pencils, erasers, colored markers, and pencil sharpeners. This year’s effort resulted in 25 of the kits being built, stocked with drawing supplies, and packaged. They were donated to Toys-for-Tots, a program operated each year by the U.S. Marine Corp Reserve, who then gave them to children in the local community. The student participants were mostly technology education majors, but many of those participants brought along friends from outside of the department. Throughout the afternoon over 50 students participated in one aspect or another of building and packing the designer kits.

See more ROV on page 2.

See more ST&Me on page 2.
More ST&Me

Following the keynote presentation, the girls were subdivided and they moved across campus to thirteen different hands-on sessions taught by MU professors, MU students, local teachers, and volunteers. There were sessions on forensic science, chromatography, plastics processing, technological design, biodiversity mapping, occupational safety and environmental health, wind energy, electronics and solar power, screen printing, video production, computer technology, and drafting. There was also a session focused on Leonardo Da Vinci’s incredible imagination and innovative designs. Every girl was able to participate in two of the 13 sessions throughout the day. Many sessions engaged the girls in creating take-home projects to help them remember their experiences at ST&Me. For example, girls designed and made jewelry holders in the Bringing Out the Designer In You session. They built and tested wind power generators in Blowin’ In the Wind and they thermoformed planters in the Not Your Mother’s Milk Jug session. The girls potted flowers in their planters and their artful creations were on display alongside the wind power generators in the campus cafeteria where the girls ate lunch amongst other MU students.

The 2010 ST&Me event was made possible because of the many contributions of volunteers and supporters. This year’s event involved nearly 50 volunteers. Girls paid a small registration fee to cover part of the cost of the event which included a t-shirt, lunch at Gordinier’s Upper Deck, resources, and a chance to win several door prizes, including an iPod®. Other support came from Dr. Barry David’s National Science Foundation grant (under Grant No. DUE-0603367), MU Office of Information Technology, MU Women’s Commission, Girl Scouts in the Heart of Pennsylvania, and in-kind donations from the School of Education.

The program is expected to continue again next year if enough funding and support can be found. It continues to draw greater interest in the community as it becomes more well known. Hopefully, this interest will continue to build, especially as these girls mature and start making career and academic decisions on their own. There would be no greater reward than to see some of these young women return to Millersville University as undergraduate students in science and technology fields within the next 2-7 years.

For more information about ST&Me, contact Sharon Brusic, Associate Professor in the Department of Industry and Technology, and Director of ST&Me. She can be reached at 717-871-5548 or via

More ROV

was decided that the vehicle should be remotely operated from up to one mile away. A Futaba remote controller was purchased that has 16 channels. The inputs on the remote control are addressed to servo motors that actuate vehicle steering, acceleration, braking, forward/reverse directional control and the firing of an automatic weapon (relax — we are using a paintball gun with rubber practice balls!). The ability to drive the vehicle manually was also desired, so hard wired controls for these functions were fabricated as well.

Taking the operator away from the point of action also created the need for a vision system that has the same distance capability as the control system. The vision is enabled by the use of a weatherproof infrared LED precision color video camera that can see up to 45 feet in total darkness. Both the control and vision systems were developed by the students and communicate back to the command module using two long range antennae mounted rearward on the vehicle.

Next steps include live field testing and continued refinement based on what we learn from performance in the field.
Dr. Johnson Announces Future Plans

Dr. Richard Johnson will be retiring at the end of the summer having served as a member of the Millersville University faculty since 1982. During his tenure, Dr. Johnson provided instruction in the drafting and design areas of the curriculum and helped usher the Department into the computer age. When he began his career at Millersville, students completed drawings exclusively with “paper and pencil” techniques. With the rapid shift to computer aided drafting technology, Dr. Johnson attended numerous workshops and seminars to advance his knowledge and skills in that area. He quickly adapted, developed curriculum and today, our drafting and design area consists of multiple CAD courses housed in two state-of-the-art computer-aided drafting and design laboratories complete with rapid prototyping technology, besides a conventional drafting/design laboratory. During his tenure Dr. Johnson served on numerous department and university-wide committees and was a consultant to area schools seeking his expertise in the area of drafting and design. He served as chair of the building renovation committee and was instrumental in many of the decisions that resulted in the “new” Osburn Hall becoming the contemporary center for technology at Millersville University. For many years, he served as the CADD Competition Coordinator for the Technology Student Association of Pennsylvania as well as at the National TSA competition. Dr. Johnson has touched the lives of many undergraduate and graduate students as well as in-service teachers taking one of his many popular summer educational workshops. We wish him the very best as he and his wife Nancy embark on a new chapter in their lives.

You Light ‘Em, We’ll Fight ‘Em!

Dr. Wright and his Microcontroller Electronics class recently attended the Trinity College Home Firefighting Robot Contest in Hartford, Connecticut. Three teams (Team Black, Team Gold, and Team Marauder) developed autonomous firefighting robots for the international competition this year (April 10-11, 2010) over the past 9 weeks. “The contest is the most competitive and highly attended undergraduate robotics competition that I know of in the United States” say Dr. Wright. This year, 122 robots from around the world participated. Our students entered the Unique Senior Division Class which had 46 robots entered.

Team Black earned a 9th place finish in their class and thus earned an A for the team member in Wright’s Microcontroller Class. “The deal was to go to the competition and place a top ten finish, and we would be awarded an A for the class” stated Michael Edkin, a graduating senior in Industrial Technology, Electronics/Control Systems option.

“This was definitely a one of a kind experience and I am extremely glad that I had a chance to participate in it. This really validates my selection in choosing Millersville University as my school of choice!” stated Matt Harper, a freshmen studying Industrial Technology, Electronics/Control Systems.

Team Black’s robot is based on the BX-24p microcontroller and was programmed in BasicX, a language that is nearly 100% compatible with Visual Basic. It uses CO2 to extinguish the randomly placed candle in the 8’ x 8’ maze. Team Black’s members include Michael Edkin (Captain), Mark Costello, Adam Smith, and Matt Harper.

Congratulations to all of the students and for Team Black’s top ten finish in such a rigorous international competition.

Industrial Technology

by: Dr. John Wright

After two years of serving the Department as your Industrial Technology Program Coordinator, I have decided to step down. As I was thinking about what I might write in this newsletter edition, it occurred to me that it would be nice to reflect on the activity that I have had the privilege to help guide over the past two years. There were two major program changes that I am proud to discuss. The obvious one is the pending name changes for the Industrial Technology degrees. Upon University administration approval, the AT and BS degrees in Industrial Technology will be renamed Applied Engineering & Technology and Applied Engineering & Technology Management, respectfully. Another noted change that was approved in 2009 was the removal of the mandatory technology literacy core requirement (9 credits). Faculty may now propose curricula changes to the degree to utilize the 9 credits toward the 27 credit existing technical options. This change will allow each option to develop with optimally with the additional 9 credits of coursework – increasing the options from 27 to 36 credits. At this time, only some initial drafts have been discussed and no official changes are in-progress. Proposed changes will likely be submitted in the 2010-11 academic year.

The Department now requires that all graduating seniors of the Industrial Technology (Applied Engineering & Technology Management) degree take the Certified Technology Manager (CTM) national certification examination. The exam is offered through The Association of Technology, Management, and Applied Engineering (ATMAE) and will be used as a program outcome assessment tool for the Department. Students will be able to take the exam for free and are not required to pass or register as a CTM. The data obtained will help guide the baccalaureate degree program as we seek to examine and review the effectiveness of the required managerial core.

Lastly, our Industrial Technology Advisory Council who is made of local industry leaders/employers initiated and completed a survey of our departmental alumni to assess their baseline perceptions of our programs. The survey separated and analyzed perceptions of our graduates in academia and in industry. We learned some very valuable information from this survey including that we need to market ourselves better. The recent name changes that will likely take place later this year should go a long way to helping us communicate what our students are capable of upon graduation. The Council hopes to initiate a general survey of industry in the region and compare those results with the study that was conducted in October of 2009. There are actually more initiatives that have been enacted, but the above activities capture the essence of our recent work. We have been very busy refining and developing our programs to maximize the opportunities for our students.

I am pleased to report that Dr. Mark Snyder will assume the position of Program Coordinator in the fall and I wish him the best as he continues to guide our programs forward. I look back on these last two years fondly and have been pleased to serve the Department of Industry & Technology.
The Ebb and Flow of Education - Welcome Summer

by: Dr. Barry David, Department Chair

One of the joys I have always relished as an educator is the way we measure our year. Folks in the business world might view time based on the fiscal or tax year. Others might think in terms of the Julian calendar year or perhaps measure time from birthday to birthday or anniversary to anniversary. Many also include in their lives a lunar year based on religious or cultural practices. In education we have something called the academic year. In general it begins as summer winds down and ends as summer unfolds. That’s not to say that work stops during non-academic year months. To the contrary, it tends to ramp up again, but to a somewhat softened tempo. While writing this piece for Abbozarre, faculty, students and staff here in Osburn Hall are focused on finishing another semester and putting to bed another academic year (yes, “miracle week” still exists). Graduating seniors and looking forward to Commencement and “getting on with their lives”. Yet at the same time, faculty and staff are busy planning for summer. We have long offered classes and special programs during the summer months and this summer is no different. Our Technology Camp program has always been a hit with kids, as has the special Migrant Education Camp we have run for the past few summers. Our undergraduate, graduate and educational workshop courses run the gambit from the technology focused to more traditional subject matter and are offered both on campus in Osburn Hall, off-campus in locations throughout the Commonwealth as well as in cyberspace via our distance learning program. New offerings this summer include our Institute for Critical Thinking and Creativity, a new workshop entitled Enhancing STEM Education Through 3D Modeling and an Advanced Problems course on Watercraft Design and Construction.

I am looking forward to summer. While the faculty and staff here in Osburn Hall will continue to be busy, they will do so with the lazy-hazy-crazy days of summer playing in the background. That is until mid-August, when we plan to welcome another class of freshmen to Osburn Hall and a new academic year begins.

Educator Source Workshops Happening

The 2010 Educator Source Workshop season is about to kick off at Millersville University. Many Industry and Technology faculty will be delivering workshops on campus and around the region this summer to help in-service K-12 teachers stay current with state mandated continuing education requirements.

This marks the thirty-fifth year of summer workshops at Millersville University. One often forgotten fact about these workshops, originally know as Summer Happenings, is that they were started in the Industrial Arts department by Drs. Bud Smart, Joe Abromaitis, and Richard Douit in cooperation with the elementary education faculty. As the popularity of the program increased it was eventually moved into the office of graduate studies.

To view the offerings for this summer, please visit the Educator Source page on the Millersville University Web site.