SPACE PRODUCT DEVELOPMENT

IMPROVE THE ECONOMY HERE...

EXTEND COMMERCE THERE...

CREATE OPPORTUNITIES BEYOND...

2002 ANNUAL REPORT

MEDICAL INFORMATICS AND TECHNOLOGY APPLICATIONS CONSORTIUM

The Medical Informatics and Technology Applications Consortium (MITAC) is a center of excellence that specializes in the areas of telemedicine, telehealth, and medical informatics. MITAC, located on the campus of Virginia Commonwealth University in Richmond, VA works closely with NASA to meet NASA's needs in the area of telemedicine, telehealth, and medical informatics especially for those individuals located in extreme and remote environments. The application of telemedicine in the delivery of health care in the environs of space is of extreme importance to the astronaut and to ground controllers. These same needs and concepts are of great importance regardless of the location of the patient in need or the caregiver. MITAC's vision is to 'Explore new technologies in medical informatics and health care delivery systems that will revolutionize health care in space and on Earth. MITAC accomplishes this through establishment of partnerships with academic, industrial, and government entities dedicated to the improvement of health care through the use of space science and technology In addition, MITAC helps maintain the United State's competitive lead in commercial applications of medical informatics and telemedicine, the development and application of innovative technologies that can be embraced by human space flight, and the integration of communications, information systems, and electromechanical interfaces between patient and health care teams.

Current efforts are providing a strong foundation for expansion of telemedicine and telehealth capabilities in many areas in the U.S. and around the world. Through unique partnerships, MITAC is recognized as a world-class telemedicine center of excellence. These partnerships lead to new approaches and unique solutions for providing health care management in remote environments. MITAC utilizes and validates a variety of technologies that focus on low bandwidth telecommunications. Such efforts are directly related to the challenges faced in providing medical support during human space flight. Through partnerships with telemedicine-oriented industries, MITAC develops new technologies and strong infrastructure that shows commercial possibilities in homeland security and international health.

MITAC's work is recognized through peer-review publication on an international scale, attendance at national and international conferences, and through interaction with a variety of organizations. MITAC partnered with Tele Vital (Milpatis, CA) to develop and validate a method of monitoring patients under anesthesia in a mobile surgical facility in Ecuador using the World Wide Web and low bandwidth telecommunications to link Ecuador to MITAC in Richmond. MITAC is also in discussion with the Department of Defense (DoD) to provide expertise in developing a strategic plan for telemedicine support on an international scale. This is leading to efforts in telemedicine training in Uzbekistan with DoD's Partnerships of Peace Information Management Systems and a U.S. State Department initiative to support telemedicine efforts in Afghanistan.

Although MITAC does not have direct access to space flight, it has worked closely with NASA to meet its needs and commitments with regard to telemedicine. NASA has played a major role in telemedicine development for nearly 45 years. MITAC, through its architecture, continues that role on behalf of NASA by interacting with industry, academia and the international community

SUMMARY OF CURRENT ACCOMPLISHMENTS

Although MITAC does not focus its efforts on direct space flight opportunities, it has developed and validated a number of technologies that capitalize on wireless and low bandwidth telecommunications capabilities, information management systems, and unique needs. Managing health issues at a distance are of great concern not only to NASA but the entire population of the Earth. The ability to provide access to health care information and medial expertise is paramount in addressing medical needs.

MITAC has been highly successful in develop and validating telemedicine technologies in unique test beds around the world. Its competencies and technical expertise are sought after to meet unique challenges such as working with DoD to develop strategic planning in telemedicine for the DoD as well as working with the U.S. State Department to develop possible solutions in Afghanistan.

During the past year, MITAC published over 15 manuscripts in peer-reviewed journals and have written definitive text for books in the discipline of telemedicine. MITAC is also working with several graduate students on both PhD and MS level degrees. This work permits a steady stream of intellectual property to be transferred to the University and then the commercial market place.

SUPPORTING NASA's MISSION

Ways in which MITAC supports NASA's mission include, but are not limited to, the following:

TO UNDERSTAND AND PROTECT OUR HOME PLANET

Development of unique remote diagnostic capabilities for terrestrial applications in remote regions and fast response to disaster areas

TO EXPLORE THE UNIVERSE AND SEARCH FOR LIFE

Development of remote diagnostic capabilities used to monitor astronaut health status

Develop and validate systems to support remote health care and medical informatics in extending human presence is space

TO INSPIRE THE NEXT GENERATION OF EXPLORERS

MITAC has developed a comprehensive training capability to support education in telemedicine. This training ranges from the undergraduate honors students at VCU to the physician-student at NASA's East West Science Center (EWSSC) at the University of Maryland. MITAC has transferred this capability into a comprehensive curriculum for the NASA flight surgeon.

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