

## Magnetic Sensors Bring Next Generation Tech in Sight

One of the governing marvels of the world, magnetism is a phenomenon by which certain materials exert attractive or repulsive forces upon other materials. While everyone is familiar with the magnetic properties of certain metals, all materials are influenced by magnetics. And, just as every snowflake, fingerprint, or DNA strand is distinct, everything in our world has a unique magnetic signature.

“For a number of years, researchers and scientists have been attempting to develop Magnetic Random Access Memory, or MRAM technology, as a highly probable candidate for ‘universal memory,’” says Joseph Fuda, CEO of [Micromem Technologies Inc.](http://www.micromeminc.com), a development-stage company at the forefront of MRAM and magnetic sensor technology.

Micromem discovered that their storage medium, when fitted to a sensor, illustrates dramatic advantages over other sensors. The company recently announced that its foundry tests have demonstrated a number of valuable benefits for a magnetic-based sensor and memory device including high sensitivity, thermal stability, and low cost manufacturing.

While many are familiar with magnetic resonance imaging (MRI), a medical visualization technique commonly used in radiology, Micromem’s research suggests the possibility of ubiquitous applications for “nano-MRI,” sensors that are incredibly small and infinitely sensitive. “The revolution in “seeing” that magnetic sensors will usher in promises to be profound; analogous to Galileo’s telescope vs. Hubble’s lens,” says Fuda. “The hypothetical implications of MRAM technology encompass limitless unmet needs in any number of sectors.”

Some of the company’s partnership and commercialization efforts include R&D for “killer apps” in the realms of:

- ? **Biometrics:** sub-surface sensors that can see beyond fingerprinting to detect unique internal magnetically defined structures (e.g. a mini-MRI)
- ? **Medical devices:** imagine a wristwatch-sized device that could non-invasively and continuously monitor patient glucose levels offering relief for the millions of diabetics that no longer would need to draw blood to measure blood sugar levels.
- ? **Defense and Security:** everything from explosive device detection and force protection applications to enemy detection and next generation “metal detectors.”
- ? **Natural Resource Exploration:** being able to “see” what is in the sample at remote sites vs. sending it back to a laboratory for analysis, whether for exploratory drilling, mining, or production scenarios.

“Using magnetic properties to ‘see,’ store, and process information is the future of technology,” says Fuda. “It’s an idea with lots of pull.”

For more information visit [www.micromeminc.com](http://www.micromeminc.com).

**Source: Micromem Technologies Inc.**

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