

M I L W A U K E E

TECHNOLOGY

VOLUME 6

UPDATE

PHYSIOIMAGING

Precise pre-surgical
brain function mapping.

GE MEDICAL SYSTEMS INFORMATION TECHNOLOGIES

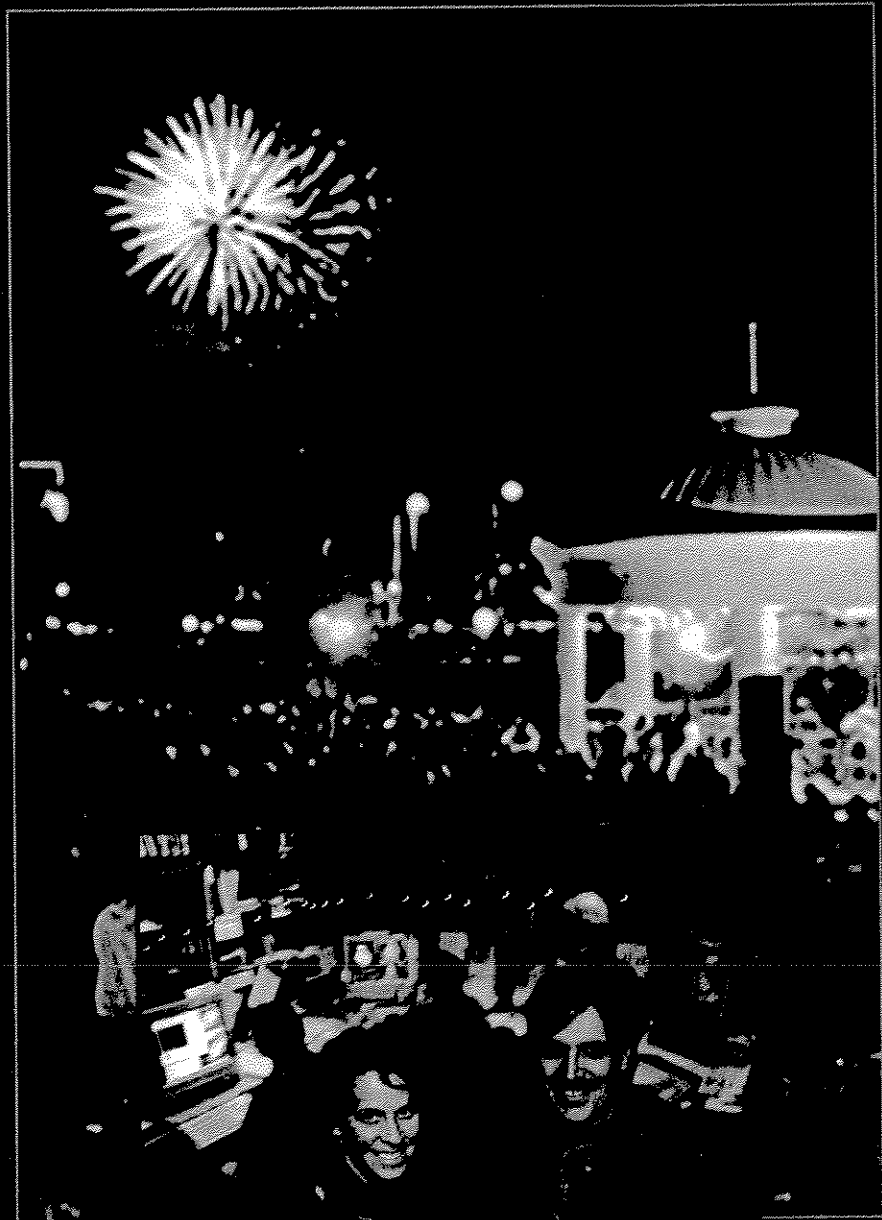
Leading a
revolution in
healthcare.

DRS POWER & CONTROL TECHNOLOGIES

Taking naval
power systems
needs from concept
to production.

IMS

Using the Web and
predictive maintenance
technologies to achieve
near-zero downtime.

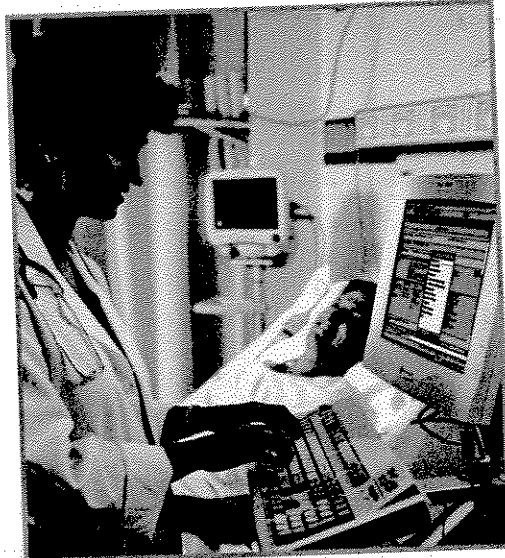


GE MEDICAL SYSTEMS

INFORMATION TECHNOLOGIES

Leading a
revolution in
healthcare.

GE Medical Systems
Information Technologies leads
a revolution in healthcare: the transition
to electronic medical records and the

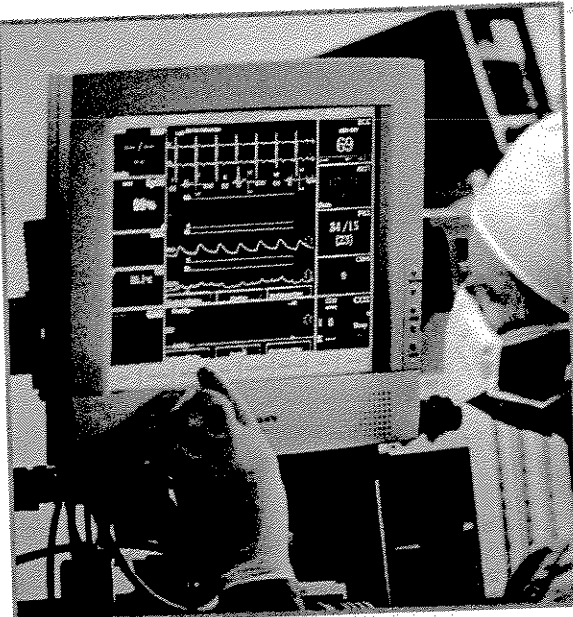


orders are entered accurately on computers instead of being scribbled on paper forms; where caregivers always have at hand the information they need to make quick, confident treatment decisions. GE is helping to make all that happen.

Founded in 2000, Milwaukee-based GE is a global company with \$1.8 billion in annual sales. It is part of the \$9 billion GE Medical Systems, a world leader in medical imaging and technology. From imaging to monitoring, diagnosis to discharge, *Information Technologies*

streamlining of workflow to help doctors and nurses function more efficiently. The digital evolution represents the single greatest opportunity to improve the quality of patient care, enhance patient safety, and control medical costs.

Imagine the hospital of the future — a place where doctors can instantly look up patients' records on computers instead of searching for paper charts; where prescriptions and treatment



solutions touch patient care throughout the hospital.

The company's Centricity™ suite of products drives GE's effort to make digital healthcare a reality. Centricity Clinical Information Systems creates the core electronic medical record across the hospital, allowing doctors and nurses to view comprehensive patient information on demand from anywhere in the hospital — or even from their homes or offices. Centricity Radiology captures and stores patient x-rays, MR and CT scans and other diagnostic images in a computerized system where they are instantly accessible and can be e-mailed among doctors for consultation using hospital networks or the Internet.

Centricity Cardiology streamlines heart care by assembling reports, ECG graphs, and images of the heart to create a single patient record from which doctors can quickly and easily perform analyses and decide the best course of treatment.

GE offers the latest technologies in ECG systems, portable heart monitors, cardiac catheterization lab equipment and electrophysiology lab devices.

The company also supplies a wide range of wireless monitoring technologies, including wireless networks that ensure the consistent, safe, secure delivery of life-critical information within the hospital.

Whether in a new all-cardiac facility, a leading children's hospital, or a world-renowned research hospital, GE Medical Systems *Information Technologies* aims to be the technology provider of choice.

DRS POWER & CONTROL TECHNOLOGIES

The U.S. Navy relies on DRS for ship electric propulsion equipment, power electronics, high-performance networks, shipboard control equipment and panels, tactical displays and specialty reactor plant instrumentation and control.

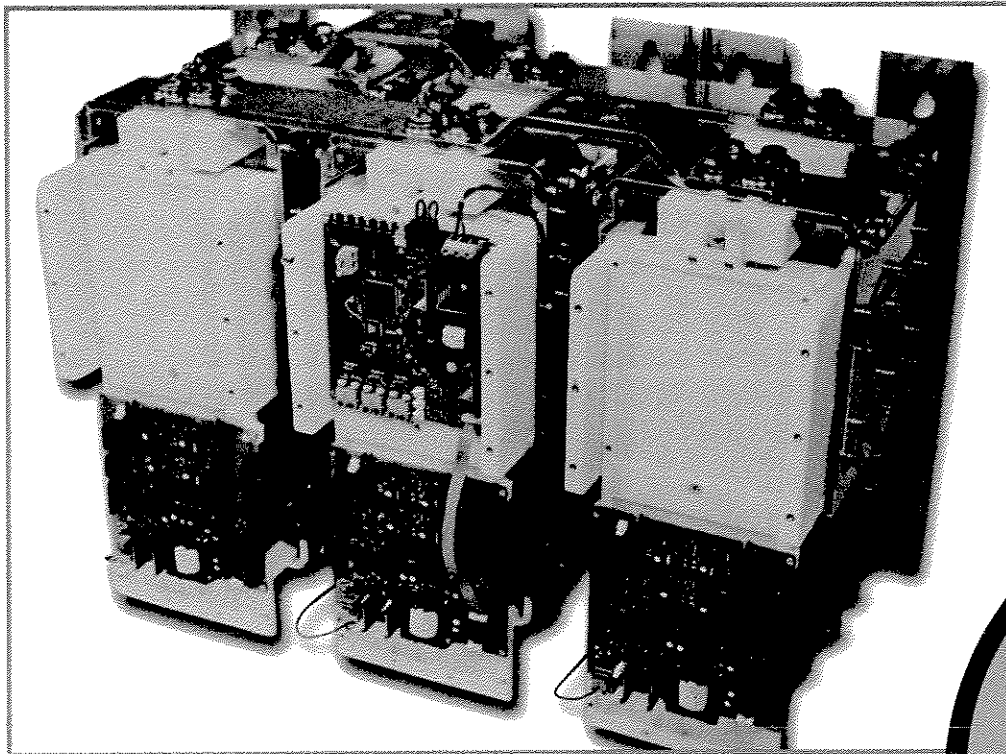


Men and women aboard combat ships throughout the U.S. Navy and around the world rely on a Milwaukee company for expert control of mission critical shipboard systems.

machinery, including such crucial functions as ventilation fan, pump and throttle control.

The company provides solutions for the

control systems for the electrification of U.S. Navy ships. Electrification results in quieter ships and allows the Navy to increase efficiency by automating shipboard processes.



Technology developed by DRS Power & Control Technologies also has a major impact on industrial process within the automotive industry, and other businesses that utilize high-speed compressors in manufacturing.

From power distribution and electrical control products to automation, DRS Power & Control Technologies offers advanced product development, world-class manufacturing, and global engineering services and support.

“Our customers count on engineering expertise, manufacturing capability and testing resources to provide products not duplicated in the industry.”

Sally Wallace,
Vice President-Operations
DRS Power & Control
Technologies

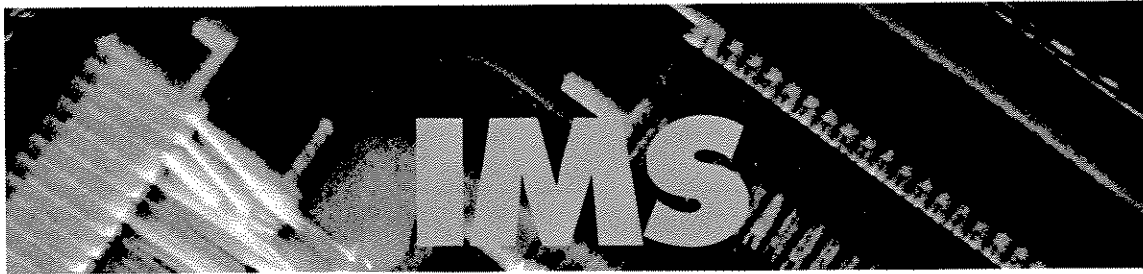
DRS Power & Control Technologies Inc. is a leading supplier of high-performance power conversion, instrumentation, automation and control systems for the Navy's fleet of ships, as well as specialized industrial customers in the petrochemical and power generation marketplace.

DRS holds a prominent position within the Navy shipbuilding market, providing advanced designs and products that distribute and apply power, electronics, control and automation of shipboard

military and select industrial customers, improving the reliability and maintainability of equipment today, while developing tomorrow's products from emerging technologies.

DRS Power & Control Technologies has the most diverse variety of power electronics equipment deployed or under development in the U.S. Navy today. Because of their engineering and manufacturing expertise, they are one of the foremost developers of electronic

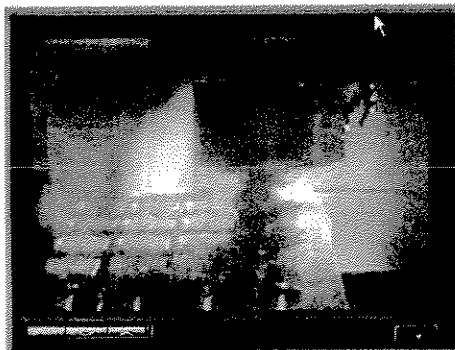
The company, with an additional location in Danbury, Connecticut, employs over 600 people.



CENTER FOR INTELLIGENT MAINTENANCE SYSTEMS

The core activities of the IMS Center concentrate on innovations in wireless and web-enabled predictive maintenance technologies, including intelligent machine degradation assessment methodologies, e-prognostics, and e-diagnostics, to enable manufacturers and customers to have products and machines with near-zero-breakdown conditions.

Established by the University of Wisconsin-Milwaukee and the University of Michigan- Ann Arbor, the Center for IMS is a national resource for research, technology evaluation and deployment, education, and information transfer. This National Science Foundation Industry/University Cooperative Research Center on IMS plays a key role in serving the mutual interests of private industry, government agencies and academia. IMS plans to serve as a center for the creation and dissemination of a systematic body of knowledge in intelligent e-maintenance systems and ultimately



impact next-generation product, manufacturing and service systems with six-sigma quality. Six sigma is a management philosophy that strives to achieve perfection by setting extremely high objectives, and thoroughly analyzing results of collected data with the objective of reducing defects in products and services. For a company to achieve

Using the Web and predictive maintenance technologies to achieve near-zero downtime.

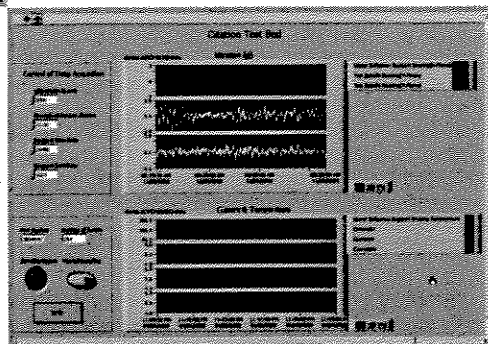
six sigma, it cannot produce more than 3.4 defects per million opportunities.

IMS plans to bring value to its members by validating emerging technologies and harnessing business alliances through collaborative testbeds. The Center's research program consists of highly interdisciplinary projects that fall into three core competency areas:

1. Smart Computational Prognostics Agent (Watchdog Agent™)

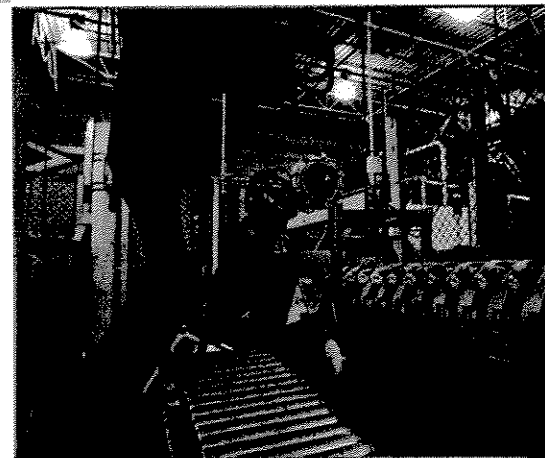
Embedded computational prognostics algorithms and toolbox for predicting the degradation or performance loss on devices and systems.

2. Web-enabled Device-to-Business (D2B™) Platform for Transformation, Prediction, Optimization & Synchronization



System methodologies that enable transformation of machine and product data into more useful formats, optimization of maintenance and production scheduling, and synchronization with other business systems, suppliers and customers.

3. Applied Wireless Systems and Development of Embedded Peer-to-Peer Networking Technology



Technologies for remote monitoring, wireless communication tools and evaluation of wireless systems on production and service environments.

The Center's research projects are conducted through supporting partnerships with industry and government. A partial list of current member and sponsor companies includes: Citation Custom Products, Harley-Davidson, Hitachi, Iconics, Rockwell Automation, Toshiba, the U.S. Postal Services, A.O. Smith, Xerox, Intel, WE Energies, Hitachi Seiki and General Motors.

EMERGING TECHNOLOGIES

PHYSIO IMAGING

Precise brain function mapping for accurate assessment prior to brain tumor surgery.

Neurosurgeons have long been searching for ways to assess the function of brain tissues surrounding areas that require operation and

Over the last 15 years at the Medical College of Wisconsin, PhysiImaging has developed proprietary hardware, software and process applications using functional Magnetic Resonance Imaging (fMRI) technology. fMRI measures quick metabolic changes that take place in an active part of the brain to help determine precisely which part of the brain is handling critical functions such as thought, speech, movement and sensation. This information is crucial in planning surgery, radiation therapy, and treatment for illnesses caused by brain disorders. Using existing MRI scanners, this technology enables the functional mapping and assessment of such brain activity. Hospitals currently

existing MRI scanners without forcing the hospitals to outlay cash for expensive equipment. They also provide a more efficient, effective and non-risky alternative for pre-surgical



Dr. Stephen Rao (left) and Dr. Robert Prost standing in front of a high-field 3T Bruker MR scanner. Dedicated to acquiring fMRI images for research, the 3T is twice the magnet strength of clinical scanners, providing increased sensitivity to functional brain activity.



Dr. Kris Ropella (left) is a bioengineer with special expertise in signal processing, and Dr. Edgar DeYoe (right) is a neuroscientist with PhDs in neuroscience and experimental psychology and a bachelor's degree in electrical engineering. Together with John Ulmer MD from MCW's Radiology department, they collaborate to translate basic neuroscience and neuroimaging discoveries into clinically useful tools for diagnosing brain disease and trauma, and for guiding treatment and rehabilitation.

removal. Precise brain function mapping is mission critical information for determining the extent of surgical resection as well as for accurate pre-surgical assessment of the risks, benefits and requirements for surgery.

offer their brain surgery candidates a range of pre-surgical assessment tests that are either too risky and expensive to their patients, or do not provide an accurate level of assessment for physicians given the level of cost and risk. fMRI-based products increase the value of

assessment compared to other pre-surgical tests. Using proprietary software and applications, neurosurgeons, radiologists and MRI technicians can customize fMRI diagnostic tests without exposing the patient to risk, while at the same time providing the ability to interpret the data more efficiently and effectively. Future applications include help in diagnosing and treating neurological diseases like Alzheimer's. Additional products are in development and future fMRI expansion will stem from fMRI-based applications that aid in the diagnosis and treatment of other neurological diseases including Huntington's disease, Parkinson's, Schizophrenia, Alzheimer's, Attention Deficit Disorder and Autism.

Research and technology transfer is made possible through partnership with the Medical College of Wisconsin.

Learn more about

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*to advance the
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