



Electronic Access and Approval Complex Security - Simple Interface

Richard Kim, Ph.D.
President
DynaSig Corporation



www.dynasig.com; www.bio-pen.com

DynaSig Corporation

- Developer and Manufacturer of Bio-Pen®
 - Sensors
 - Hardware
 - Applications
- DynaSig = Dynamic Signature
 - Incorporated 2003
- Wholly Owned Subsidiary of
Dynamic Biometric Systems, Inc.
 - Publicly traded: (symbol: DYBO.PK)

DynaSig Intellectual Properties

- **Patent #1 Issued 2008-10-07:**
Method and Apparatus for Capturing and Authenticating Biometric Information from a Writing Instrument
- **Patent #2 Application 2006-09-29:**
Signature Authentication
- **Patent #3 Application 2008-08-28:**
Private Lock Infrastructure
- **Patent #4 Provisional Application 2009-03-24:**
Bio-Pen Authenticated Autographed Memorabilia

Richard Kim, Ph.D. - Founder

- **Expert in sensor technology & signal processing**
 - Navy – Submarine acoustic-signature correlation
 - Army – 3D vision autonomous land vehicle program
 - NASA – Holographic combustion chamber study
 - Air Force/NASA – SDI related satellite tracking
 - Ampex Corp., CyberOptics Corp., Rocketdyne - Rockwell Int'l., General Scientific Corp., Technical Systems Integrators Inc.
- **8 issued patents and 3 pending patents**
- **BS EE/CS University of California, Berkeley 1981**
- **MS EE & Ph.D. University of Minnesota 1987**

What is a Bio-Pen®?

- Personal **identification** device
 - Uses the unique **bio-mechanics** of an individual's writing style
 - Provides **authentication**
 - Can be used as a hardware **token**
- Personal **approval** device
 - It is a pen! - **sign** on paper or any surface
 - Proves both intent and **capacity**



Why Use Bio-Pen®? - 1

- No passwords to
 - Loose
 - Copy
 - Transfer
 - Steal
- Just sign your name
 - Adapts to normal variations in handwriting over time
 - (Complex Personalized phrases can be easily generated.)

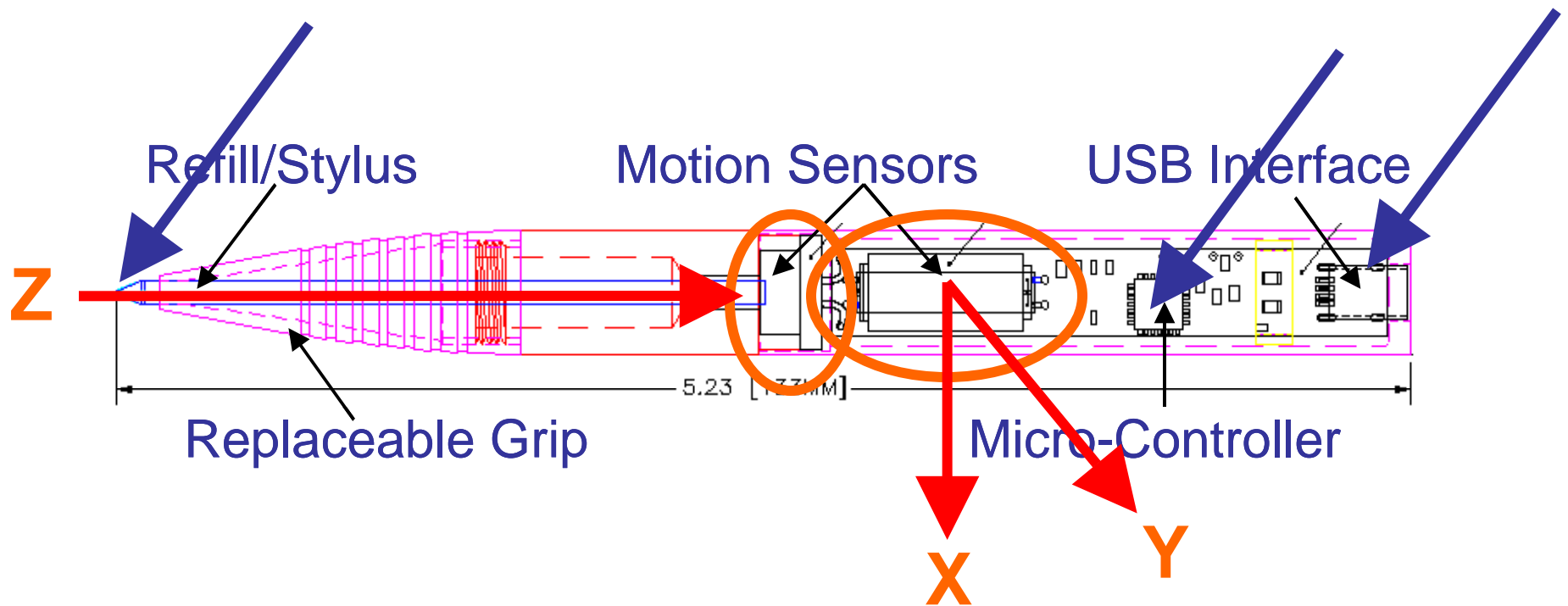


Why Use Bio-Pen®? - 2

- Private –
 - No personal information is stored
- Simple –
 - Known behavior
 - Not language dependent
- Flexible –
 - Identity verification
 - Authentication
 - Access control
 - Process approval



How Does Bio-Pen® Work? - 1



U.S. Patent No. 7,433,499

How Does Bio-Pen® Work? - 2



- Pen style biometric capture device
 - Records forces during signing in the **X, Y & Z** planes over time
 - Result is a **Dynamic Signature**
 - No capture of actual signature (unless intentionally obtained)

- Authentication by comparison
 - **Dynamic Template** registered on BioPen® Server
 - Subsequent attempts compared by algorithm



How Does Bio-Pen[®] Work? - 3

- Digitized signature vs.
Dynamic Signature

- Pen Tip: 
- Pen Body: 



- Bio-Pen[®] Signature Stamp:



Where Does Bio-Pen® Work? - 1

- Wide range of uses
 - Individuals
 - Work groups
 - Enterprise

- Wide spectrum of uses
 - Local
 - LAN
 - WAN
 - Web (based and/or enabled)



Where Does Bio-Pen® Work? - 2

- Wide variety of uses
 - Remote network access
 - Domain logon
 - Data encryption
 - Process approval
 - Physical access
 - Activity logging
 - Document control
 - **Anywhere passwords, tokens or biometrics are used**



Don't just sign it . . . *Bio-Pen It!*TM

- A Bio-Pen[®] ***Dynamic Signature*** securely provides:
 - User identity authentication
 - Access control
 - Event logging
 - Audit trail generation
 - Application specific actions
 - ***No recording of personal information***
 - ***No passwords to be lost or compromised***



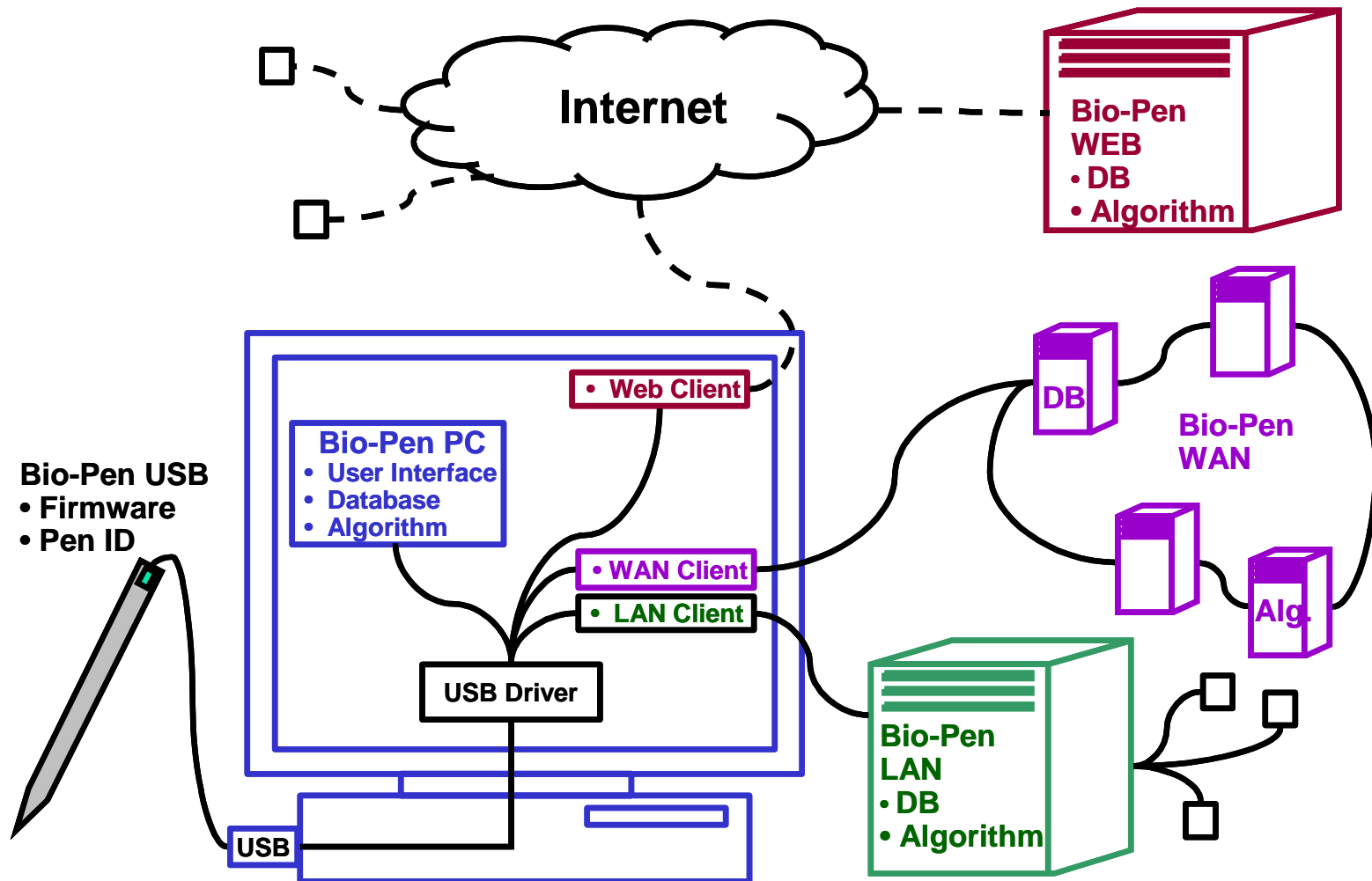
Tech Advantages - 1

- **Dynamic Signatures**
 - First registered on server with feedback
 - Authentication on server or local machine
- **Unique hard-coded hidden ID #**
 - Allows use as a Token Device
 - Each BioPen[®] must be registered before use
- **LED indicator confirms secure connection**

Tech Advantages - 2

- Real-time dynamic data
 - Single-use 512-bit to 10K-bit real-time encoded data
 - Static reference template cannot generate real-time data or images
- Robust encoding using
 - Time - dynamic
 - BioPen[®] ID number - static, hidden
 - User dependent functions - variable with each signature
- Reduced vulnerability
 - No phishing, playback, or man-in-the-middle attacks

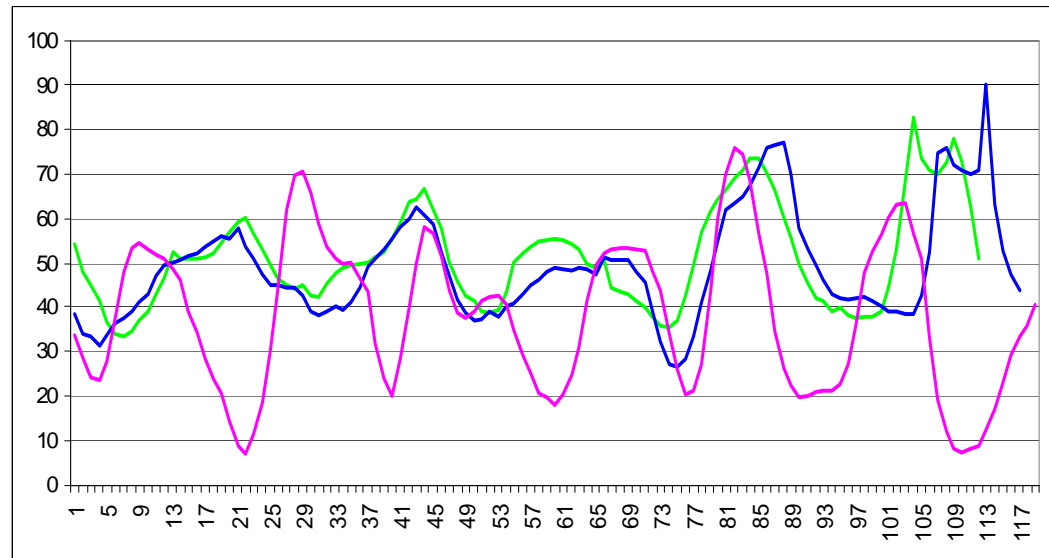
Tech Advantages - 3



Tech Advantages - 4

The Authentication Process – Simple

 **Original**
 **Match**
 **Forgery**



Bio-Pen® & Law

- **UETA** (Uniform Electronic Transaction Act) – 1999
“to ensure that transactions in the electronic marketplace are as enforceable as transactions memorialized on paper with manual signatures without changing any of the substantive rules of law that apply and without imposing specific technology requirements for verification of identity or the integrity of the document itself.”
- **ESIGN** (Electronic Signature in Global and National Commerce Act) – 2000
“to facilitate the use of electronic records and signatures in interstate and foreign commerce by ensuring the validity and legal effect of contracts entered into electronically.”

Are Electronic signatures “just as good” as pen on paper?

Bio-Pen signature is "better" than pen & paper.

Bio-Pen® Legalities

Legal Issue

Bio-Pen Solution

- **Consent Requirements:**

Satisfied – the physical act of signing the “wet-ink on paper” simultaneously generates the **Bio-Pen Signature** enrollment
- **Transferable Record:**

Established – creates a single authoritative copy (**Bio-Pen LockBox file**) that is unique, identifiable and unalterable. All persons asserting control can add Bio-Pen Signatures & be verified; the integrity of the entire contents is maintained.
- **eNotarization and Acknowledgement:**

Enabled – the **Bio-Pen Notary** works real-time over the Internet & allows eVault and eRegistry functions by designated third parties while maintaining the integrity and audit trail off-line.

Bio-Pen® & Regulations

Meets FDIC, FFEIC, HIPPA and SOX Requirements

Requirement

- Multi-factor User Authentication

- Mutual Authentication (the hosting site)

Bio-Pen Solution

4-Factor authentication -

What the user: 1) knows
2) has
3) is
4) **can do**

Eliminates Phishing, Playback & MIM attacks
Blinking LED on the pen differentiates a legitimate hosting site from well constructed spoofing sites

FDIC Financial Institution Letter: FIL-103-2005

FFEIC Guidance: Authentication in an Internet Banking Environment

Bio-Pen® Summary - NPS

- **"Bio-Pen®** offers unique capabilities that are unequaled in terms of the flexibility of the biometric, form factor, security and cost effectiveness."
 - Signature biometrics relies on an input that is natural, unobtrusive to produce, and already one of the **most accepted methods of legal verification**.
 - Bio-Pen® biometrics is **language independent** and can be used with any consistent, repeatable motion of the pen that reduces overall language translation costs.
 - Bio-Pen® methodology **increases the level of security through continuous use**, much the opposite of traditional security measures.

[\(Naval Postgraduate School Master's Thesis by LCDR Kenton Odgers, Mar 2007\)](#)

Bio-Pen® Validation - NPS

- **"Bio-Pen®** is one of the most promising biometric technologies of the future:"
 - The Bio-Pen and the **Private Lock Infrastructure** is unbeatable in terms of the ability to perform **secure peer-to-peer communication**.
 - This biometric may be the most useful among all biometrics in terms of **least false accept rates**.
 - Have the **least opposition** from the **equal rights activists** since there is nothing inherently available in the template that is gender, race or personal information related that may be concern to **privacy enthusiasts**.
 - NPS students and colleagues have thoroughly tested this system and have found the **ease of use** and **performance** of the Bio-Pen satisfactory.

(Dr. Pat Sankar's letter, Research Professor - NPS, June 2007)

Bio-Pen® Software Applications



- **Bio-Pen Web Access**



- **Bio-Pen PDF Signer**



- **Bio-Pen Log Book**



- **Bio-Pen Lock Box (BPL)**



- **Bio-Pen PW Vault**



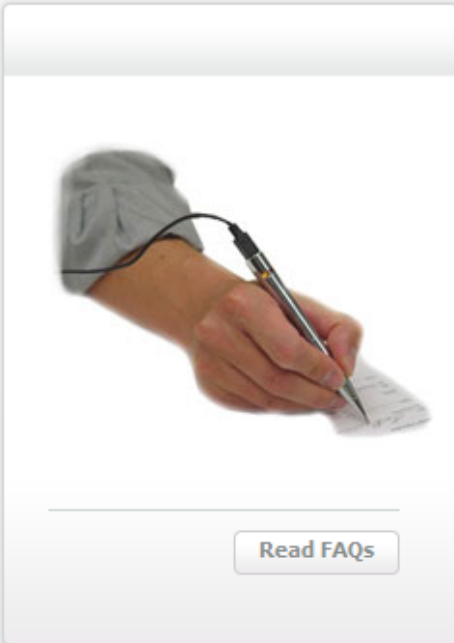
- **Bio-Pen Secure/Private Email**

Bio-Pen® Markets

- Autographed Memorabilia
- Online Schools (Student Pen)
- Electronic Document Management
- Banking
- Time & Attendance
- Delivery Confirmation

The Bio-Pen does not collect, transmit or store any private or personally identifiable information!

NEWS | BIO-PEN FAQ | DOCUMENTS | DOWNLOADS | ABOUT US | CONTACT US |



[Read FAQs](#)



Videos

- [BIO-PEN OVERVIEW](#)
- [INVENTOR INTERVIEW](#)

ADD THIS

Bio-Pen: Ensuring Academic Integrity for Distance Education Institutions

[HR 4137 \("Higher Education Opportunity Act"\)](#) was signed into law August 14, 2008. This law requires institutions of higher learning that provide online courses (distance learning) to fulfill the requirement in HR 4137, Part H – Program Integrity (pg 248). The law requires "... an institution that offers distance education or correspondence education to have processes through which the institution establishes that the student who registers in a distance education or correspondence education course or program is the same student who participates in and completes the program and receives the academic credit."

Secure Signature Systems

Bio-Pen

Friday, August 7, 2009

Home

Applications

About

Products

Downloads

Contact

Refer



Experience security and flexibility like never before

Secure Signature System's revolutionary Bio-pen brings the latest in biometric technology right in to the palm of your hand.

Here's just a few of the benefits the Bio-Pen can bring to your business:

- Prevent unauthorised access
- Eliminate time and attendance fraud
- Speed up your signing in and out process
- Streamline your payroll operations
- Securely send and verify sensitive information via email



Secure signing just got easier

There's no doubt about it, we're part of a world that's moving forward. Everywhere you look, technology has made a profound difference on our lives. Yet for some things, we seem resolutely stuck in the past.

Take signing a document for example. Many of us seem happy enough to take a signature as a guarantee of payment or someone's identity. Unfortunately, it's not always the case.

Laserfiche Marketplace



Find integrations and configurations that help your office run smarter.

Document Management Overview

The guide that explains the five essentials of **document management**, and how it simplifies your everyday work.



[Request a copy](#) ▶

[Featured Integrations](#) | [Publish Modules](#) | [Request an Integration](#) | [Join PDP](#) | [About Marketplace](#)

Marketplace Quicklinks

- ▶ [Document Capture and Distribution](#)
- ▶ [Image Enablement](#)
- ▶ [Administrative Tools](#)
- ▶ [Geographic Information Systems](#)

Digital and

DynaSig™ Bio-Pen™

The Bio-Pen is the only device that senses the unique biomechanics of a user's signature to produce a self-notarizing, multi-dimensional digital representation of the genuine act of signing—the actual signature. No passwords to remember, lose or steal. Each user's signature is theirs and theirs alone and cannot be shared. Rest assured with the knowledge that a Bio-Pen signature is, indeed, the REAL signature.

Price	See below
Average user rating	(no rating)
Publisher	Arcware Solutions, LLC
Date Published	1/2009

[Test Drive](#) ▶

[Get It Now](#) ▶

[Overview](#) | [Specifications](#) | [Publisher](#)

FEATURES



Bio-Pen Authenticated Autographed Memorabilia



Verified registry of items signed by celebrities (patent pending).



User ID: RK520001
User Group: DBSI
Authority: MASTER

Pen ID: 520001
Pen Group: DynaSig Cor.,
Pen Mode: Enterprise



[Access Log](#) |
 [Student Log](#) |
 [Control Panel](#) |
 [File Manager](#) |
 [Web LogBook](#) |
 [Secure Email](#) |
 [LOG OUT](#)

* Local time is available with Agent Version 2.7.0000 or newer after 2009-5-29


Local Time Server Time

User ID Show All

From: To:

Show All

No	User ID	Pen ID	Local Time (In)	URL	IP Address
[-] 696	rk teamedu	520007	2009-06-24 04:11:11 PM	Verify Only	216.138.89.55

Sign-In Pen ID: 520007  Bio-Pen Verified Signature: Font	IP: 216.138.89.55 
--	---

Distance Learning Student Verification

New Legislation: *The Higher Education ACT of 2008*

Part H–Program Integrity, requires online schools to verify students who registers does the work and receives the credit.

Welcome to the
Institute of Construction Management & Technology

Welcome

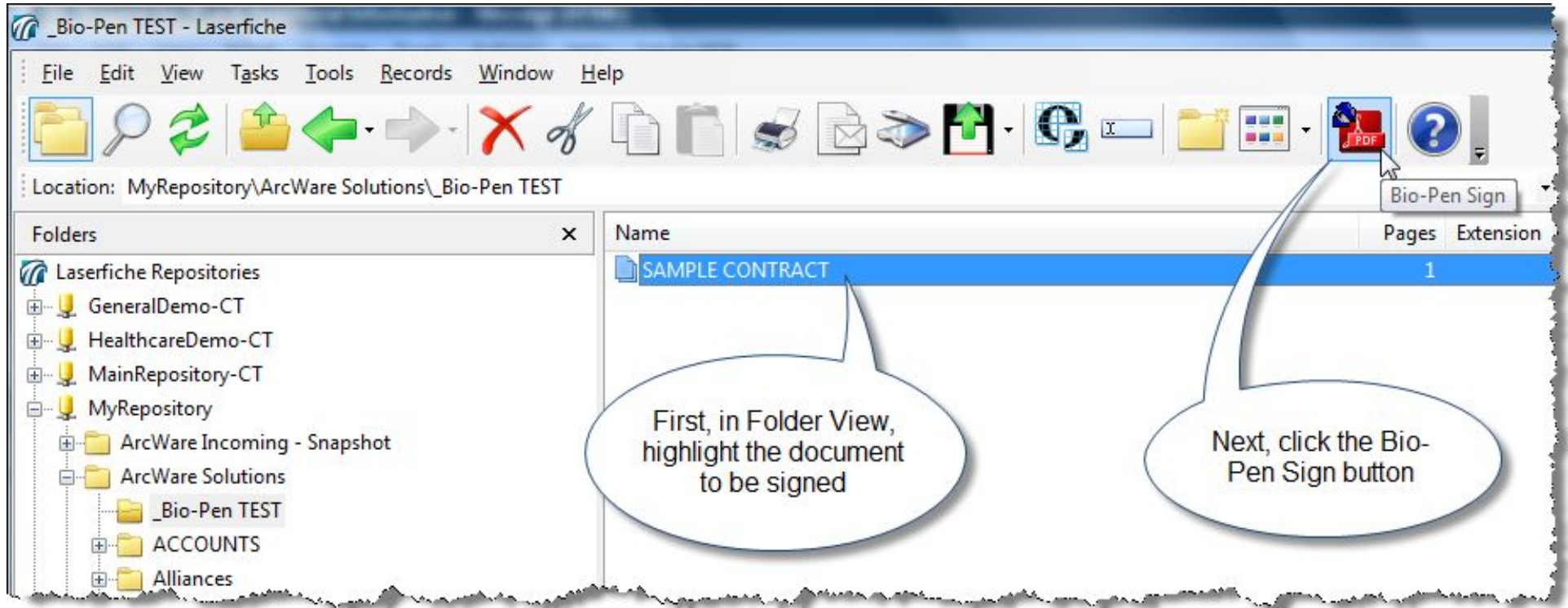
Welcome to the Institute of Construction Management & Technology (ICMT), the premier online University for construction management education. We are committed to providing superior education that meets the demanding needs of the construction industry.

Using the Bio-Pen for Web access authenticates user identity and creates a third-party log entry (Bio-Pen PW Vault & LogBook)

eCollege All course content is copyrighted by ICMT. The delivery system is copyrighted by [eCollegesm](#). eCollege, the eCollege logo, and the eCollege Systemsm are trademarks or registered trademarks of eCollege. All rights reserved. © 2006 eCollegesm

Bio-Pen / Laserfiche Electronic Document Management

- Completely integrated with Laserfiche system.
- Allow single click signing of the documents.



Bio-Pen / SSS Time & Attendance

- LAN Log Book for local network sign in/out.
- WEB Log Book for verified remote sign in/out.
- Picuture taking option and badge printing.



* Local time is available with Agent Version 2.7.0000 or newer after 2009-5-29

Local Time Server Time

User ID
 Show All

From: To:


Show All

Verified Not Verified

No	Status	User ID	User Name	Local Time (In)	V	Local Time (Out)	V
[+]	663 Out	Angela	Hartung, Angela	2009-08-04 11:15:13 AM	<input checked="" type="checkbox"/>	2009-08-04 11:16:17 AM	<input checked="" type="checkbox"/>
[+]	662 Out	Hartung	Hartung, Dagmar	2009-08-04 11:14:34 AM	<input checked="" type="checkbox"/>	2009-08-04 11:15:54 AM	<input checked="" type="checkbox"/>
[+]	661 Out	Greg D Dutton	Dutton, Greg	2009-07-16 08:49:05 AM	<input checked="" type="checkbox"/>	2009-07-16 08:49:48 AM	<input checked="" type="checkbox"/>
[+]	660 Out	RK user	Kim, Richard User	2009-07-10 10:01:36 AM	<input checked="" type="checkbox"/>	2009-08-05 02:46:57 PM	<input checked="" type="checkbox"/>

Combines all authentication processes into a single step for both customers and banks

Bank Teller:




•Signature ⇒ **Automatic Verification**

Customer signs the transaction approval. The verification is immediately displayed for the Teller. No need to check additional ID.

Traditional Teller:
Checks an ID and tries to verify visually matching ID#s. At best, the image of the signature is available on the screen or in some cases, faxed copy is sent from the central depository. Signatures on the customer's ID is typically not the same as the original signature card.




Safe Deposit Box:



•User ID ⇒ **Automatic Access**
•Signature ⇒ **Automatic Access**

Customer enters the User ID and signs the access log. The verification allows the door to the vault to be unlocked.

Bank Account Established:


Bio-Pen Signature Enrolled

Customer signs the Signature Card on paper with normal ink tip or on electronic pad with plastic tip.

Current Internet Banking:
Sometimes SSN or Acct number is used - or a whole new User ID is Generated, and then a very difficult to remember password is required. Banking sites are now trying to provide mutual authentication by displaying some personal information on the screen.

Current SDB:
Typically requires a separate sign up. A key is issued with another signature card - visually compared when accessing. Biometric system (such as hand reader) still requires a whole separate registration process.

Internet Banking:




•User ID ⇒ **Mutual authentication**
•Pen ID ⇒ **Mutual authentication**
•Signature ⇒ **Web access & approval**

Customer goes home and logs into banking web site using the same Pen, User ID and Signature. Customer is also assured of **no Phishing and no ID Theft.**

Traditional notifications:
Usually sends traditional mail to the registered physical address. No way to really verify if the receiver has received the message. When the customer writes a letter to the bank, no sure way to authenticate the person (typically calls the phone number that is in the system).

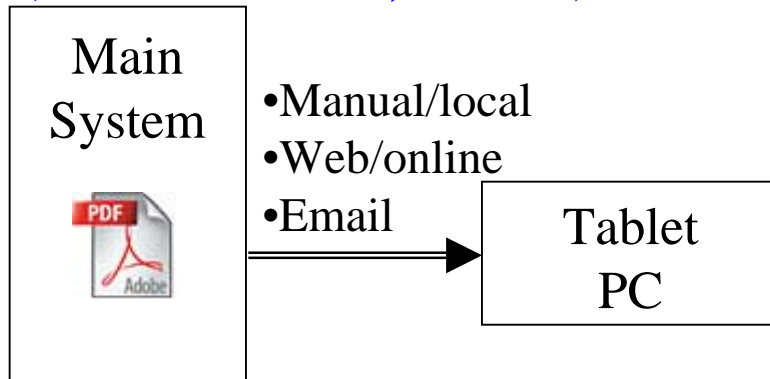
Secure Messaging:



•User ID ⇒ **Secure documents**
•Pen ID ⇒ **Secure documents**
•Signature ⇒ **Private replies**

Secure messages and documents (BPL) can be sent to the customer through open email. Customer can reply to the message assured of privacy.

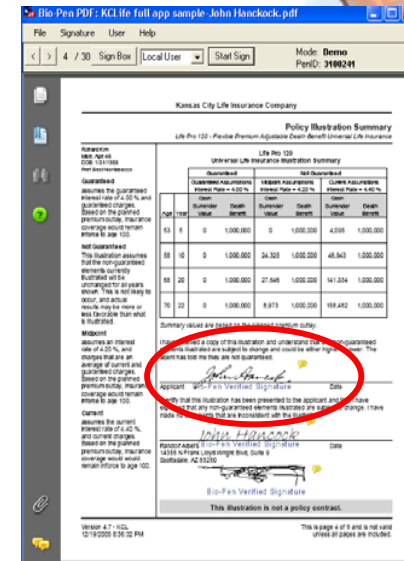
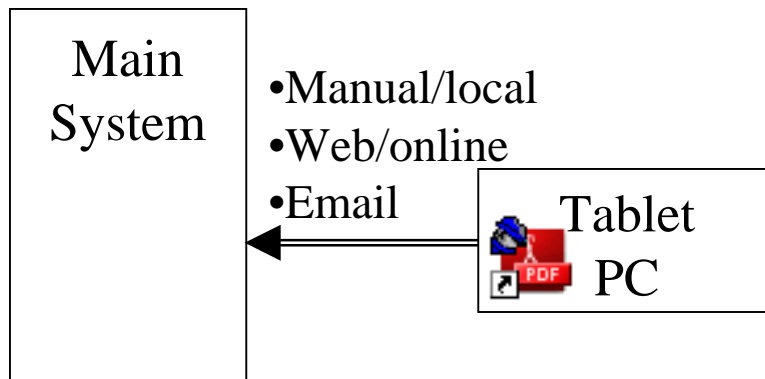
(1) Delivery/Pickup Orders loaded into a Tablet PC (UMPC: 9" x 5", 1.5 lbs.):



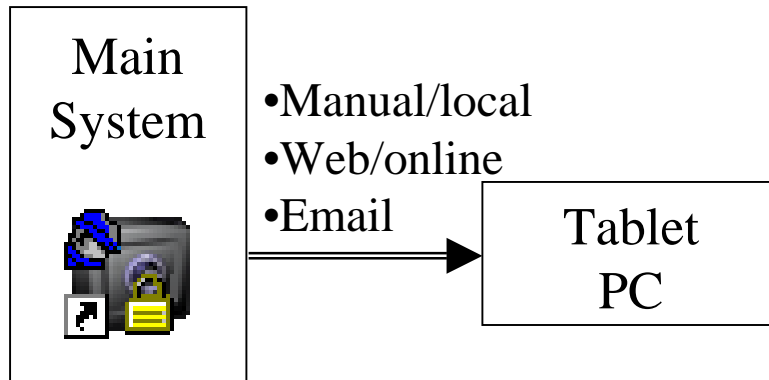
(2) Customer/Recipient signs the form:



(3) Signed pdf files are transferred to the main system:



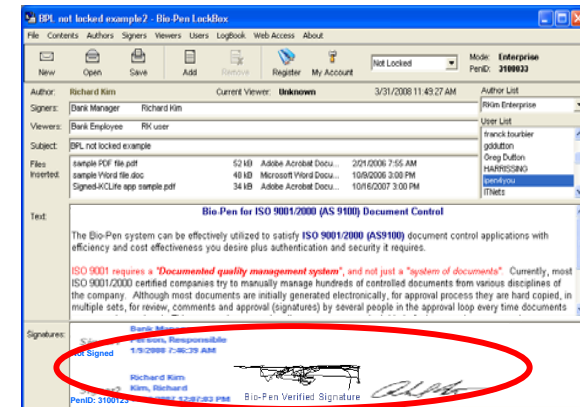
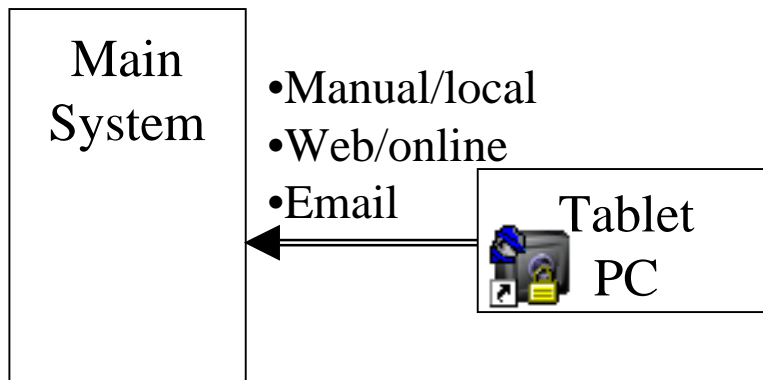
(1) Locked Delivery/Pickup Orders with designated Signers and Viewers loaded into a Tablet PC (UMPC):



(2) Delivery personnel verified to open the BPL file and Customer/Recipient signs and verified to freeze the contents:



(3) Signed BPL files are transferred to the main system:



- **Simple Confirmation (Bio-Pen PDF):**
 - Ordinary PDF files (replaces paper process).
 - If verification required, recipient(s) signature templates must be pre-loaded into the Tablet PC prior to delivery/pickup.

- **Secure Confirmation (Bio-Pen LockBox):**
 - BPL files – electronic envelope to hold any types of data.
 - Mutual authentication of both delivery/pickup personnel and sender/receiver possible.
 - Contents frozen (tamper-evident) after signing.
 - Option of different locking (access control) modes.
 - No pre-loading of the Tablet PC necessary – all information self-contained within BPL file.
 - Creates access log within BPL file.
 - If Tablet PC is lost, no data has been compromised.