

Usability Redesign: Lafayette RSSM Register

David J. Craske – IT Analyst III
Diversified Power Products (LEC)

A project for:
INFO543 – Dr. Tony Faiola
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Systems+Processes Division

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Product & Problem Space

- Product: Lafayette RSSM Register
 - RSSM: Request to Scrap Surplus Material
 - Proactively process parts targeted for retirement
 - Analyst, supervisory, & accounting reports and preparation
- Problem Space
 - Too much access to all users
 - Inconsistencies in page layouts & and overall template
 - Easily leads to confusion



User Profile & General Requirements

- Profiles:
 - Cat employees, consultants, and intern personnel
 - Men & women, ages 19-55+, majority college educated
 - Comfortable with computer applications & technology (work & home)
- General Requirements:
 - More aligned standardized template
 - Condensed screen sizes with organization



Usability Requirements

- Implementation of Standard ColdFusion template
 - Consistent look & feel among ColdFusion web applications
- Improved security features
 - Users will only see application functionality available to their assigned user roles.
- Improved acknowledgement of submitted functionality
 - Intuitive messages, regardless of job role.
- Consistency of table data displays



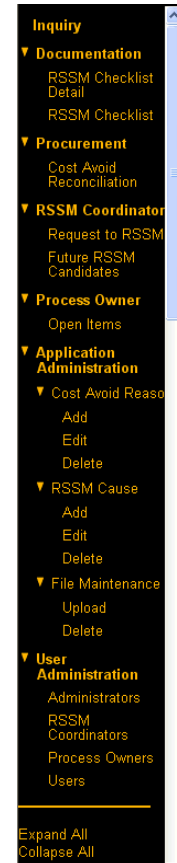
Task Objects & Actions

OBJECT	ACTIONS
Part	View, Update, Print
User (Procurement Analyst)	View, Update, Complete, Print
User (Other Analysts)	View, Update, Complete, Print, Administer Application Content
User (IT)	View, Update, Complete, Print, Administer Application Content & Roles



Low-Fidelity Prototype Examples

- Updated left-hand and title-bar navigation
 - Includes additional security measures



Low-Fidelity Prototype Examples

- Condensed part detail screen to limit scrolling

Before

Lafayette RSSM Register

Part Detail

Part Number:	3137603	Description:	LNES GP-FUEL
Prior Status:	1	Working Inv. Class:	
Chg Status:	2	MRP OH:	
Effective Date:	15-JAN-08	AMS OH:	
Job Number:	J9407E	Demand Inv.:	
Resp Analyst:		Morton Inv.:	
Resp Engineer:	00CAMBRIC	Morton Disp ID:	
RSSM:		ILC Inv.:	

Last Update: 12/01/2003 11:19:35 AM
Caterpillar: Confidential Green
Application: Lafayette RSSM Register
Content Owner: [redacted]
IT Support Analyst: [LEC Web Support](#)
Call the helpdesk at: [redacted] or submit a request at: [Work Request System](#)
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After

Lafayette RSSM Register v2.0

Part Detail: 1136934 (BASE AS)

Part No:	1136934	Description:	BASE AS	Ext Code:	1
Order Status:	1	Work OH:	0 @ 0/0/0/0/0/0/0/0/0/0		
Chg Status:	7	Repl OH:	0 @ 0/0/0/0/0/0/0/0/0/0		
Effective Date:	02-OCT-08	Work Inv:			
Job Number:	J2245T	ILC Inv:			
Analyst:	J2245T	Demand Inv:	0	Revised?:	No
Engineer:	END SPZWALE	Supplier:	-SUPPLIER INFO NOT AVAILABLE-		

RSSM:

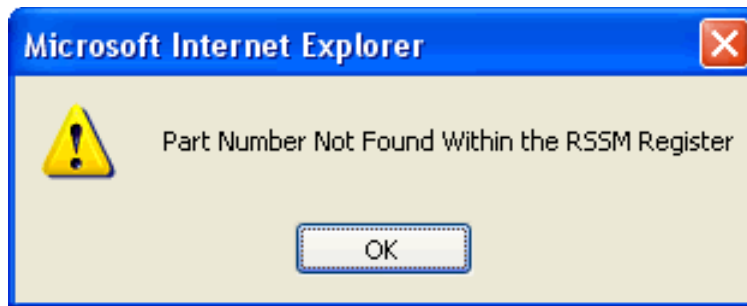
Comments: (Maximum 300 Characters)

200 include characters remaining



Low-Fidelity Prototype Examples

- Intuitive application message boxes



- Use of standardized Cascading Style Sheet and corporate-accepted ColdFusion template
 - Provides additional "look/feel" between Lafayette-supported applications



Dynamic Prototype Development

- Adobe ColdFusion
 - ColdFusion server communications with Oracle 10g databases (local / corporate)
- JavaScript
 - Dynamic preparation of data before submissions
 - Interactive acknowledgements



Redesign Demonstration Lafayette RSSM Register

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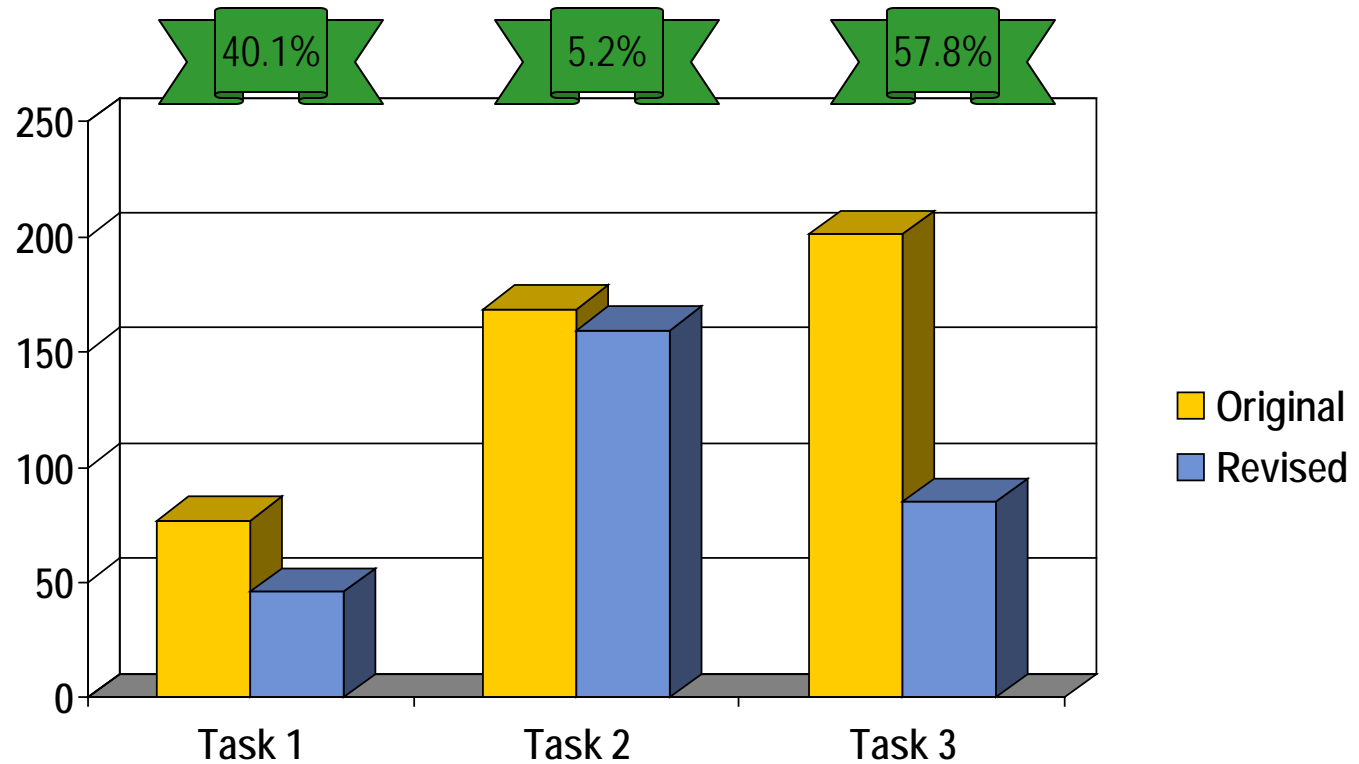
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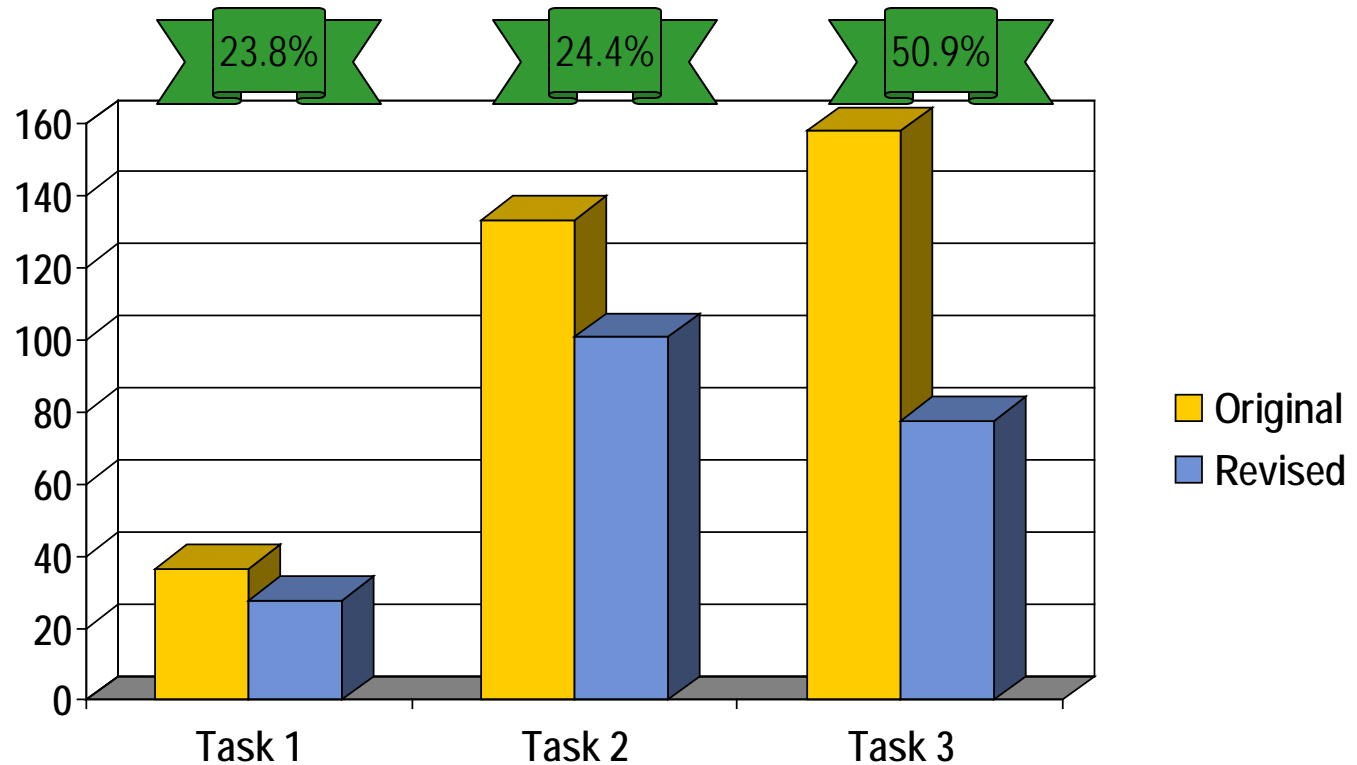
Usability Study

- Average Task Time Study (all test subjects)



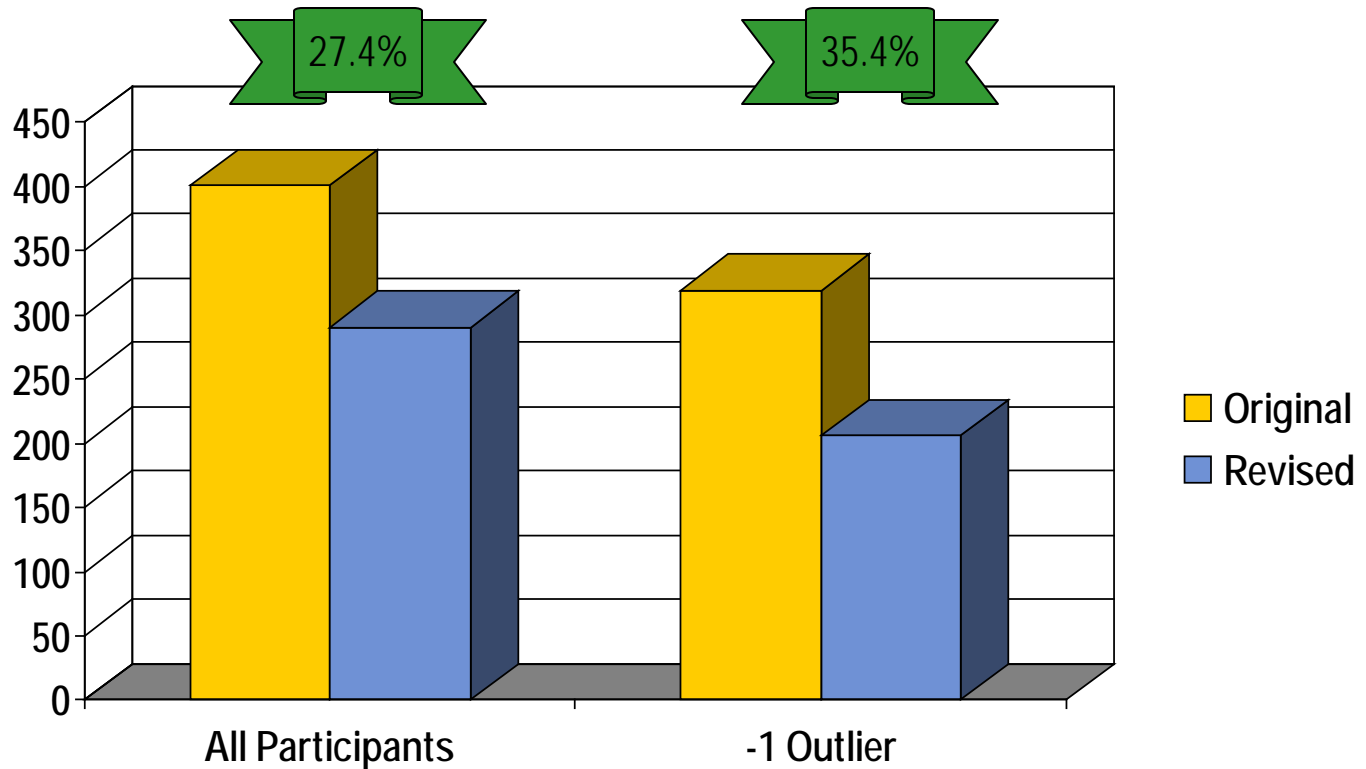
Usability Study

- Average Task Time Study (-1 outlier per test)



Usability Study

- Total Task Time Study



Recommendations (Heuristic Evaluation)

PROBLEM	RECOMMENDATION
Cryptic Error Message (Administration)	Disable submit button if text box is blank
Documentation File Maintenance	Use standardized file upload process adopted in other apps.
Consistency of Navigation title to corresponding screen title	Re-title all navigation links to match screen titles. Make titles intuitive.
Complex queries can cause timeouts	Optimize database structure and queries (with Oracle DBA)



Recommendations (Prototype Usability Tests)

PROBLEM	RECOMMENDATION
Multiple drop-down selections, when one or the other needed	Disable drop-down if other drop-down is selected (allow reactivation)
Submission pages – multiple Submit/Reset buttons	Add Submit/Reset buttons at top and bottom of submission lists. Add final confirmation of # parts being submitted.
Definition of Roles and functionality per role.	Add links to similar pages if functionality is needed within job role.
Re-order of main page	Swap locations of Part Search and Procurement Analyst functions.



Future State

- Application upgrade submitted as Caterpillar 6-Sigma project idea
 - Inclusion of new job role, to include entire process into single application
 - Reduction of paper
- Upon successful implementation, replication to 6 additional facilities (potential for 4 new facilities)
- Several recommendations made from heuristic evaluation and usability tests will be considered during initial project

