

## Honey, what's the IP address of our toaster?

Data Acquisition and Process Control is a rapidly expanding field, which has historically provided business with information and capabilities that improve productivity while simultaneously reducing cost.

The advent of the Web and all it entails, coupled with existing Data Acquisition and Process Control technology presents us with an opportunity to perform heretofore-impossible tasks effectively and profitably.

## Mules are great, but they can't breed

Mules are hybrids, the combination of two animals, donkeys and horses. The result is an animal with the stamina of a donkey and the strength of a horse, but they can't reproduce. However in the world of technology, when we combine two diverse products we may create a product that is greater than the sum of the two.

## 2 + 2 = 6

This document will present a plan of combining Data Acquisition and Process Control with the Web to permit the delivery of services that could never before have been considered.

## The Basics

Data Acquisition and Process Control and provide us with a great deal of information today. Things can be counted, measured and weighed. State reporting will tell us if a door is open or closed, if a room is hot or cold and if a visitor is welcome or not. Most of this is done through the networking of small inexpensive devices into a system that reports, displays, records and controls.

**Fact:** There are thousand of systems used for security, manufacturing and inventory control.

The Web is everywhere. The Universal Server communicating with the Universal Client. The Web simplifies communication. Data can be acquired from anywhere, processed anywhere and be delivered anywhere.

**Fact:** Bandwidth is increasing but bandwidth costs are decreasing.

At this point there is nothing new here. It is a reasonable leap from in-house Data Acquisition and Process Control systems on local and/or proprietary networks to those same systems with information managed and delivered via IP on the Web.

## add a pinch of salt

To our recipe that includes Data Acquisition & Process Control on the Web we now add Global Positioning System (GPS). Advances have reduced both the size and cost of these units.

We combine this with a Wireless Application Protocol (WAP) device and we could have a complete system that permits Data Acquisition & Process Control for anything that moves.

## So what?

Fabricate a unit with a flow meter, stress gauge, GPS and a WAP. Wire it up on a truck. Feed the signals to our application.

The stress gauge on the frame will tell us what the load is.

The data from the flow meter provides fuel consumption.

From the GPS we can tell where the truck is now.

If we compare this GPS signal with the last GPS signal we can tell how far the truck traveled (and how fast).

Position points can be plotted real time on a map.

Less than full Load (LTL) trucks can be matched with prospective loads.

Least Cost Routing can be used.

Accident and Traffic tie-ups can be avoided.  
For the manager of a Truck Fleet this is **valuable** data if it is real time.

## Or

We can remove the stress gauge and replace it with a push button (maybe on the turn signal arm).  
Install the unit in a Taxi Cab.

When a passenger says "Your money or your life", our cabbie presses the button.

We get the signal and advise the Police where the cab is and they can get out their Miranda cards.

Add an alpha display pager unit and a dispatcher can tell the cabbie where to pick up his next fare when he's through filling out the police report.

All fleet managers can operate their fleets more efficiently with real time data. Trucking, TaxiCabs, Rental Cars/Trucks, Long Haul Buses etc.

Insert our unit into the family sedan and we beat LoJack hands down, since it works anywhere, whether the local police are wired up or not. AllState and Geico would love it. Remember, its Web based, so you can see where Jr is with the Chevy on a Friday night.

Since we can measure anything and send the signal from anywhere not being able to find an aircraft's black box on the bottom of Puget Sound is no big deal, for we have been receiving data from the aircraft during its entire flight. (Don't forget, that in addition to latitude and longitude, '3D' GPS's also provide altitude). Since were web enabled, we can send information from all planes in a certain area to the FAA and simultaneously provide United with their own data nationwide.

## However

Vehicles are not the only things that move. Think about people and animals.

Add a battery pack and connect our unit to a holter monitor and we can send EKG type signals to the local hospital or clinic and if we detect a certain pattern (or absence of same) we can dispatch a rescue squad to the victims current location.

Take the Holter monitor off and add a non-removable wrist or ankle bracelet and the local parole board can see instantly where their clients are.

Worried about getting lost on the Appalachian Trail? Throw a unit in your backpack. It doesn't weigh that much.

Gil thinks a good publicity demonstration would be to donate a couple hundred units to the Alzheimer's Research Foundation.

Don't forget kids and pets. Americans spend more money each year on pets than on public education.

We can monitor herds and wild life. Do cowboys still search the range for cattle every spring? Does GreenPeace still watch out for Willy and Moby Dick?

**A young sailor asked an old sailor how best to get along aboard ship. The old timer responded "If it moves salute it, if it don't move paint it."**

Things that don't move also need monitoring. And the list is endless. Security, asset control, production lines, oil, gas and water transmission lines etc. Many of these networks already exist. Our value added would be our ability to collect this data and provide it via web.

Adding solar cells to measuring devices with our system would simplify the measurement in remote or desolate areas.

## Looking ahead

The important thing to realize is that all of this technology does exist. There will be considerable effort to bring the pieces together so that form and cost are reasonable.

Our goals should be

a signal delivery system which is:

- Low in cost with a favorable cost benefit ratio. Maybe it's not feasible to do everything above, but when it is we're ready.
- Modular - uniform signaling of disparate parts, an almost cafeteria approach to what is included in a signaling unit.
- Medium independent - works equally well as wireless or as part of a network of copper and fibre.

a signal analysis and reporting system which:

- Can process signals from a wide range of devices - state, motion, location
- Can record (historically)
- Can display - large scale with drill down
- Can be run at our center **or** be delivered as a fully functional package to a customer.
- Can monitor a small two signaling unit customer as economically as a large one.

## Next step

We proceed with current plans to develop a world class Web Enabled Security Control and Monitoring System, however as we design the acquisition, analysis and reporting modules, we do so with the above in mind and committed to move quickly into that area as soon as funding, research and marketing dictate.

Respectfully submitted:

Martin Alfonsi

Gilbert Mehling

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