IsoTOUCH - Finger TPS Wireless & Prosthetic Sensor System

POWERED BY NEUROMUSCULAR TECHNOLOGY

IsoTechnology

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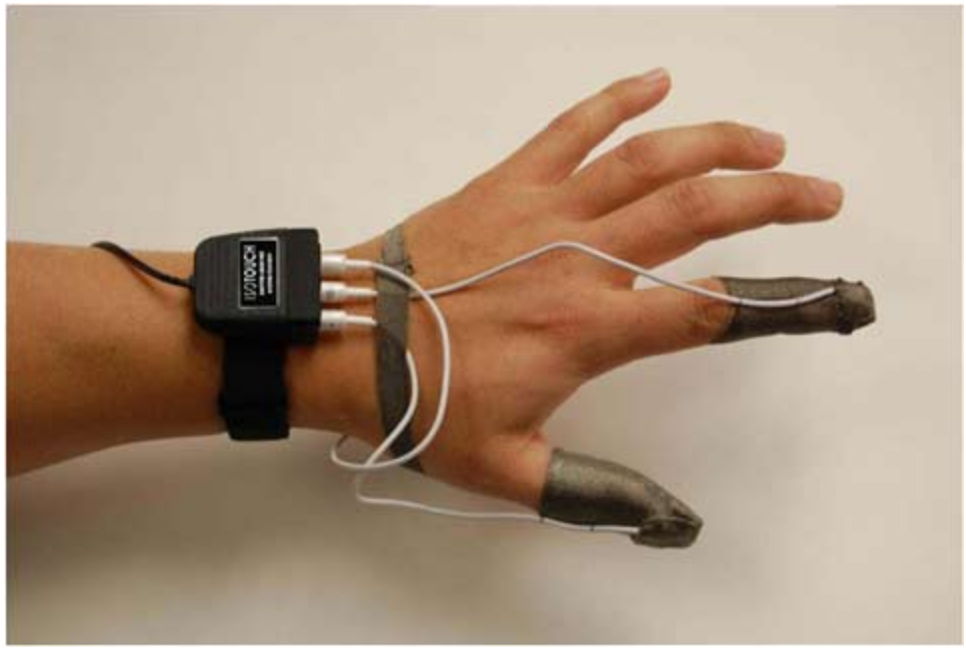
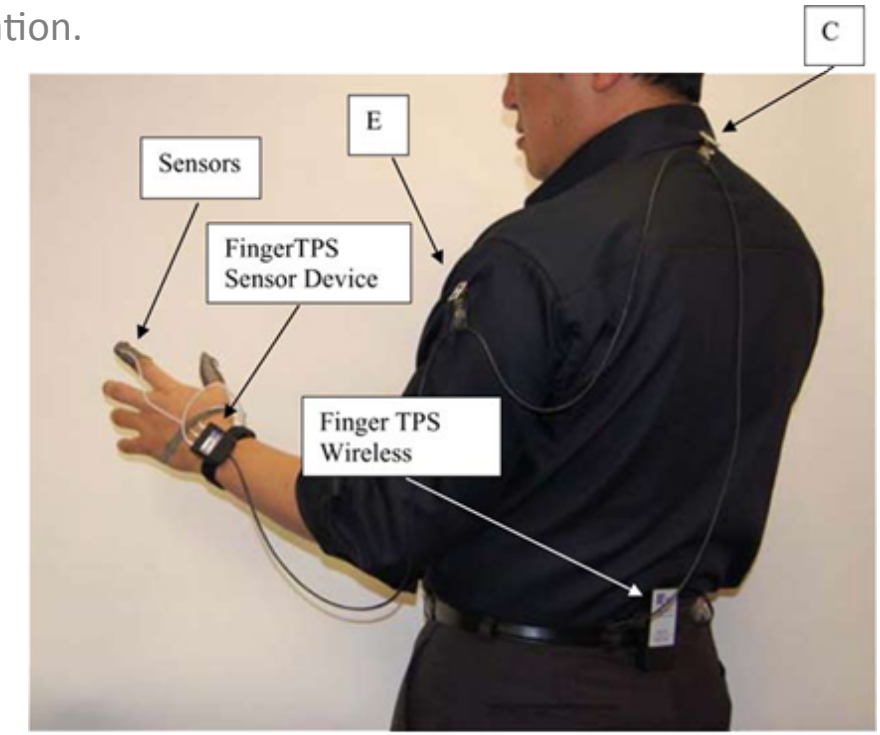
Goals

- We are endeavoring to “Replicate Human Touch” by measuring the force used in Diagnostic palpation and Manual Medicine Treatment.
- The results of designing such a device has applications in Robotics for IED detection and subsequent safe disablement, Manual Medicine Teaching & Examination.
- Further refinements of pressure measurement may provide methods for better “Fitting” of lower extremity Prostheses with subsequent lessening of irritation / inflammation.



Highly Sensitive Finger TPS Sensors are attached to the technician’s hand and the system is re-calibrated for each subject.



Clip cable points at E & C

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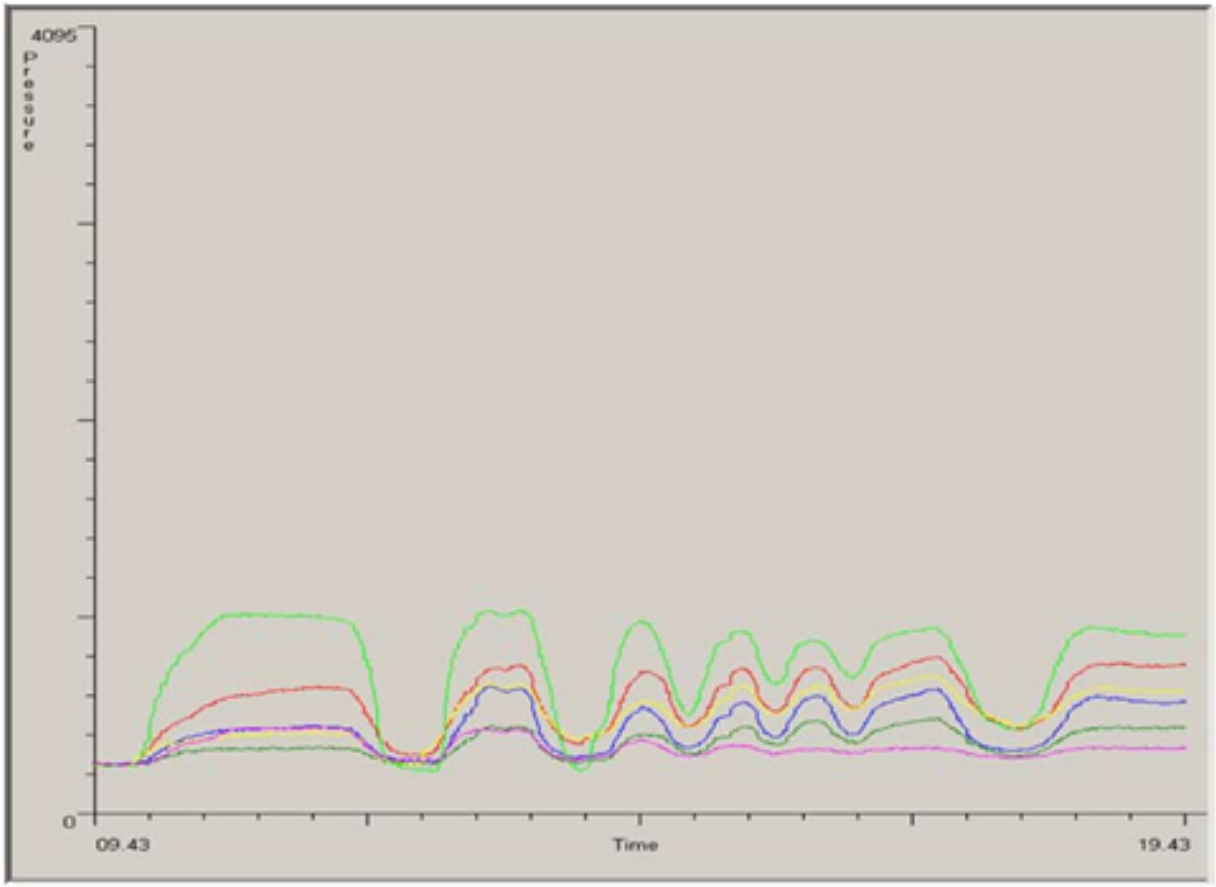
Software

IsoTOUCH Visualizing software is used to acquire data from the IsoTOUCH sensors. The graphical output shows a pressure vs. time graph.



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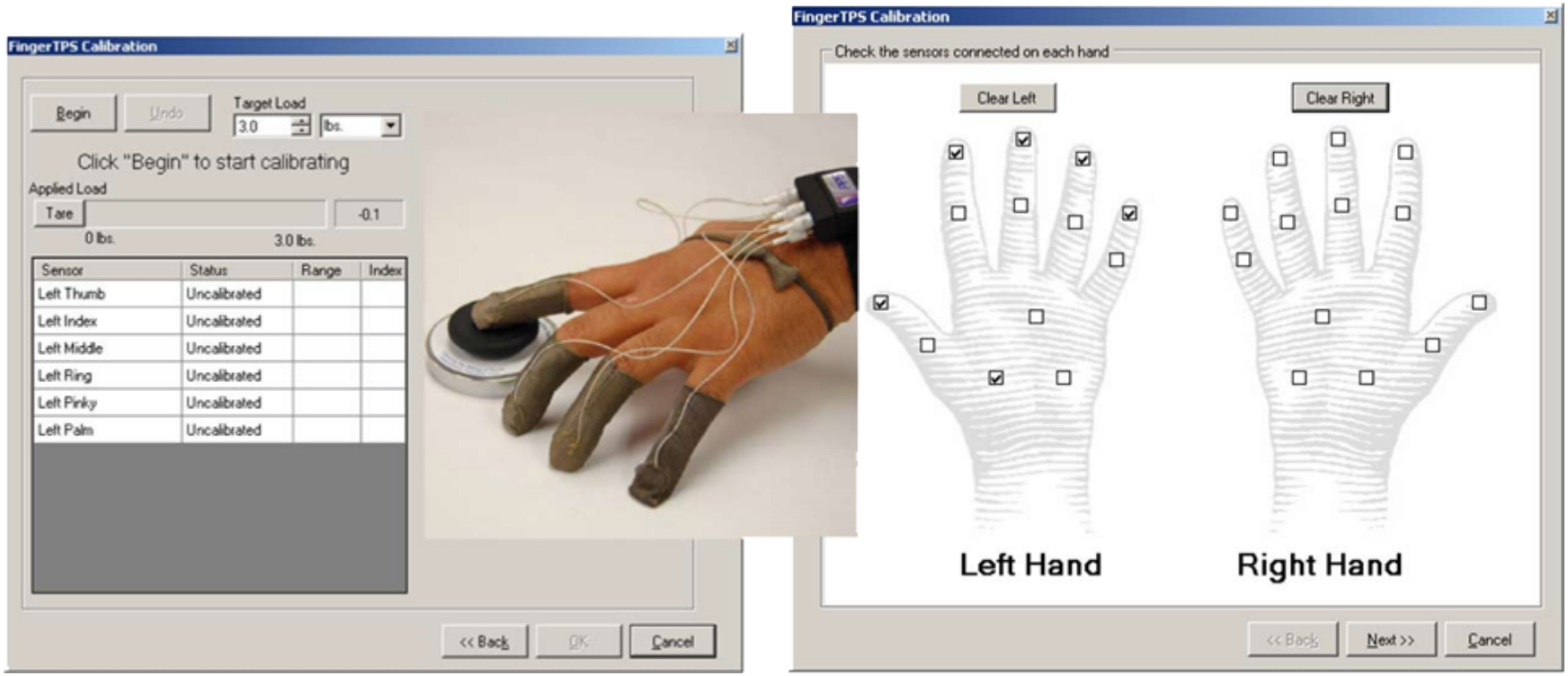
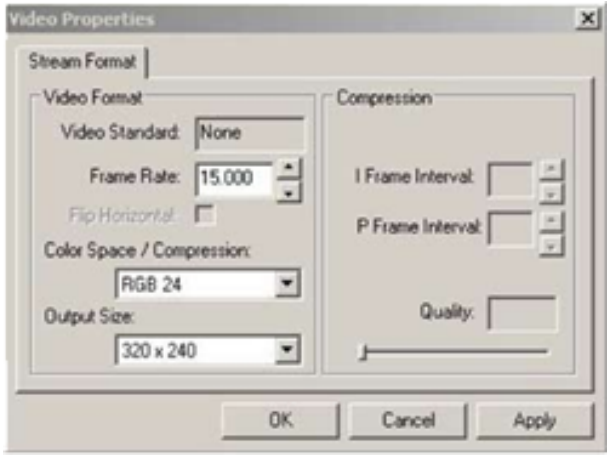
Software (continued)

IsoTOUCH Visualizer allows for easy calibration of the finger TPS sensors with a supplied calibration sensor used to ensure accurate calibration.
Once the calibration is done the system stores the settings and the user can proceed.



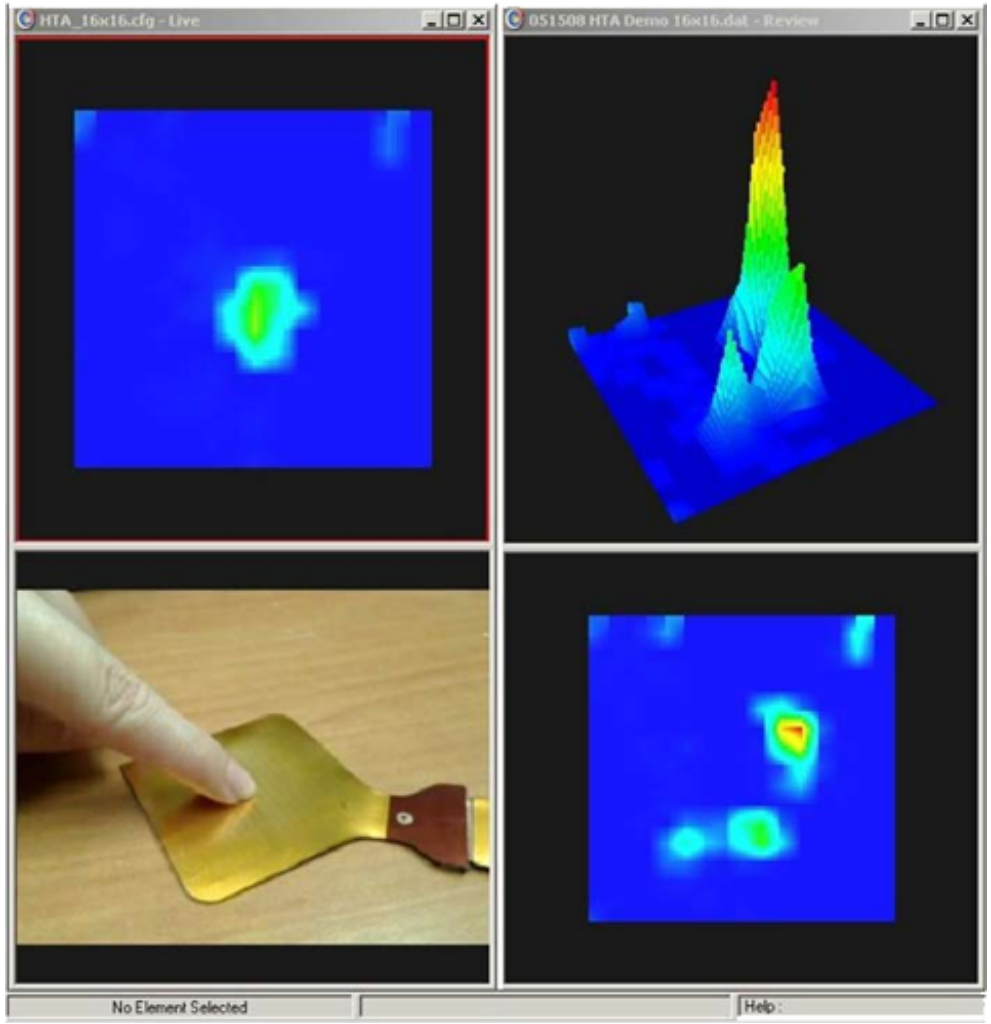
Software – Video Inclusion

IsoTOUCH allows for Video to be captured using the supplied video camera. Extensive controls are available to adjust the video capture.



Software – Main Sensor Display

The main sensor display area can contain one or more windows showing live, recorded, saved, or video captured data.



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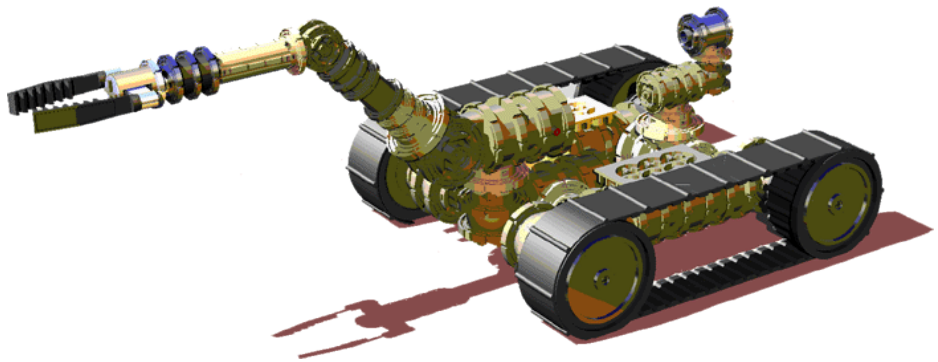
Robotic Development

- Our Robotic operating system currently under development provides hardware abstraction (integration), low-level device control, implementation of commonly used functionality, message-passing between processes, and package (data) management. It also provides tools and libraries for obtaining, building, writing, and running code across multiple computers.
- Focus areas include:
  - Gripping Pressure and Angular movements.
  - PDA on arm.
  - Low Grade Color/Vibratory sound/Tone/Noise.
  - Thigh.
  - PEO Robot.
  - “Learning to Walk” with Prosthetic Sensory Feedback.
  - Military Application Robot.



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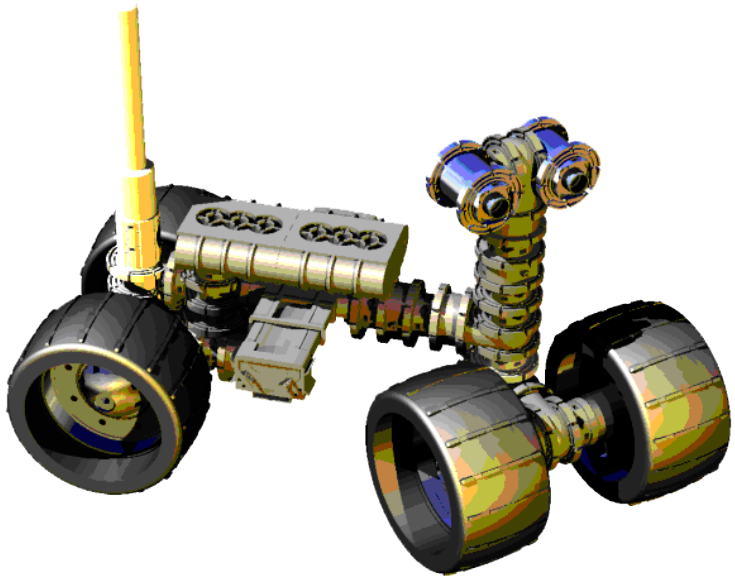
Military Application

- The protection of personnel from potentially harmful radiation by deploying ECM transmitters on a mobile robot platform.
- Robot platform capable of transporting a range of different sized payloads including a range of ECM transmission systems.
- Palpation sensors on extensible arm for IED investigation.
- Robot platform capable of negotiating a variety of terrain types including urban (paved roads, sidewalks, changes of level including curbs, uneven ground, and woodland floor. It should also be adaptable to explore underground tunnels and has the potential for through ground communication.
- Robot platform capable of deploying a range of sub-systems including sensors, cameras, audio, manipulators and sensory data feedback capable of “Mesh” networking and data aggregation.
- Robot platform capable of functioning in close proximity to operational ECM equipment.
- Modular lightweight construction with ability for flexible function.



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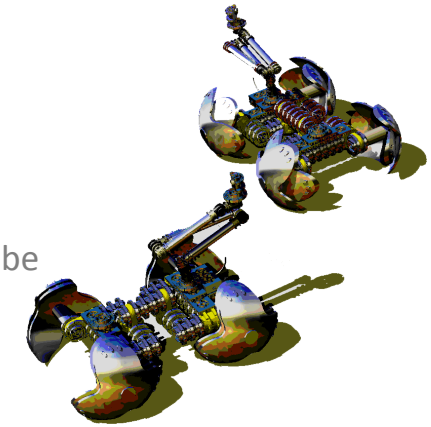
Device Adaptability

- A unique concept of modularity: the platform produces re-configurable robots. Plug & Play functionality: Operation is extremely simple requiring minimal training for personnel.
- Multiple mobility function: the modular system accepts a range of wheels, tracks and a unique SCRAM all-terrain system.
- The Platform is scalable: the core robot system can be configured within minutes to perform many further functions at the same time as transporting ECM equipment.
- Power-to-weight advantage: the relatively low mass of the modular system, manufactured in advanced composites, allows for the transport of a larger payload over a larger distance when compared with conventional robot systems.
- Robustness and resilience: the modular system is designed to operate in close proximity to powerful ECM transmission without compromising the specially developed communications function.
- Integrated power: the modular system integrates a power supply in the structural modules. All systems will be able to draw electrical power from the robot.
- Rapid repair: repair of robots is by substitution of modules.
- Unique OCU: all robots made from the modular system are operated by the same OCU (Operator Control Unit). No matter what the configuration and size of the robot and the payload (manipulator arm, sensors, cameras, and communications).
- Robotic modular interface: for rapid payload changes and power & data integration of payloads with the robot.



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MARKET ADVANTAGE

- The IsoTOUCH provides a robust and economical solution for synthesizing human touch in dangerous situations such as bomb disarming, terrorist attacks, war and hostage situations.
- IsoTOUCH also provides an excellent teaching and learning tool for manual medicine and palpatory, medical disciplines.
- IsoTOUCH can be used for validating clinical practice in manual medicine.
- IsoTOUCH could be applied to surgical applications.
- IsoTOUCH could be great for STEM (science, technology, engineering & mathematics) robotics programs.
- IsoTOUCH could be implemented to invent machinery for factory lines to emulate human touch.

MARKETS

IsoTOUCH can provide an effective solution for synthesizing human touch to a variety of markets including:

Medical
Manual medicine teaching & learning, manual medicine validation of clinical practice. Surgical applications.

Army. NAVY, Airforce
Bomb disarming, terrorist attacks, war, hostage situations.

Factory / Assembly Lines
Inventing machinery based on data produced by IsoTOUCH to replace humans on factory/ assembly lines.

STEM Robotics
Creating robotics based on human touch data to address specific outcomes and have these outcomes validated.

WHO IS

ISOTECHNOLOGY

- IsoTOUCH has been pioneered by Dr Terence Vardy, an international expert in medical devices, and his qualified team over the past 35 year.
- Dr Vardy, whose educational credentials and qualifications are extensive, has also:
  - Practised in Harley Street, London, United Kingdom from 1988 to 1991.
  - Lectured at NASA – at the Ames Research Center, San Jose and Houston Space Center between 1994 and 1997 on Exercise Countermeasures for -1G.
  - Consulted to US Government Officials on health and medical devices development.
  - Been a Prime Contractor to the USA Government Department Of Defense from 1999.
  - Been extensively involved in various research projects in the USA, UK, Australia and Russia, and has a number of articles published across a wide range of related medical topics.
- IsoTechnology has assembled a team of technical and industry experts to assist in the development of this technology. These research personnel and associates, located in various countries, are actively working with the product to ensure the the company develops the leading edge technology in every aspect – practically and efficiently.

Dr.Terence Vardy
(D.O.,N.D.,M.App.Sc.,Dip.Int.Bus.Mgmt., MAAFN, Ph.D Candidate Ph.D. Movement Neuroscience Program)

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