If you are interested in the E-Tongue, please contact Nancy Saucier, Director of New Venture Development at Nancy_Saucier@uml.edu or 978-934-3212.

E-Tongue

Health and Safety Monitoring

Status: Prototype expected by 1st QTR. 2014; multiple funding grants pending

The Electronic Tongue was invented for food safety applications and environmental monitoring. It is used to detect heavy metals and other inorganic contaminants in water. The founder of this innovative technology is Pradeep Kurup from the Department of Civil and Environmental Engineering at UMass Lowell. This technology is faster, more cost effective, less invasive, and easier to use when compared with traditional, current methods. In addition, this technology is part of a multi-billion dollar market and has significant commercialization potential in environmental sensing and monitoring, food industry, homeland security, medical diagnostics, pharmaceuticals, agriculture, biotechnology, and personal care.

The global environmental sensor and monitoring market alone has been valued at $11.1 billion in 2010 and is expected to reach $15.3 billion by 2016.

More specifically, NVI believes initial market data demonstrates justification of demand, indicates potential competitive advantages and product fit:

- Demand for potable water outpaces population growth, particularly in emerging markets where delivery and storage can contaminate water because of outdated infrastructure
- According to Global Industry Analysis Inc. the water testing analysis instrumentation market is forecast to reach $1.86 billion by the year 2017
- Existing equipment is stationary, expensive and targeted for laboratory use—requiring highly-trained technicians
- Approximately 50% of all water testing is outsourced to commercial lab groups
- End-use industries are demanding a testing solution in response to quality and regulatory expectations of their products
- According to Global Water Intelligence even the low-end water testing global market is $300-400 million and metal testing is currently cost prohibitive in this market

Dr. Kurup is currently working to achieve the following steps toward working prototype for heavy metal testing in water using a CVIP Translational Grant:

- Developing a modular sensor array configuration, to offer the flexibility of adding (or removing) different types of sensors based on the application
- Developing a compact electronic potentiostat for automated testing, data acquisition and analysis
- Incorporating new pattern recognition and analysis algorithms for more reliable and accurate predictions
- Designing a suite of algorithms based on the application and the ability of the user to choose the application
- Developing a user friendly interface that can be adapted or easily modified for different applications
- Mounting the sensing system in a small and light-weight, portable housing
- Testing, validation and demonstration

NVI has or is providing the following support:

- Assigned a New Venture Fellow with technology commercialization development experience to develop a technical action plan
- Facilitated several mentor support meetings
- Worked with the internal founding team to socialize the idea of establishing a start-up around the technology
- Helped the team identify federal commercialization grants including I-Corp and SBIR for non-dilutive sourcing of financing
- Served as a co-PI for an additional commercialization grant that will drive prototype development
- IP prosecution, and management including FTO analysis
- Comprehensive business strategy development and market analysis