



Fall Newsletter



Assistive Technology Resource Center @ WPI

Volume 4 Issue 1



*****WPI Joins National EPICS Organization*****

Well, the WPI ATRC is at it again! We have been chosen to be a member of the Engineering Projects in Community Service (EPICS) team. Founded at Purdue University and funded by the National Science Foundation, this is a voluntary program primarily for engineering undergraduates that focuses on project design for community service. Currently, there are fifteen universities around the country and Puerto Rico that are participants in the program. EPICS encourages horizontal integration of

projects over varied disciplines, as well as vertically integrated teams of students from freshman to senior level. And, you guessed it, many of these schools choose the field of Assistive Technology for their community service angle. This kind of collaboration will benefit not only our school and our students, but hopefully our community including you, our service organization collaborators!

Our involvement with EPICS means that we will be able to undertake more projects, and will have the material and student re-

sources to see these projects through to completion. Student participation thus far has been very positive. Currently, our team is working to complete the sensory stimulation project described on the back page of this newsletter.

We ask that you will help us in our endeavor to make WPI a successful EPICS team by contacting us with project requests and ideas. We hope to hear from you soon! Our contact info is listed on the back page.

Revolutionary Lightweight Wheelchair!

Keith Liadis, a new member of the ATRC team this year, completed his senior design project in the spring of 2004. For his project, he worked with DEKA R&D Corp. to design and fabricate a lightweight, foldable powered wheelchair. The design incorporates a drive train, control system, and power supply onto a commercially available lightweight transfer chair. The unit helps alleviate difficulties associated with wheelchair transport and maneuvering through congested spaces. The user con-

trols the chair via a proportional joystick that can be positioned according to the user's size. The wheelchair design makes it optimal for use as a secondary wheelchair, allowing the user to make easy transfers in and out of cars and airplanes. It also makes maneuvering through areas such as homes, offices, classrooms, restaurants, and numerous other tight environments much easier.

The prototype provides more than thirty minutes of travel, and can navigate over obsta-



Lightweight Chair!

cles ½" in size. It weighs less than 28 pounds including a 10 pound removable battery and control pack.

The unit recharges in under two hours. Currently, Keith is working with DEKA to refine the prototype.

DEKA R&D Corp. is well known for their assistive technology products, such as the Segway and IBOT. If you'd like to know more about their cutting edge designs, check out their website at www.dekaresearch.com.



**Working together to
create a more
accessible tomorrow.**

**Date and Time
for the fall ATRC
Workshop will be
posted on our
website**

<http://www.me.wpi.edu/Research/ATRC>

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- *Submit a project or problem or ask a question via our web page : <http://www.me.wpi.edu/Research/ATRC>*
- *Register for up-to-date information*

**Do we have your updated
contact info? Let us
know!**

Community Outreach Activities

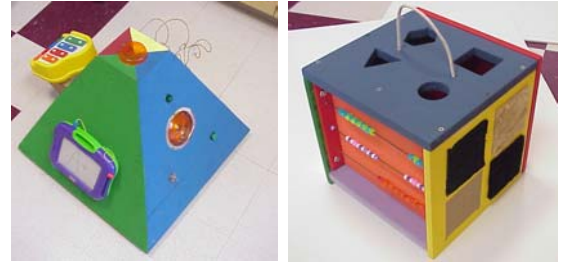
The ATRC has an active community outreach program. Recently we gave a presentation and tour of our laboratories to the Assumption College class on Rehabilitation Strategies and Techniques. We are available to provide speakers, programs and demonstrations about as-

sistive technology and disability awareness to service providers, schools, organizations and senior centers at your location or at WPI. Please contact us for further information.

New Design Course Teaches Students about Assistive Design

This fall, the freshman course "Introduction to Engineering Problems" emphasized Assistive Technology design. This seven week course gave freshman of different disciplines a first look at assistive technology design. Students from several disciplines worked with the Glavin Center in Central Massachusetts to design a sensory stimulation activity board for one of their residents. Eight different prototype designs were developed for a client with severe mental retardation.

Our contact at Glavin, Dr.



Examples of Student Prototypes

Tommy Stoddard, came in to view the student prototypes. He was impressed with the different designs, and gave suggestions for what components to include for the final design. A team of undergraduate and graduate volunteers will be continuing the class's work to produce a final product to deliver to the client.

New Member of the Team!

Keith Liadis joins the ATRC to conduct research in the EPICS program. Keith graduated last year from WPI with a degree in Mechanical Engineering, and a concentration in Mechanical Design. Continuing his education at WPI, he pursues his master's degree in Mechanical Engineering, and is interested in pursuing a career in designing assistive technologies.

Keith has interned at DEKA R&D for the last four years, working on the INDEPENDENCE® iBOT™ 3000 Mobility System (a wheelchair that climbs stairs, and raises its users to eye level by balancing on two wheels). He completed his MQP last year at DEKA R&D by designing and prototyping a compact powered wheelchair that effectively targets



problems associated with wheelchair transport and maneuverability.

Keith is very excited to be working in the ATRC, and feels that the EPICS program will provide a very rewarding experience.