


EsdTest Global Networking Website System Overview

January 02, 2008

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EsdTest DB Website
(Home page for the EsdTest database website)

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EsdTest Global Networking System project overview

Electro Static Discharge (ESD) can easily damage sensitive Integrated Circuits (IC) if a person generates high voltage, such as by walking across a floor, and touches the IC. Conductive wrist and foot straps can prevent the high voltage buildup if they are worn properly, and if functioning properly. Static Solutions Inc manufactures test stations for checking this. Many customers have multiple stations at several facilities throughout the world. This system is a central database and software to store and report the test results. The system is composed of the following:

Multiple stations, each of which contain:

1. A Static Solutions CT8900 ESD meter which measures the wrist and both foot straps at once
2. A Static Solutions footplate and meter stand
3. A Static Solutions badge reader
4. A computer monitor to see the results, and a computer connected to the central data base via the company network



A central server which contains

1. The Esdtest data base on an SQL2000 or SQL2005 server
2. The EsdTest Report web site which contains MS Active Server Pages (ASP) to generate reports via web browser for supervisors.
3. Optionally the EsdTest app which automatically generates and emails reports to supervisors

Any PC with a web browser connected to the company network. Each can

1. View test result reports (requires appropriate login authorization)
2. View "Who is in the area" report for fire or emergency control,
3. Modify/Add/Remove employee information such as names and badge numbers (requires appropriate login authorization)

Any PC with email capability can receive scheduled emailed reports

In operation:

1. an employee scans her badge. The computer queries the names table in the central database to see if the badge is authorized, and to retrieve the employee name and strap requirements. If the central data base is not available, a local copy of the names table can be used.
2. the employee steps on the foot plates, plugs in her wrist strap, presses the button, and views the test results.
3. the test station sends the results to the test results table in the central data base. If the data base is not available, the results can be buffered for later transmission.
4. the EsdTest app running on the server generates and emails scheduled reports for which ever workgroups are desired, such as exception reports (which employees failed or did not test), daily reports (daily test results), monthly reports, certification expiration reports, etc
5. the ASP website can generate reports from the data base for any time period, and can be used to modify the employee parameters (name, ID, badge, strap requirements, etc)

Schema

The data base is fairly simple. There are two tables - a names table and a results table, The names table is called ESD_EMP_BADGE, and contains the employee parameters such as names, ID, Badge, and strap settings. The results table is called ESD_RESULTS, and contains the date, time and results of the test. The database is non-relational, i.e the employee names and ID information is included in the test result table rather than just storing the badge number and in the test result table and looking up the associated name from the names table. Thus employees can be deleted from the names table, or have their badge number changed, and still be tracked correctly in the results table. The field names and types are shown below in an abbreviated version of the SQL creation script (i.e. does not show index or keys):

```
CREATE TABLE [dbo].[ESD_EMP_BADGE]
(
    -- table contains one record for each employee with name, ID, and badge info
    [EMPLOYEE]      [int] IDENTITY(1,1) NOT NULL,
    [LAST_NAME]     [nvarchar](50) NOT NULL,
    [FIRST_NAME]    [nvarchar](50) NOT NULL,
    [BADGE]         [varchar](16) NOT NULL,
    [DEPT]          [varchar](16) NULL,
    [EMPID]         [varchar](16) NULL,
    [WRIST_USED]    [char](1) NULL,
    [FOOT_USED]     [char](1) NULL,
    [CERTIFICATION_EXPIRATION_DATE] [datetime] NULL
)
CREATE UNIQUE NONCLUSTERED INDEX [IX_ESD_EMP_BADGE]
    ON [dbo].[ESD_EMP_BADGE] ([BADGE]) - finds badges quicker and prevents dups

CREATE TABLE [dbo].[ESD_RESULTS]
(
    -- table contains the test results - appends one record for each new test
    [ENTRY_NUMBER]  [bigint] IDENTITY(1,1) NOT NULL,
    [DATE_TIME]     [datetime] NOT NULL,
    [EMPID]         [varchar](16) NOT NULL,
    [LAST_NAME]     [nvarchar](50) NULL,
    [FIRST_NAME]    [nvarchar](50) NULL,
    [DEPT]          [varchar](16) NULL,
    [WRIST_STATUS]  [varchar](8) NULL,
    [LFOOT_STATUS]  [varchar](8) NULL,
    [RFOOT_STATUS]  [varchar](8) NULL,
    [WRIST_RESISTANCE] [varchar](8) NULL,
    [LFOOT_RESISTANCE] [varchar](8) NULL,
    [RFOOT_RESISTANCE] [varchar](8) NULL,
    [STATION]       [varchar](8) NULL,
    [GMT_DIFF]      [varchar](4) NULL
)
CREATE UNIQUE NONCLUSTERED INDEX [IX_ESD_RESULTS]
    ON [dbo].[ESD_RESULTS] ([DATE_TIME], [EMPID]) - prevents duplicate records
```

Data base usage:

1. when an employee scans her badge, the computer directly queries the names table in the central database via RDO (Remote Data Object) drivers to see if the badge is authorized, and to retrieve the employee name and strap requirements
2. when the employee tests the straps, the test station sends the results to the test results table in the central data base.

3. the EsdTest app running on the server utilizes both tables in the central data base to generate and email scheduled reports
4. the ASP website running on the server utilizes both tables in the central data base to generate reports for any time period, and uses the names table in the central database to modify the employee parameters (name, ID, badge, strap requirements, etc)

Database Security

There may be 3 types of users that access the EsdTest_DB database in 2 different ways:

1. Test station computers that directly access the EsdTest_DB database to:
 - a. lookup the name from the card badge number in the ESD_EMP_BADGE table
 - b. append a measurement record to the ESD_RESULTS table
2. Supervisors that run reports from their computer to read data from both tables
3. Supervisors that run reports from the web site to read data from both tables
4. Administrators that run from their computers to read/write/delete from both tables
5. Administrators that run web site pages that read/write/delete from both tables

Note:

#1, 2, and 4 is via the EsdTest.exe program.

#3 and 5 is via the ASP web site

Each EsdTest program can have its own connect string with password, or the user could have his own windows authentication logon.

The ASP website could have its own password logon security, or windows logon security.

Reports

The following reports and web pages are be available on the new website:

1. log results,
2. exception report,
3. twice tested exception report (who did not test after a lunch break)
4. monthly summary report
5. area occupancy
6. attendance
7. modify user information
8. measurement simulation (for development only)

Help for all the web page controls are available online by placing the mouse cursor over the controal and reading the tool tip.



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EsdTest DB Website

(Home page for the EsdTest database website)

Hello DomainUserName , welcome to the EsdTest database website.
Help is available for all web pages by placing the cursor over a control.
Please choose one of the following:

View ESD reports

[Show test result log report](#)

[Show exception report](#)

[Show twice tested exception report](#)

[Show monthly summary report](#)

[Show area occupancy report](#)

[Show attendance report](#)

Modify ESD parameters

[Modify user information](#)

Add Simulated test data (for development only)

[Add simulated test data](#)

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Home Page



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ESD Testing Results

(List the results of the ESD tests)

9/5/2007 00:00:00 AM	9/6/2007 00:00:00 AM	%	%	%	%	%	%
From date/time	To date/time	GMT diff	Dept num	Employee ID	Last Name	First Name	Station num

Generated on: 12/15/2007 5:22:46 PM

GMT

-0

Get Filtered Results


Get Today's Results

Get All Results

Test #	Date and Time	GMT	EmplID	Last name	First name	Dept	Wstat	Lstat	Rstat	Wres	Lres	Rres	Station
1284	9/5/2007 12:31:45 PM	-5	E123456	Connery	Sean	ABC	Exit	*	*	*	*	*	201
1283	9/5/2007 12:24:25 PM	-5	E123456	Connery	Sean	ABC	Pass	Pass	Pass	09.26	42.97	89.28	201
1282	9/5/2007 12:22:19 PM	-5	E123457	Clinton	Hillary	NBC	Exit	*	*	*	*	*	201
1281	9/5/2007 9:25:07 AM	-5	E123457	Clinton	Hillary	NBC	Low	Pass	Pass	00.37	11.22	57.54	201
1280	9/5/2007 9:24:26 AM	-5	E123458	McCain	John	CBS	Exit	*	*	*	*	*	201
1279	9/5/2007 9:23:47 AM	-5	E123458	McCain	John	CBS	Exit	*	*	*	*	*	201
1278	9/5/2007 8:23:19 AM	-5	E123458	McCain	John	CBS	Pass	Pass	Pass	37.87	71.58	18.89	201

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Show Log Results



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Employee Test Exception Report

(Lists employees who failed a test between the "From" and "To" dates.)

9/5/2007 00:00:00 AM

9/6/2007 00:00:00 AM

%

%

%

%

%

%

From date/time

To date/time

GMT diff

Dept num

Employee ID

Last Name

First Name

Station num

12/15/2007 5:27:30

Generated on: PM

GMT -0


☒ Include employees who did not test.

Get Filtered Results

Get Today's Results

EmplID	Last name	First name	Dept	Wstat	Lstat	Rstat	Wres	Lres	Rres	Station	Date and Time	GMT
A000001	Temp	FA000001	APX									
E123457	Clinton	Hillary	NBC	Low	Pass	Pass	00.37	11.22	57.54	201	9/5/2007 9:25:07 AM	-5
E123459	Edison	Thomas	ABC									
E123460	Newton	Isaac	ABC									
E123461	DaVinci	Leonardo	ABC									
E123488	O'Brian	Jim	COR									

Exception Report



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Employee Twice Tested Exception Report

(Lists employees who failed to test twice between the "From" and "To" dates.)

9/5/2007 00:00:00

9/6/2007 00:00:00

%

%

%

%

%

%

From date/time

To date/time

GMT diff

Dept num

Employee ID

Last Name

First Name

Station num

☒ Include employees who did not test.

The two tests must be separated by 4 hours.

Get Filtered Results

Get Today's Results


12/15/2007 5:29:02 PM

Generated on: PM

GMT -0

EmplID	Last name	First name	Dept	Wstat	Lstat	Rstat	Wres	Lres	Rres	Station	Date and Time	GMT
A000001	Temp	FA000001	APX									
E123456	Connery	Sean	ABC	Pass	Pass	Pass	09.26	42.97	89.28	201	9/5/2007 12:24:25 PM	-5
E123457	Clinton	Hillary	NBC	Low	Pass	Pass	00.37	11.22	57.54	201	9/5/2007 9:25:07 AM	-5
E123458	McCain	John	CBS	Pass	Pass	Pass	37.87	71.58	18.89	201	9/5/2007 8:23:19 AM	-5
E123459	Edison	Thomas	ABC									
E123460	Newton	Isaac	ABC									
E123461	DaVinci	Leonardo	ABC									
E123488	O'Brian	Jim	COR									

Twice tested exception report – show employees who did not retest after lunch break



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ESD Monthly Results

(List the results of the ESD tests by days in the month)

From Date

To Date

GMT diff

Dept num

Employee ID

Last Name

First Name

Station num


Generated on: 12/15/2007 5:30:08 PM GMT ☒ Use best test of the day.

Key: g = good, H = High, L = Low, * = com failure, x = swipe but no test. Data is shown in the following order - Wrist, Left foot, Right foot. For example, gHL would show that the Wrist was good, the Left foot was high, and the Right foot was low.

[Get Filtered Results](#) [Get All Results](#)

Last name	First name	Dept	Employee ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Temp	FA000001	APX	A000001	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Connery	Sean	ABC	E123456	—	—	—	—	ggg	—	—	—	—	—	—	—	ggg	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Greenwood	CG	ROYERS	E123456	—	—	—	—	ggg	—	—	—	—	—	—	—	ggg	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Clinton	Hillary	NBC	E123457	—	—	—	—	Lgg	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
McCain	John	CBS	E123458	—	—	—	—	ggg	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Edison	Thomas	ABC	E123459	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Newton	Isaac	ABC	E123460	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
DaVinci	Leonardo	ABC	E123461	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
O'Brian	Jim	COR	E123488	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Monthly report



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Area Occupancy Report

(List employees still in the area who have scanned and tested but not scanned out)

Note: The fastest way to get targeted results is to enter the Dept or Station number of interest, and then press "Get Filtered Results". You can select a group of stations with the wildcard character %. To select stations B01-B09 type in B% into the Station num box. The easiest way to get results is to press the "Get Today's Results" button, wait for the report, click on the "Station" or "Dept" column in the report to sort by station, and then scroll to the area of interest.

From date/time

To date/time

GMT diff

Dept num

Employee ID

Last Name

First Name

Station num


Generated on: 12/15/2007 5:35:44 PM GMT

[Get Filtered Results](#) [Get Today's Results](#) [Get Week's Results](#) [Get All Results](#)

Date and time in	GMT	Employee ID	Last Name	First name	Department	Station
8/30/2007 7:14:57 PM	-5	E123458	McCain	John	CBS	201
8/30/2007 9:41:10 PM	-5	E123459	Edison	Thomas	ABC	201

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Occupancy report



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Attendance Report

Lists times of employees who scanned and tested, and time scanned out (if occurred).

9/5/2007

9/6/2007

%

%

%

%

%

%

From date/time	To date/time	GMT diff	Dept num	Employee ID	Last Name	First Name	Station num
----------------	--------------	----------	----------	-------------	-----------	------------	-------------

Generated on: 12/15/2007 5:37:06 PM
GMT -0

Get Filtered Results

Get Today's Results


Get Week's Results

Get All Results

Date and time in	Date and time out	GMT	Hours	Employee ID	Last name	First name	Department	Station	Status
9/5/2007 12:24:25 PM	9/5/2007 12:31:45 PM	-5	0.1	E123456	Connery	Sean	ABC	201	Pass
9/5/2007 9:25:07 AM	9/5/2007 12:22:19 PM	-5	3.0	E123457	Clinton	Hillary	NBC	201	Low
9/5/2007 8:23:19 AM	9/5/2007 9:24:26 AM	-5	1.0	E123458	McCain	John	CBS	201	Pass

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Attendance report



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ESD User Modification Page

(Add, delete, modify employee information)

[New](#) <--Press the "New" button to add an employee.

%

%

%

ABC

%

%

Get Users

Last name	First name	Emp ID	Dept #	Badge #	Certification_expiration_date
-----------	------------	--------	--------	---------	-------------------------------

Employee modification table

Record number	Last name	First name	Employee ID	Department number	Badge number	Wrist used	Foot used	Certification expiration date
Edit Delete 21	Edison	Thomas	E123459	ABC	123459	1	1	10/11/2008 12:00:00 AM
Edit Delete 22	Newton	Isaac	E123460	ABC	123460	1	1	10/11/2008 12:00:00 AM
Edit Delete 23	DaVinci	Leonardo	E123461	ABC	123461	1	1	10/11/2008 12:00:00 AM
Edit Delete 24	Connery	Sean	E123456	ABC	123456	1	1	

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Click on the page number to view more employees. Click on a column header to sort the records. Change a cell and click the "Edit" word to modify a parameter. Click the "Delete" word to remove an employee - WARNING - there is no "undo" after accidental deletion or editing.

User modification page



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ESD Measurement Simulation

(Add simulated test results to the data base. For development only.)

1. Choose a badge number: This simulates swiping a card through the reader. Response time ms was ms

Last Name: First name: Dept: ID:
Wrist used: Foot used: Certification expiration date:

2. Enter the GMT time difference and the station number of the station to simulate. Select the desired Wrist, Left and Right foot status.
Press the "Add test to data base" button. This simulates pressing the combo meter measurement button.

<input type="text" value="12/15/2007 12:49:13 PM"/>	<input type="text" value="-5"/>	<input type="text" value="201"/>	<input type="text" value="28.17"/>	<input type="text" value="61.88"/>	<input type="text" value="09.19"/>
Test date/time	GMT diff	Station num	Wrist Mohms	LFoot Mohms	Rfoot Mohms
Add test to data base			<input checked="" type="radio"/> Pass	<input checked="" type="radio"/> Pass	<input checked="" type="radio"/> Pass
			<input type="radio"/> Low	<input type="radio"/> Low	<input type="radio"/> Low
			<input type="radio"/> High	<input type="radio"/> High	<input type="radio"/> High
			<input type="radio"/> NotUsed	<input type="radio"/> NotUsed	<input type="radio"/> NotUsed
			<input type="radio"/> Exit		
			<input type="radio"/> ComFail		
Response time was					
<input type="text" value="--"/>	ms				

Test #	Date and Time	GMT	EmplID	Last name	First name	Dept	Wstat	Lstat	Rstat	Wres	Lres	Rres	Station
1306	11/15/2007 9:39:38 PM	-5	E999014	Smith	AN	SMI	Exit	*	*	*	*	*	A01
1305	11/15/2007 9:39:30 PM	-5	E999049	Smith	BW	SMI	Exit	*	*	*	*	*	A01
1304	10/25/2007 1:23:22 PM	-5	E123458	McCain	John	CBS	High	High	High	48.88	100.00	100.00	A01
1303	10/25/2007 1:22:20 PM	-5	E123458	McCain	John	CBS	ComFail	*	*	*	*	*	A01
1302	10/25/2007 1:19:51 PM	-5	E123458	McCain	John	CBS	ComFail	*	*	*	*	*	A01

Measurement simulation window (for development only)