

Expanding the Use of Hand-held Devices in Multiple Program Areas



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Where do we use PDAs?

- Laboratory Safety Inspections
- BU Medical Center Compliance Rounds
- Eye Wash, Safety Shower, & Drench Hose Inspection and Inventory
- Indoor Air Quality Surveys
- Confine Space Inventory and Inspection



The beginning.....

- Laboratory Safety Inspections
 - Checklist on paper, handwritten reports
 - Laborious search process for archived reports
 - No database to compare results or conduct trend analysis
 - No electronic copy of inspection
 - Multiple paper copies (i.e. on file, sent via fax to PI's and responsible parties)

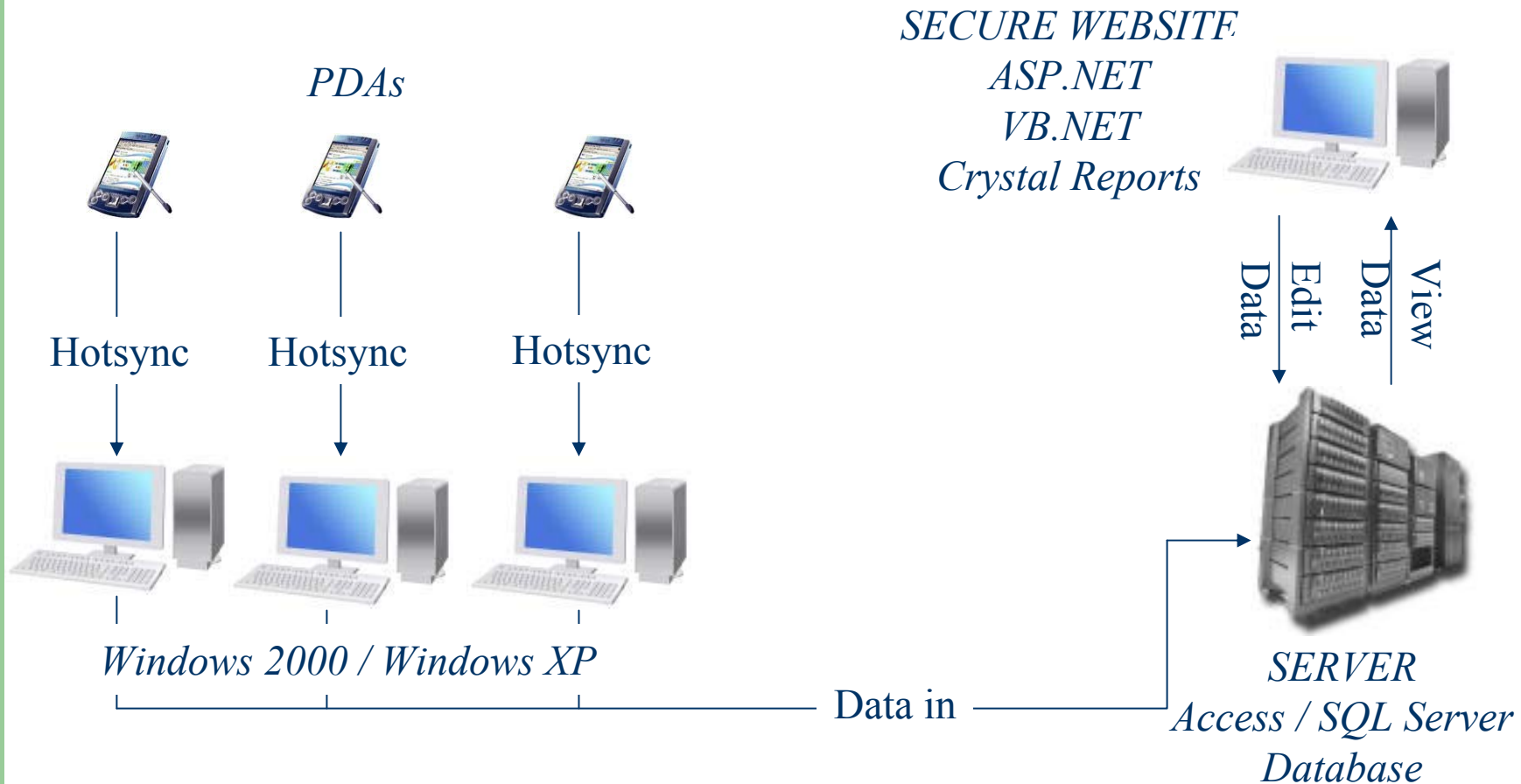


The Palm Solution

- Idea:
 - Inspection checklist on Palm
 - Field comments on Palm
 - Synchronize on multiple desktops
 - Information stored in central database
 - Electronic checklists and reports
 - Access data through website



Data Flow Diagram



PDA APPLICATION SCREENSHOTS

Free Text

- *PI Name
- *Phone Number
- *Personnel Present

Principal Investigator:

.....
.....
.....
.....

↑ ⊗ [grid] ◀ ▶

End Record View

PI's phone number:

.....
.....
.....
.....

↑ ⊗ [grid] ◀ ▶

End Record View

Look-up List

- *Building Address
- *Department Name
- *Inspector Name

Address:

Lookup...

.....

End Record View ◀ ▶

Department:

Lookup...

.....

End Record View ◀ ▶

Section

- *8 divisions
- *Click button to skip
- *Arrows to advance

2. Emergency/Safety Equipment

Click here...

End Record View ◀ ▶

B. Radiation/Laser/X-Ray Safety

Click here...

End Record View ◀ ▶

Questions

- *Yes / No / N/A
- *Auto advance
- *Comments field

e) Dosimetry badges are used properly

Y = YES
N = NO
X = N/A [YNX]

1 2 3 4 5

End Record View ◀ ▶

Be) Comments

.....
.....
.....
.....

↑ ⊗ [grid] ◀ ▶

End Record View

WEB APP. SCREENSHOTS

-Secure Website: Active
Directory, ASP.NET

-Find inspection by PI,
Building Address, Room#,
And Form#

-Edit Contact/Lab Info

-Add/Edit/Delete items
found during the inspection

Laboratory Inspection Results

FIND AN INSPECTION FORM:

1. PLEASE SELECT A P.I.

Principal Investigator:

2. SELECT BUILDING ADDRESS AND ROOM

Building Address: Room#:

3. SELECT THE INSPECTION FORM

Form#:

VIEW/EDIT CONTACT INFORMATION:

[EDIT](#)

Department: PI/Lab Phone #:

Inspected By: Date:

Lab Personnel Present: Phone #:

ADD/EDIT/DELETE INSPECTION RESULTS ITEMS

A. TO ADD A NEW ITEM

1. Click on the button below

[ADD ITEM](#)

B. TO EDIT OR DELETE AN ITEM

1. Select the item from the list >>

2. Click on the appropriate button below

[EDIT ITEM](#)

[DELETE ITEM](#)

C. VIEW THE ITEM

Item #: Responsible Party: Target Date:

Result:

Corrective Action(s):

Completed? Date Corrective Action(s) Completed:

Advantages

- Time: Less time to write report
- Consistency: No handwriting mistakes, improved data quality
- Centralized Data: Quick searches
- Online: Able to review and/or write reports from anywhere!
- Electronic: Reduce paperwork, save trees



BU Medical Center Compliance Rounds



Compliance Rounds Background

- 6 Hospital units inspected per week, ~300 inspections per year
- Paper checklist in the field
- Manually enter checklist info into database
- Time from initial inspection to area manager receiving report: **TWO WEEKS!**
- Reports were printed then faxed to area manager



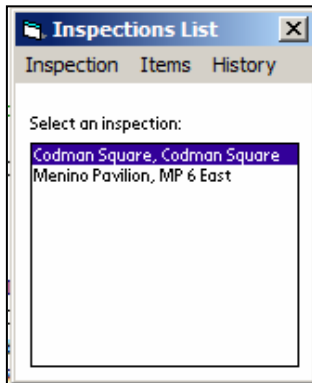
The Palm Solution

- Idea
 - Categorized deficiency list, drop down menus
 - Comments on Palm
 - Synchronize to individual desktops
 - Info to central database
 - Web interface to generate and modify reports
 - Email reports from within the application
 - Trend analysis reports available

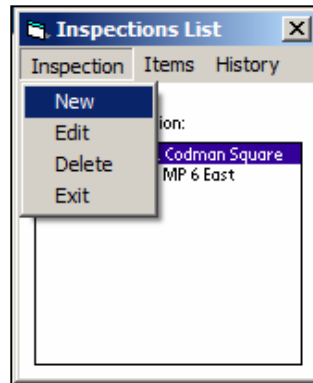


PDA APPLICATION SCREENSHOTS

Inspection List



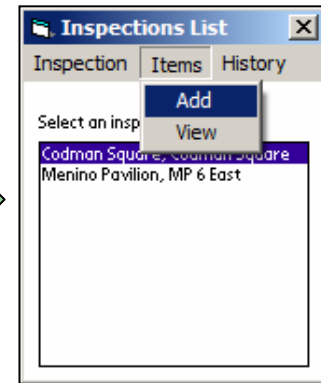
New Inspection Menu



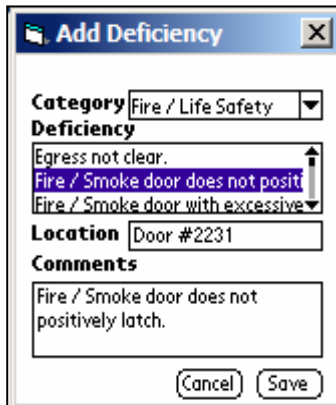
New Inspection Screen



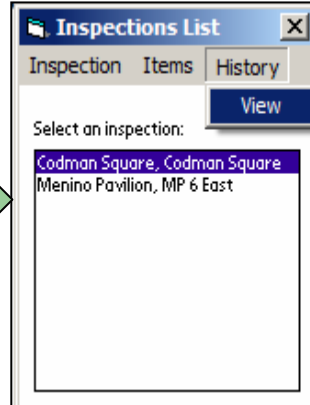
Add Item Menu



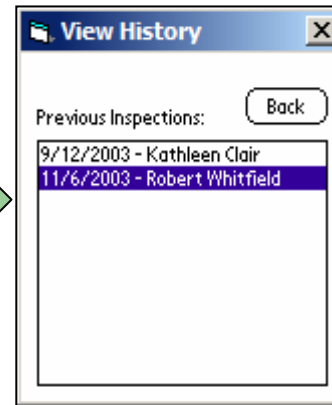
Add Item Screen



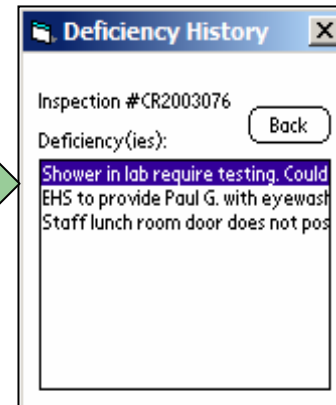
View History Menu



Previous Inspections



Prev. Deficiencies



WEB APPLICATION FEATURES

- Add / Edit deficiencies w/ spell-check functionality
- Assign multiple inspectors (Infection Control)
Create PDF report
- Email web address link to Area Manager
- AM/RP fills deficiency completion information online
- EHS receives email alert



Benefits

- Reduced report delivery time: Two Weeks to Two Days!
- ~5000 pieces of paper to ~600 pieces of paper
- Easy data search and trend analysis
- Historical data available on PDA
- Online Compliance Management System



Resource Matrix

Application	Software	Hardware	Computer skills req'd	Customization	Human labor
Lab Inspection, CS, IAQ, EW/SS -PDA	Pendragon Forms	PDA w/ Palm OS	Basic / Microsoft Access	Low	< 2 hours
Lab Inspection, CS, IAQ, EW/SS -Web	Visual Studio .NET	Small Web Server	Programmer	High	< 50 hours
Compliance Rounds -PDA	Appforge MobileVB	PDA w/ Palm OS	Programmer	High	Up to 100 hours
Compliance Rounds -Web	Visual Studio .NET	Medium Web/DB Server	Programmer	High	Up to 160 hours

Annual Eye Wash, Safety Shower & Drench Hose Inspections

- Outside contractor uses our Palm
 - Returns Palm at end of day
 - OEHS HotSyncs, data stored in Access database
 - Reduces contractor costs, No office time
- Inventory: Location & Type
- Inspection: Obstructions & Signage
- Test Data: Flow rates & Temperature
- Info sent to Physical Plant



Indoor Air Quality Surveys

- Input air sampling data from various instruments into PDA
 - Temperature, CO, CO₂, Relative Humidity, Air Velocity, Particulates, PID, etc..
- Report can be modified and generated online
- Electronic record, PDF report can be emailed



Confined Space Compliance Review

- Inspection Info:
 - Location
 - Signage
 - Ladder deficiencies
 - Access control
- Electronic Inventory
 - Confirm identified spaces
 - Identify potential new PRCS for further evaluation
- Generate, Modify Reports Online

