ADVANCED TECHNOLOGY & MANUFACTURING CENTER
UMASS DARTMOUTH

University of Massachusetts Dartmouth
Advanced Technology & Manufacturing Center
151 Martine Street
Fall River, MA 02723

www.atmc.umassd.edu
Phone: (508) 910-9800
Fax: (508) 999-9120
email: atmc@umassd.edu

Where
University & Industry
Collaborate

New Technology Venture Companies Locate at the ATMC

Masscal Corporation was formed in January, 2001 to commercialize the **Quartz Crystal Microbalance/Heat Conduction Calorimeter (QCM/HCC)** and its associated mass/ heat flow sensor.

Micro-Ant, Incorporated has been formed with the purpose of functioning as the industry leader in antenna and antenna subsystem design and development. The company team is comprised of seasoned industry veterans encompassing decades of wireless technology experience. Charles McCarrick PhD, founder of Micro-Ant, leads this team of Engineers, Operations, Sales and Marketing specialists. Micro-Ant has built a foundation on its engineering talents and capabilities in order to support these needs. The company's engineers have extensive experience with reducing complex, sophisticated antenna systems to robust low-cost commercial and consumer products.

ATMC Newsletter

Where University & Industry Collaborate

Fall 2004

Message from the Director

Dr. Thomas Curry
ATMC Director

I am most pleased to send you our fourth Newsletter, which outlines our continued growth and the many exciting things that are happening at the ATMC. Our mission is to leverage university resources for regional economic development, and this mission is increasingly being met by the many and expanding initiatives at the Center.

Eleven start-up companies are now active at the ATMC, and the demand for the support of the ATMC Tech Venture Center continues to increase.

The ATMC intern program continues its vigorous contribution to our project work, with students from engineering, business, and science engaged in real-world projects. These students always impress me with their professionalism, creativity, and unusual maturity

We continue to forge relationships with Federal funding agencies in our pursuit of new Science and Technology research and development projects that will engage students and faculty, and will expand the opportunities for Massachusetts businesses. The ribbon-cutting of the pilot manufacturing facility for Avant Immunotherapeutics occurred on November 5, 2004, and we welcome this company to the ATMC family and look forward to the excitement that they will add to our facility.

A beautiful sculpture connecting the cultural and economic history of the region to the strategic directions of the ATMC was created and constructed by Victoria Mathieson. Please come by and take a look, I'm sure you'll find it interesting and remarkable.

When you read the summaries in this newsletter, I think you'll agree that the vision for the ATMC conceived by our elected and appointed officials, our regional business leaders, and the university continues to become a reality!

Happy Holidays to all of our friends and supporters.

Ocean Server– Marine and Oceanographic Technology Network

Business incubators offer companies high quality lab & office space, business development services, and access to research facilities such as the UMass School of Marine Science & Technology, SMAST. The Technology Venture Center at the Advanced Technology & Manufacturing Center also provides these companies with the expertise of faculty and technical staff, access to industry professionals, and the energy and creativity of top shelf engineering and business interns. Ocean Server, a developer and manufacturer of embedded instruments and sensors for the marine environment, is an example of a company leveraging this support to accelerate development.

Ocean Server Technology, a Tech-Venture start-up company located within the ATMC Facility in Fall River, has joined the Marine and Oceanographic Technology Network (MOTN) organization under the new enhanced relationship between ATMC and MOTN. It has several products in development that focus on low-power applications, where regulated portable DC power can improve functionality and extend the working objective of portable systems such as those required in shipboard or remote monitoring environments. >>2

AVANT Immunotherapeutics Locates at the ATMC

On Friday, November 5, 2004, AVANT Immunotherapeutics, Inc., a leading life sciences company specializing in the development of innovative vaccines and therapeutics, unveiled its state-of-the-art, pilot manufacturing facility at the Advanced Technology & Manufacturing Center in Fall River.

Governor Mitt Romney was present for the ribbon cutting that marked the opening of AVANT. He hailed the plant as "the beginning of a life sciences industry center in Fall River." >>2

The Ribbon Cutting
(From Left to Right)
Thomas Finneran,(MA State Representative),Una Ryan (Avant President and CEO), Governor Mitt Romney

Feature Stories

New Projects at the ATMC

AVANT Immunotherapeutics continued

AVANT's current vaccine and immunotherapeutics product portfolio include cholesterol management, cardiac surgery, infectious disease, biodefense and food safety. The company has three marketed products: Rotarix(R), a two dose oral vaccine against rotavirus, a disease which causes infant diarrhea, Megan(R)Egg, a vaccine to protect against Salmonella infection in laying hens and eggs and Megan(R) Vac, a vaccine to protect against Salmonella infection in broilers.

Governor Romney Addresses the Audience

AVANT President and CEO Una S. Ryan, Ph.D said Governor Mitt Romney was instrumental in convincing AVANT to expand operations in Massachusetts by touting the state's pro-business incentives, such as the manufacturing tax credit recently put in place for the biotech infrastructure, AVANT could not have chosen a better place to expand," said Romney. "This Impressive facility serves as a new source of growth for the Fall River region and will encourage additional life science companies to locate here." Mass Development, the state's finance and economic development agency, provided financing of up to $2.2 million to AVANT to buy equipment and renovate space.

AVANT President and CEO Una S. Ryan, Ph.D welcomes the audience

Dr. Ryan concluded: "With today's opening AVANT embarks on a very important chapter of its history and development as a leading life sciences company. I am very excited about our new partnership with Fall River and believe that it will be a great place for life science companies like AVANT to do business."

Green Chemistry Conference

The Advanced Technology & Manufacturing Center at Fall River is hosting a state wide Green Chemistry Conference on January 13-14, 2005 involving all the five Umass campuses. The term Green Chemistry is defined as: The invention, design and application of chemical products and processes to reduce or to eliminate the use and generation of hazardous substances. Dr. John Warner, Director of Green Chemistry Center, UMass Lowell, a pioneer in Green Chemistry is the Program Chairman for the conference. Approximately 250 people are invited for the two-day event. Among the several keynote speakers for the conference are UMass President Wilson and Chancellor MacCormack.

Weaving The Threads of Time

Victoria Mathiesen (right) working with assistant Kim Gatesman

Victoria Mathiesen, a professional local artist was commissioned by Dr Thomas J. Curry, Advanced Technology & Manufacturing Center Director to add splendor and connection to our cultural and economic past. Victoria Mathiesen working in tandem with her assistant Kim Gatesman designed a sculpture, which is a fusion of textiles, steel, stone and water. The sculpture represents the mills that made Fall River a world class-manufacturing center. The swirls of fabric bring together different entities in the community and reinforce the fact that the textile industry is the roots of UMass Dartmouth. The five panels of fabric that begin at the ceiling represent the five strategic priorities of the ATMC.

Ocean Server - Marine and Oceanographic Technology Network continued

Initial R&D efforts at the ATMC include the company's first released product, the Intelligent Battery and Power System (IBPS), which is a modular electronic device that can be embedded in an OEM system to safely manage an array of Lithium-Ion Smart Batteries, providing regulated or unregulated power at a variety of voltages and currents.

The company has benefited from contacts made through the ATMC's Homeland Defense Projects Office with the Navel Undersea Warfare Center, NUWC, the Coast Guard and other agencies. Ocean Server has employed engineering interns for mechanical designs and has used the Computer Numerically Controller (CNC) tools to allow three-dimensional engineering designs to be prototyped. The ability to move designs rapidly from concept to prototype has been a key in the growth of this new company.

Based on Ocean Server's concept, the Prototype Lab at ATMC and Ocean Server worked together to design and prototype their Iver-1 Underwater Unmanned Vehicle [UUV] proof of principal design. The close proximity and continuous exchange accelerated the development by ensuring quick resolution of design challenges. The Prototype Lab also worked collaboratively with Ocean Server with the design of Iver-2 and Battery Charging Packs. Bob Harrington, Prototype Lab director's immense experience with high vacuum systems has helped in the development of the UUV hull assembly and watertight seals. The Prototype Lab's main goal was to have a product, which is functional and trouble-free to manufacture.

Both the ATMC and the MOTN share the goal of improving technology and products for the Marine and Oceanographic Industry, and Ocean Server is pleased to be a part of the network. More info on Ocean Server at http://www.ocean-server.com/ and more info on the Intelligent Battery and Power System at http://www.ocean-server.com/products/controller19.pdf.

Prototype Lab

Laboratory Profile

The prototype lab is capable of fabricating metal, plastics and wood for purposes of developing product prototypes and manufacturing process prototypes. The lab includes a CNC lathe and a CNC Vertical Machining Center. These machines are fully automatic.

Utilizing CAD & CAM software, these machines can produce complex parts and components quicker than manual machines. The lab is also equipped with manual machines for student use and less complicated parts. We have the ability to manufacture and assemble proof of principal conceptual design.

LAB SERVICES

- Prototype Design
- CNC Lathe & Mill
- Welding
- Prototype Machining
- Assemblies
- Incidental Machining
- Routine Machine Jobs
- Wood Work
- Sand Blasting

LAB EQUIPMENT

- Mori Seiki SL-204 CNC Lathe
- Mori Seiki NV 5000 Mill
- SLA 250 Stereo Lithography System
- Bridgeport milling machine series 1 standard
- Universal Tool Room Lathe
- Floor Model Drill Press
- Horizontal Cutoff Band Saw
- Combination Belt Disk Sander
- 10" Compound Milter Saw

Engineering students working with CNC Lathe

Laboratory Director

Robert Harrington working with an engineering intern

Robert Harrington has over twenty years of experience as a technician and prototype machinist at research and manufacturing facilities. He has a strong background in the fabrication, assembly and maintenance of mechanical equipment used in scientific laboratories following eight years experience as a machinist and toolmaker in industry. He has spent most of the past twenty years working closely with college and post doctoral students.

He started as an apprentice for Nationwide Tool and Die Maker in Rochester, NY and worked his way to journeyman. Before joining the ATMC in 2001, Mr. Harrington worked as a prototype machinist and model maker for a number of research and production companies in NY state such as Eastman Kodak Company, Laboratory for Laser Energetics at the University of Rochester, and Brookhaven National Laboratory.

Mr. Harrington has taken a number of courses in optics from the University of Wisconsin-Madison and in instrumental model making from Rochester Institute of Technology.

Current Projects

- Unmanned Underwater Vehicle
- Quaker Needle Punch Machine
- Build Test and Experimental Equipment
- Slicing and Joining Equipment
- Charging Stations for Laptops/ Battery Pack
- Modified /Rebuilt Motorized Wheelchair

What's New With The Lab?

A new capability for prototyping is available in the SLA 250 stereo lithography. The SLA 250 will be located in the Prototype lab at ATMC and is ideal for rapid prototyping small detailed and precision parts. The solid imaging system can be used for prototypes for design verification and testing and patterns for casting and molding. Also, it is equipped with tools for pre-production tooling. It can also be used for parts for manufacturing aids, vendor solicitation and limited production runs.

The SLA 250/30 builds highly detailed parts as large as 250*250*250 mm (10*10*10 in), suitable for a wide variety of solid imaging applications. Utilizing the SLA 250 system, time and expense is reduced at every stage of product development. The SLA 250 system has an easy to use 3D Light-year file preparation software and 3D systems global support.

For more information contact, Bob Harrington
Phone: 508-910-9851; bharrington@umassd.edu