Wearable Technology

The Integrated Life

What Is Information Visualization?
Technology First (the Greater Dayton IT Alliance) was founded in 1998 and since that time the information technology industry and the profession has had its ups and downs. Despite it all the field remains strong and growing in the area according to recent statistics.

A regional study done in the late 1990s showed that there were just under 16,000 information technology professionals in the region at that time. Today the profession registers 21,800 IT workers in the area with more studying and graduating each year.

As proof that today information technology is being leveraged by all industries and all businesses, over two-thirds of these professionals are working in non-IT industries. This is good economic news since IT professionals average an annual wage of $69,900 which is 49% more than the average private sector wage of $46,900. Only to improve, the occupational growth rate over the next 10 years is expected at 16.3%.

As far as information technology-based companies there are reportedly 1,307 companies in the 14 county greater Dayton region with an annual payroll of $1.7B and revenues of $3.5B.

The partnership between academia, business, and government agencies — working in conjunction with Technology First — continues to bring this technology community together to share knowledge, learn new skills, seek new opportunities and explore the future.
Thoughts on the Future of 3D Printing

By: Kathy Vogler, PERRY proTECH

It’s impossible to see where connectivity and other emerging technologies will move us in the near future. But, it’s interesting to listen to discussions regarding the opportunities, predictions, concerns and myriad of questions on how 3D printing will fit into this mix. We are joined at the hand and brain to our devices and through those we are connected to the latest technology.

And that brings us to technology that can print a solid object through computer control to a 3D printer. That in itself is not new technology, but is based on stereolithography developed by Charles Hull in 1984 at 3D Systems. Even after the massive advances that have happened since then, stereolithography remains one of the most accurate types of hardware for 3D fabrication. Another similar 3D technology, DLP projection, uses a projector to create object layers rather than using a laser to trace them and, photopolymer matrix that allows multiple substrates by solidifying each layer with a powerful UV light before the next layer is printed.

In addition to building plastic objects or prototypes, material extrusion printers can output semi-liquid materials such as concrete or chocolate. Is it possible that someday you’ll walk into my candy store that has been completely built from the ground up with 3D technology to purchase fine chocolates made through the same process? Possibly, though I suspect you’ll be ordering virtually online through the cloud. Maybe I’ll have a drone deliver.

For the past 20 years this “ additive process” has been successfully used by many manufacturing companies to make their prototypes and molds. The equipment and substrates are typically large and expensive. Mass production for distributed manufacturing has achieved significant scale since 2010 and expiring patents on 3D technologies are driving down the cost. 3D printer manufacturers are now pushing price points down to the personal level and these are advertised as easy to use and usually Wi-Fi enabled. You can purchase a 3D printer kit or just build your own … and of course there are online services now and your design can be printed for you. I can’t help but wonder how long the actual production takes and what the burning plastic substrates smell like during the process.

Stuart Dredge, The Guardian January 2014, shared a list of great things already being produced by 3D and “none of them are guns.” This list includes diverse items such as fighter jet parts, prosthetic limbs, football cleats, homebrows, guitars and children’s toys. Hasbro recently announced a partnership with the aforementioned (1984) 3D printing company, 3D Systems. “We believe 3D printing offers end-users a chance to bring to life their dreams,” said Hasbro’s chief executive, Brian Goldner. And, Disney is developing software to turn animated characters into 3D printed mechanical toys.

3D generated guns and body parts will continue to create media stories for years to come. I hear scientists are even working on 3D printing of dirt. Commercial investments are already being made by some technology giants including HP and Microsoft. There is an expectation of tremendous growth and profitability by many involved. This industry definitely has amazing potential, but expect many to jump in and not withstand the short term losses. If you have a moment, please watch this PBS video on YouTube, “Will 3D Printing Change the World?” as shared with us by our Konica Minolta team.

Is this really the start of a new industrial revolution? And, where do you begin with the legal and moral ramifications. Who owns the rights to an object and can you be prosecuted for digital piracy? Who is the copyright infringer — the user of the digital file, the printer or the end user? All of these issues will be addressed over time, plus many more including unforeseen moral issues. At the first ever White House Maker Faire, President Obama spoke on how 3D printing would grow American manufacturing with a revolution that can help create new jobs and industries for generations to come. None of us can predict the future, but we can be sure 3D printing will play a part.

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By 2020, the Internet of Things will reach 26 Billion connected devices. This has the potential to change the landscape of technology drastically - whether it be data management, security, services, how devices communicate, etc. Our everyday lives are also about to change.

We are already seeing mobile devices foray into the Internet of Things (IoT) pool. The wearable piece of the IoT is already starting to explode and EMITTI is right there in the mix providing software development for these products. There is a breadth of wearable products available today providing you all sorts of information from how many steps you take per day, how your posture stacks up, if you are late to your next meeting to alternative driving directions when you hit a traffic jam. But it’s about to get a lot better - and a lot more integrated with our daily lives.

Imagine wearing a tiny device which monitors and notifies you when glucose levels are out of balance? Google has now designed a contact lens which measures glucose levels and lets the wearer know when something is up. Ask any diabetic and I’m confident they will tell you how much more convenient a contact lens is over checking their blood levels. No more carting around the strips, the lancing device and the log book. No hassle. Just knowledge.

Making the transition from tracking specific indicators in blood to tracking it in less invasive ways is well underway. The days of going to a hospital, drawing blood, and shipping it off to a lab for analysis are coming to an end. The Dayton region, which is well known for leading in innovation, is already close to providing an alternative method.

An exciting new product with roots here in the region will be coming to market in the coming months. The company, CoreSyte, is on the forefront of wearable sensor technology. Rudy Fenner, the Vice President of Business Development for CoreSyte, believes CoreSyte is poised to radically change how we workout. He states, “Our goal is to help you Know More so you can Do Better.”

So what is it? A new high-tech sensor which resembles a band-aid - a wearable sensor to monitor your health and performance. Many of the same indicators in your blood are also trackable in your sweat. The sensor collects a variety of bio-markers in real time which is used to identify hydration levels. The data can then be used to make decisions about what to do next.

The sensor syncs the data with a mobile app and a real time dashboard in the cloud. The application for this is vast - anyone from fitness junkies to elite athletes will be able to determine what they need to do to stay at the top of their game. Imagine while you are training for a marathon, a notification pops up and informs you that you are beginning to get dehydrated before you are actually dehydrated. You drink something (and the app can even tell you what type of drink you need) - and likely reduce a bit of time from your run. Immediate feedback. Immediate results. Throw in GPS to get exact location, elevation, distance, and weather conditions and you are equipped to make the best possible decisions to achieve your goals.

As Google CEO Larry Page notes, “reducing the time between intention and action” is key for the wearable industry. As a user, I need to know right away what is going on so I can do something about it. Otherwise, I’m not going to use it. But arm me with the right information at the right time? I’m going to be nearly invincible.

And that is right in line with the CoreSyte motto: Know More. Do Better.

EMITTI stands for Effectively Managed IT through Involvement.

EMITTI is a Cloud, Mobile and Internet of Things company based in Dayton, Ohio. We provide complete solutions to move your products into the cloud, build mobile apps, integrate into the Internet of Things and help you develop a strategy to move your organization forward.

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Divide – Remote Wipe Done Right

Back on June 26th I promised to test the Divide app, which provides separate, secure, Exchange-enabled email, to make sure I could “wipe” only itself and not anything else on the phone/tablet. I’m glad to report that it indeed limits the “wipe” to just the Divide app’s data and configuration. This will be a relief for folks worried about someone else having the capability to wipe their entire device.

In addition to that nice feature, and in my limited experience, Divide also includes two features I really like:

1. You can configure Divide to use the volume up/down buttons to scroll through your email messages.

2. The Divide calendar app has a “list” view, sometimes called an “agenda” view.

I also discovered that Divide is available for iOS in addition to the Android version. Google has recently bought Divide, so who knows what changes are in store. Here are the links to each app:

iOS > https://itunes.apple.com/us/app/divide/id527098963

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TECHNOLOGY

NTP Amplification DDoS Attacks

By: Andrew Davis, Network Administrator, DataYard

Over the past few months the Internet has seen increased DDoS (distributed denial of service attack) activity which started with DNS amplification attacks and then moved onto NTP amplification attacks. For now the DDoS attacks have stopped, however it’s only a matter of time before the next DDoS attack method is discovered. It’s an ongoing effort for administrators to keep servers patched to prevent these type of exploits. The last one I found myself dealing with was the NTP monlist amplification attack, which used several customers NTP (Network Time Protocol) servers that were available to the public internet. One vulnerable NTP server was generating ~500 mbps of outbound traffic before we shut its access down.

A DDoS is a distributed denial of service attack in which several computers are configured to flood data to a target. The target’s internet connection can become over saturated disrupting the target’s Internet connection. This in affect can take down any Internet server for the length of the attack. There are several types of DDoS attacks, one of them being a NTP amplification DDoS attack. The latest NTP DDoS attack method allows remote users to trick an Internet facing server running NTP to flood data to a target without having access to the NTP server. These attacks can be kicked off easily and are very hard to trace to the original source of the attack.

By using the NTP monlist command to query an exploitable NTP server’s last 600 associations, an attacker can send a small amount of data to the exploitable NTP server and get a response back that is several times larger than the original request. When the NTP monlist command is used as intended, it will cause no harm, however when the source IP address is spoofed it can be used for denial of service attacks. If an attacker spoofs the source IP in there NTP monlist request, the response is sent to spoofed IP address. Using a script to repeat the NTP monlist command to an exploitable server, the attacker can generate a very large amount of traffic and target it where they want. Kicking off this type of DDoS requires a small amount of Internet bandwidth and could generate a flood of data hundreds of times larger than the original monlist request. If an attacker is able to identify an exploitable NTP server that has access to a lot of bandwidth, that would be a prime candidate of a large NTP amplification attack. An attacker could use several servers around the Internet to query the NTP monlist against an exploitable NTP server with access to a large amount of bandwidth.

Basic NTP Amplification Attack Flow

1. Attacker at IP 60.70.80.90 sends 5 mbps worth of NTP monlist requests, spoofs source IP as IP 123.123.123.1 to exploitable NTP Server
2. The exploitable NTP Server responds with 15 mbps of response data to Target at IP 123.123.123.1 not the attacker who is at 60.70.80.90
3. The Targets ingress bandwidth is 10 mbps, they are now unable to use their internet connection due to over saturation from the NTP monlist flood running at 15 mbps

• Attacker is only using half of their available upload to completely take the target offline
• This example would be a NTP amplification attack of 30 times the original data sent
• Repeat this process with several different client and NTP servers and you now have a NTP amplification DDoS attack

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I set up a lab example of an NTP server running with monlist enabled and used ntpdc to issue the monlist command. The request was 234 Bytes and the response generated back was 2676 Bytes. In this example it would be possible to amplify 11 times the original size of the request sent to the server. My test server had 33 NTP associations, while the max that the monlist will respond with is 600. With 600 associations, a much larger response with the same 234 Byte request is possible. Below is a screen shot of a wire shark packet capture that shows the monlist request and response data.

You can see above the Request code: MON_GETLIST_1 and the size of the request under the Length column is 234 Bytes.

The response from the monlist request was 6 UDP packets, 5 that were 482 Bytes and the last one was 266 Bytes. If you add up the number of total bytes in these 6 packets the total is 2676 Bytes.

If an attacker spoofs the source address in the NTP monlist request, the returned data is sent to a different server. If the attacker continues to make this request with a spoofed IP address, the NTP server will keep sending the response to the victim’s computer. This amplification attack was recorded as CVE-2013-5211 in the middle of January 2014. A lot of these attacks could have been prevented if all internet providers implemented BCP38. BCP38 is also known as RFC 2827 and was actually written up almost 14 years ago. It’s a best current Practice that recommends filtering traffic that should never been seen from a user. This would for example drop any traffic with a spoofed source IP address that is not in the valid range provided to the user. DataYard implements this using a combination Cisco ACLs and Cisco Unicast Reverse Path Forwarding.

**How to See if Your Server is Vulnerable?**

- There is an open project that was started to help identify vulnerable NTP servers, you could have your public address range scanned as long as it’s smaller than a /22 (1024 Block size).
  

- You can use ntpdc in linux and issue the monlist command to see if you get a response.

Example NTPDC output of a NTP Server that is vulnerable

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TECHNOLOGY, CONT.

NMAP has a useful script that can be used to see if a server is responding to the monlist ntp request as well.

```
nmap -sU -p U:123 -n -Pn --script ntp-monlist 192.168.1.0/24
```

Target is synchronised with xx.yy.61.67

Public Servers (1)
xx.yy.61.67

Public Clients (1)
xx.yy.177.51

Other Associations (13)
xx.yy.100.2 (You?) seen 5 times, last tx was unicast v2 mode 7
127.0.0.1 seen 78664 times, last tx was unicast v0 mode 0
xx.yy.177.108 seen 4 times, last tx was unicast v2 mode 7
xx.yy.129.66 seen 1 time, last tx was unicast v2 mode 7
xx.yy.203.115 seen 7 times, last tx was unicast v2 mode 7
xx.yy.95.174 seen 1 time, last tx was unicast v2 mode 7
xx.yy.253.2 seen 3 times, last tx was unicast v2 mode 7
xx.yy.54.31 seen 1 time, last tx was unicast v2 mode 7
xx.yy.177.66 seen 3 times, last tx was unicast v2 mode 7
xx.yy.81.113 seen 1 time, last tx was unicast v2 mode 7
xx.yy.54.103 seen 2 times, last tx was unicast v2 mode 7
xx.yy.244.49 seen 1 time, last tx was unicast v2 mode 7
xx.yy.230.75 seen 1 time, last tx was unicast v2 mode 7

Please Patch your NTP server!

There are still many unpatched NTP servers out on the Internet that can be used in future DDoS. If your NTP server is responding to the ntp monlist command, you should upgrade to a later version of ntp. If you not able to upgrade your ntpd process there are several examples online that show how to lock down or even completely disable the monlist command.

Andrew Davis, Network Administrators for Datayard. Andrew can be reached at andrew.davis@datayardworks.com.
What Is Information Visualization?

By: David Diehl, Segue Technologies

Information Visualization, as a field, is exploding in popularity. Whether it’s a new take on the humble bar chart, a choropleth in a news article, or an interactive replay of events over time, visualizations are the new way to get impact at people’s attention. Sometimes these visualizations are easy to whip up in a spreadsheet or online tool, other times they require powerful computation efforts and weeks of design to evoke the proper resulting product. Whether you’re designing, building, or just appreciating visualizations, there are some key concepts that make up all good visualizations. A good visualization tells a story, makes an impact, relays information, and is interdisciplinary.

STORYTELLING

At its core, information visualization is storytelling in visual form. This simple word – storytelling - has a lot wrapped up in it. Storytelling is taking the thoughts, ideas, opinions, and data that one person (or organization) has and conveying them to an audience in a memorable fashion.

IMPACT

The measure of a visualization is its impact. An animated, multi-diagram display backed by terabytes of processed data is nearly useless if it can’t be conveyed to the target audience in a memorable fashion. It’s important to know the target audience, know how to reach them, and know how to evoke a change in their mindset based on a visualization.

INFORMATION

Information = data + meaning. This doesn’t have to be technical. A book of fiction is information. A grocery list is information. The book has data in the form of letters, words, sentences, paragraphs, and chapters. The meaning of the book is how these words transform into thoughts in the reader’s mind.

Data in databases goes through the same process. Individual data elements in a database are often just as useless for conveying meaning as individual letters are for reading a book; just as it takes effort for a writer to combine the letters into meaningful patterns, an analyst also has to combine data from databases into meaningful patterns. A visualization that uses data without meaning has little to convey to the audience and thus normally has very little impact.

INTERDISCIPLINARY

As you can see, information visualization covers a lot of areas that are traditionally considered wholly separate disciplines. In a large organization dedicated to creating products like these, each person may be able to operate within a single discipline. Most organizations aren’t so lucky, so the reality is that each person involved in creating a visualization will have to wear multiple hats throughout the process. As a result, people are drawn to the field from many areas: design, programming, journalism, statistics, and information architecture just to name a few.

WHERE DO I START?

If you want a visualization, you generally either start with data or with your message. When starting with your message, you define the impact you want your visualization to have. This impact can range from swaying the audience to side with your opinion to providing an executive summary of key measures in an enormous and dynamic data set. After defining the impact, you hunt for the data you need, transform the data into useful information, and visualize the information in a way the target audience can embrace. When taking this approach, always be careful to moderate your bias. There are many steps in the process of creating a visualization and a little bit of bias applied at each one can cause a significant and potentially unacceptable bias in the end result.

When starting with the data, you have one or more data sets that you want to turn into useful information. This approach is very research oriented and involves various iterations of transforming and perusing the data, often with a lot of data cleaning to enable consistency. Eventually one or more stories can be conjured out of the data and one of these can be chosen as the message for the visualization. Once the message is chosen, the rest of the process often moves more quickly because the data has already been massaged into a state near what is needed for the final product. When taking this approach always ensure a clear message is chosen. A collection of data may have multiple stories to tell and it is tempting to cram them into a single product. This combination will often result in a very muddled message to the target audience, thus reducing the impact of the visualization.

Regardless of where you want to start or what you want the result to be, Segue can help you with any stage of your analysis or visualization project.

Contact David Hart at david.hart@seguetech.com for more information.
Computer Forensics, a relatively new field of law enforcement, has proven to be a powerful crime fighting tool. It has led to the capture of a severely twisted serial killer and, in a landmark case, set a precedent on data destruction liability. These two cases show the power of Computer Forensics in the criminal and civil courts.

History:
Forensics, as it applies to the law, is the use of science and technology to investigate and establish facts in criminal or civil courts. Computer forensics has its genesis way back in 1928 when Fritz Pfleumer invented magnetic tape for audio recordings. The magnetic tape that first appeared on 7-inch reels, then cassettes, became the basis of the magnetic storage media and memory devices we see today (e.g. hard and floppy disks, thumb drives, etc.). A modern desktop or laptop is capable of holding gigabytes or even terabytes of data.

Over the course of the computer’s evolution, enterprising criminals began using its growing processing power to commit crimes. In the early 1980s it became apparent to law enforcement that more and more records and written transactions existed only on computers. Criminals no longer shredded evidence; they deleted it.

This need to systematically deal with magnet media created the field of Computer Forensics.

The definitions vary but the process is essentially the same: Preserve, identify, extract, document, and interpret computer data in a forensic manner. Basically, investigators had to create an uncorrupted evidence chain of electronic data.

The world of law enforcement was now dealing with a new and what must have been a somewhat baffling phenomenon: the unseen. In other words, the incriminating facts in their evidence chain (and maybe their whole case) would only exist as electronic pulses. And, these pulses would need to be converted to legally permissible digital evidence.

The FBI recognized early – in 1984 – that magnetic media could hold evidentiary material. At their Washington DC headquarters they started the Magnet Media Program to develop the processes and techniques of electronic forensics. This was a fortuitous move, because as the sources of raw digital data multiplied local law enforcement was often overwhelmed.

To help local law enforcement process the growing amount of data and obtain convictions, in 1992, the Magnet Media Program morphed into the Computer Analysis Response Team (CART). In its first year of existence, the program only worked three cases. Today, CART has 500 highly trained agents spread throughout 56 field offices. In 2012, CART assisted in 10,400 investigations involving more than 10,500 terabytes of data – this amount of data equals the printed content of 1,050 Libraries of Congress.

Computer Forensics Basics:
Many techniques of data extraction and preservation have developed over the years. They have become increasingly more sophisticated, some even arcane in nature. However, regardless of the forensic techniques, a basic process has been standardized:

1. Secure the computer system (or other devices) to ensure the equipment and data are safe.
2. Find all files on the system, including those that are encrypted, password protected, hidden or deleted that have not been overwritten.
3. Recover as much deleted information as possible (there are many applications and complex processes to retrieve deleted data from which to choose).
4. Reveal the content of all hidden files (again, there are many programs designed to find buried data).
5. Decrypt and access protected files.
6. Analyze special areas of the computer’s disks – unallocated space on a computer’s drive is a prime area that could contain files or parts of files relevant to a case.

All of these steps are important but the first step is critical. The device must be physically isolated to guard against unauthorized access. Once the device is in a secure facility, to maintain its pristine condition and to keep the evidence chain uncorrupted - a digital copy of the storage media is created. All investigation is done on the digital copy.

Famous Cases:
BTK: For over 30 years the identity of this deranged, homicidal, lunatic was a mystery to the Wichita, Kansas police and FBI. BTK (Bind, Torture, Kill) strangled ten people between 1974 and 1991. In acts of visceral, depraved horror BTK would act out bizarre fantasies and inflict the terror described in his name on his victims – two of whom were nine and eleven years old.

The killer taunted law enforcement with freakish notes left in odd places (stuck in a book at the library, in a cereal box), incomprehensible poems he sent to local media along with puzzles and pictures. The local police and FBI followed up on thousands of leads, took 1,300

By: Mark Neistat, Field Marketing Manager, US Signal Company

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DNA samples, interviewed countless people, and analyzed his depraved writings— all to no avail as the case went cold.

Then, after thirteen years of silence, BTK resumed communications with the local media and police. Remarkably, in an act of psychotic arrogance and stupidity, BTK contacted the police by letter and actually asked them whether or not a floppy disk could be traced. Law enforcement communicated back in a newspaper ad posted in the Wichita Eagle that they were untraceable. BTK mailed his next message on a floppy disk. The police lied. Imagine that!

Computer forensic experts analyzed the floppy disk’s metadata and recovered a word document. Metadata is data about data. Among many pieces of information recorded in metadata, is when and who last modified a file—in this case, they found the name “Dennis” and the phrase “Christ Lutheran Church.”

A search of the church’s website showed that Dennis Rader was the president of the congregation council. The police set-up surveillance and obtained a DNA sample from his daughter. Dennis Rader was arrested in February 2005; he pled guilty to the killings, and is now serving ten consecutive life sentences.

The Corcoran Group:

This case’s significance is not based on what Computer Forensic experts found but what they did not find.

The Corcoran Group is one of the largest real-estate brokerages in New York. The company is Manhattan-based and sells properties ranging from one $1 million for a studio to multi-floor penthouses that can cost as much as $80 million. It was one of their lower end sales that have put all businesses on notice regarding how email is handled.

The case involves a married couple with two young children who bought a three-bedroom, 1,600 foot apartment for $1.3 million in June of 2007. Every time it rained, massive leaks occurred in their unit (and others) damaging furniture, clothes, and appliances. They complained to Corcoran, who refused to remedy the situation, claiming that the leaks occurred after the sale. The water flooded the unit to the point that the family had to move out but they were still held to the mortgage and common charges. The couple decided to sue.

Attorneys hired by the couple found an engineer’s report showing that the building had been assembled with a material called “Wonderboard”, which is used in construction projects known to have leaks. There was also pervasive mold and very high levels of carbon monoxide in the boiler room. Part of the lawsuit involved a forensic analysis of the Corcoran Group’s computers.

The computer forensic expert was looking for evidence of wrongdoing but what he found was that emails and other files that should have been on the hard drive were gone. When the deleted data was retrieved, they revealed that Corcoran agents canceled appointments with buyers on rainy days to hide the previously known water leaks.

The judge ruled that Corcoran was “grossly negligent” for failing to preserve and turnover electronic evidence that showed prior knowledge of the water leaks. The fine for the real estate giant was paltry—$25,000.00 in legal fees and court costs accumulated by the plaintiff. However, a new legal precedent was set for preserving electronic evidence in legal cases.

Whether criminal or civil, creating or deleting, there is an electronic trail that can lead right to you. And, Computer Forensic experts can recreate and follow that trail.

For more information contact Mark Neistat at mneistat@ussignalcom.com or go to www.ussignalcom.com
In today’s fast-paced, highly competitive business environment, we all know that improving the productivity of mobile workers is critical. In order to increase productivity and profitability, successful organizations are looking for fast and efficient ways to streamline information workflows by capturing and processing useful data at the point of entry. This is a key area where mobile data capture solutions can have significant business impact. Many fall short of expected results because they are difficult to use, requiring extensive training and support.

naturalForms® is a user friendly data capture solution that makes it easy for businesses to make the transition from paper forms to digital data. naturalForms provides an optimal user experience for capturing data on iPad® and Android™ tablets by providing a natural human machine interface using handwriting, gestures, images, and voice.

Innovative and Intuitive Data Capture Using Natural Input

With naturalForms, users can easily and efficiently complete business forms on tablets using handwriting, checkboxes, radio buttons, drop-down option lists, and visual inputs. Users can also capture and annotate photos, make notes, mark-up diagrams, create freehand drawings, and record voice memos. Handwritten signatures and GPS coordinates can be captured and attached to the form for enhanced accountability and operational control. naturalForms also allows users to leverage “smart features” such as calculations, auto fill, and conditional mandatory fields to ensure data is complete and accurate.

Captured information is immediately converted to digital data, verified for accuracy, validated with enterprise rules, and available in standard file formats (PDF, XML, CSV, JSON, etc) for integration. Straight-through data processing eliminates cycle time delays, resulting in workflow optimization, enhanced customer experience, and significant cost savings.

Mobile workers can collect and process forms even when wireless and Wi-Fi network services are not available. They can also print and email forms directly from the application or export a PDF to Dropbox.

naturalForms® Harnesses The Power Of Handwriting To Provide A User Friendly Mobile Data Capture Solution For The Enterprise

By: April D’Angelo, Director, Marketing & Corporate Communications, Expedata

Since deploying naturalForms, CFA has been able to streamline its operations resulting in the following improvements:

- **More Accurate Logs**
  - Embedded business rules, immediate user feedback and built-in calculations ensure accurate logs.
  - Rounding errors of flight time, block time, and fuel expense are challenging to catch,
PROMOTIONAL OPPORTUNITIES

• Title Sponsor
• Exhibit Package
• Showcase Packages
• (2) Morning or Afternoon Break Sponsor Packages
• (1) Breakfast or (1) Lunch Sponsor Packages
• (1) Wrap-up Reception Sponsorship
• Lanyard Sponsorship
• Tote Sponsorship
• Charging Station Sponsorship

Please contact Michelle Marek for more information
937.229.0054 or mmarek@technologyfirst.org

WEDNESDAY, NOVEMBER 12, 2014
SINCLAIR COMMUNITY COLLEGE PONITZ CENTER
7:30 AM UNTIL 5:00 PM

TICKETS
$150 for an Individual • $390 for a half table (3 Tickets) • $690 for a full table (6 Tickets)
even with an audit. These errors were eliminated through naturalForms ability to perform advanced calculations.

- **Accelerated Invoice Processing**

  Completed logs can be submitted from anywhere in the world in near real-time. Since deploying naturalForms, the time to process invoices has been reduced from days to minutes. The typical month end invoicing backlog has been eliminated, smoothing cash flow.

- **Enhanced Operational Efficiencies**

  Maintenance, fueling, checklist and other forms are easily converted to deliver broad operational efficiency.

According to Scott G. Lucas, President, Corporate Flight Alternatives, "In less than one month the system paid for itself! The built in calculations eliminated flight logbook rounding errors and other common data entry mistakes. Now our crews submit flight log data from anywhere in the world in near real time, eliminating the typical month end invoicing backlog and significantly improving the back office closing process."

Based on the ease of deployment and the rapid return on investment (one month), CFA has expanded their use of naturalForms to additional forms such as fueling tickets and maintenance logs.

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**NEW JOB POSTINGS**

- **Software Development Coordinator**: Public Safety/Law Enforcement ...............................................................CommSys, Inc.
- **Junior Project Manager**: Law Enforcement Software Company .................................................................CommSys, Inc.
- **Business Analyst / Application Developer**: Lead to Order .............................................................................Elliott Tool Technologies Ltd
- **Level II Network Engineer**: .........................................................................................................................Quanexus
- **Level III Network Engineer**: .........................................................................................................................Quanexus
- **Paid Web Development Intern**: .......................................................................................................................OmniSpear, Inc.

For more information about these jobs and other jobs, please visit: http://www.technologyfirst.org/component/employment_exchange

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**Built for the Enterprise**

naturalForms was built for business mobility and meets enterprise requirements for security, ease of deployment and localization needs. Understanding that security is top of mind for enterprises, naturalForms leverages a secure software platform with roles-based user access and multi-level password protection. Access to the application on the tablet is controlled by the role-based security model. Password protection restricts access to the application, enabling a tablet to be shared by multiple users. In addition, users must be granted access to view particular forms. In terms of form transmission security, naturalForms prompts for a username and password prior to submitting the document to the server. In addition, all transmissions sent to the hosted server are over an encrypted https connection.

naturalForms is easily distributed to end users as a free client application available in the iOS and Android app stores. It is available in a variety of backend implementation options including a hosted solution, on premise enterprise installation, or can be embedded in third party applications. A software development kit is available for developers that would like to leverage the technology for fully customized implementations.

As a truly global enterprise solution, naturalForms is available in 51 languages including Chinese, Catalan, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hindi, Hungarian, Italian, Japanese, Kazakh, Korean, Norwegian, Polish, Portuguese, Romanian, Russian, Spanish, Swedish, Turkish and Vietnamese.

To learn more about naturalForms and view additional client success stories, please visit https://naturalformsapp.com or contact april.dangelo@expedata.net

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**Technology, Cont.**

(continued from page 12)
Still on the fence about Agile?

Here are five more reasons to make the jump to Agile.

1. Culture and morale
   Agile is a pretty hot topic, and most developers get pretty excited about giving it a try. Agile creates really fun places to work where a team of people can work hard toward shared goals.

2. Efficiency
   Big up-front plans usually turn out useless in the long run. Agile eliminates the stuff not needed and gets the team down to the business of building working software.

3. Customer satisfaction
   Clients are more willing to buy a first iteration product if they know it is going to do nothing but get better over time. Agile helps build partnerships with customers where working together solves problems.

4. Alignment
   Agile promotes the development of cross-functional teams that support products, breaking down silos to create an infrastructure that aligns with common goals.

5. Emergent outcomes
   Agile is a great way of building software when you have to explicitly account for the fact that you’ll have to learn as you go. Build a little product, learn something from your customer, adapt your vision, build a little more software, and ultimately create something that is better than you could have ever planned in a vacuum.

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All classes are held at Miami Valley Research Park, 1900 Founders Dr., Kettering unless otherwise noted.
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