CEO Note

CEO Note: Sensors: How Did We Get Here?

A Series of Messages from our CEO... Jo Major

Getting "Into" Sensors

We all have heard about wireless sensors – that they are incredible little things, and that any modern RFID reader can read them. For a long time, we really didn't think about sensors, until we were approached by larger companies having difficulty getting them to work. And thus began our journey into a fascinating rabbit hole – of coefficients of thermal expansion, microstrain, imaginary refractive index, interdigitated capacitors, humidity vs moisture, sensor refresh rates, correction of sensor error, and more and more.

Weird Physics

In early 2019, Smartrac (now Avery Dennison) needed help with a custom Azxon RFID moisture tag for a "Smart Building Material" project. Aware of our willingness to get entangled with physics, they approached us and asked us to figure out what in the world was going on! We ended up developing a full software and hardware solution to support the project. One of us, Mr. Neil, was proudly on commercial roofs, in Georgia, in the summer heat, detecting roof leaks with our Extreme reader mounted on a cart as a precursor to a robotic system.

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Over the years, we've learned a lot! These sensors are pretty cool, and yes, you can read them with an RFID read, but . . . there is typically a lot of work involved to go from a rough idea of what is wanted in the sensing application to actually having a working system.

We are firmly committed to being a constructive member in the sensing ecosystem – focused upon working with a key set of die, inlay, and label manufacturers to allow this technology to really deliver.

News Got Out . . .

Before we knew it, news was out that we were good folk dedicated to making wireless sensing really work and projects started rolling in from customers who needed a real technology partner. We developed:

- Software to read these disparate devices with a single tool
- API's to allow custom interrogation approaches
- Multiple custom reader architectures
- Close technical relationships with:
    - Die folk, such as Asygn and Axzon
    - Inlay guys and converters like HID, Tageos, IDentiv, 4iD Systems, etc.

We now possess unique expertise on:
- Detecting moisture, humidity, temperature, strain
- How to use these sensors to detect other things including:
    - Vibration
    - Dielectric Constant and Material Density
    - Cure state for composite materials
- How to interrogate these as quickly as possible
- Fixing errors in the data stream in real-time
- Tag architectures best suited for different applications
- Custom reader architectures to perform sensing in crazy environments

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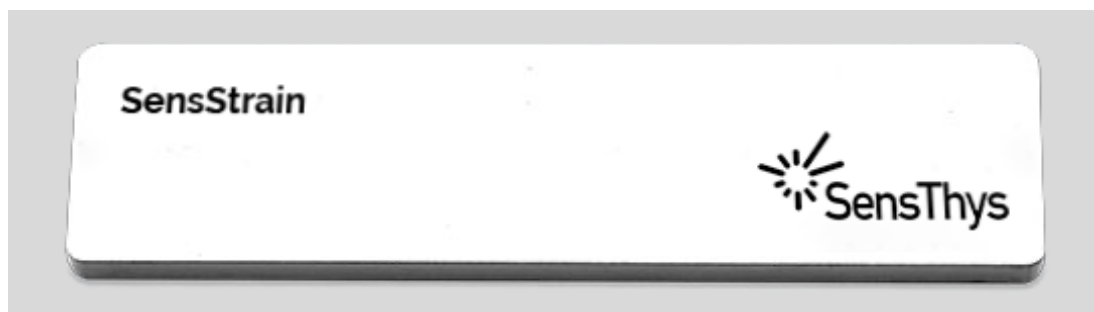
Customization and Engineering Services

Here is an overview of expertise:

- Sensor tag printing and **encoding**
- Sensor **output** analysis and **correction**
- Sensor **tag construction**
- Sensor tag **antenna design**
- **Custom sensor IC** capabilities
- **Custom readers** for sensing application

But MOST IMPORTANTLY, these services come from years of sensor development and implementation. Our technology is now in use in wind turbine blades, petrochemical pipelines, hospitals, healthcare, and government applications.

Interested in learning more?

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