WebSAT Quarterly Report (January, 2004)

Title: Development of an Industry Standardized Auditing and Surveillance Tool: Minimizing Maintenance Errors Investigator: Dr. Anand K. Gramopadhye and Dr. Joel S. Greenstein Institution: Clemson University Category: Aviation Maintenance Project Status Category: Green (G) – Indications are that the project is on track and will be completed as planned.

1.) Significant Milestones achieved as of January 5, 2004:

- Conducted two visits to FedEx facility in Memphis, TN.
- Conducted interviews with key members in the Quality Assurance and Audits departments.
- Completed two trip reports documenting the information gathered from the interview sessions at Memphis, TN. (Program Manager provided with trip reports)
- Used task analysis to identify needs to support surveillance and inspection performance.
- Analyzed the procedures of the Quality Assurance Department of FedEx and studied the processes of Surveillance, Auditing and Airworthiness Directives groups in detail.
- Conducted a comprehensive literature review of user-centered design methodologies, aviation maintenance literature.
- Developed a database of literature.
- Identified customer statements and translated customer statements to need statements
- Submitted two papers for publication in the proceedings of Industrial Engineering and Research Conference, 2004.
- Submitted a paper for publication in the proceedings of Safety Across High-Consequence Industries (SAHI) Conference, 2004.
- Begun outlining the impact variables to be considered for WebSAT.
- Sought Institutional Review Board approval for conducting interviews and observation sessions.

2.) Work in Progress from January 5th – December 31st, 2004:

- Schedule observation sessions at Mobile, AL maintenance site.
- Submit abstract for paper/poster publication in the proceedings of Human Factors and Ergonomics Society Conference.
- Schedule interview sessions at Memphis, TN.
- Identify impact variables using the need-metrics matrix.
- Conduct a web based impact variables validation survey with other airlines to ascertain the accuracy of the selected impact variables.
- Complete an analysis report documenting the results of the web based impact variables validation survey with other airlines.
- Complete May 2004 Quarterly report.

- Design a framework of the WebSAT tool which would include the goals and the functions that would be accomplished by WebSAT.
- Identify the modules that will be incorporated in WebSAT.
- Develop the goals and functions to be included in each module.
- Schedule a trip to a participating airline company to validate the selected impact variables.
- Schedule a trip to the FedEx Greensboro maintenance base.
- Start preliminary work on WebSAT based on conceptual design methodology.

3) Future delays in meeting milestones:

• Delays -- None anticipated.

4) References:

- Dharwada, P., Iyengar, N., Kapoor, K., Gramopadhye, A. K., and. Greenstein, J. S., Web-Based Surveillance And Auditing Tool (WebSAT): A Proactive System To Capture Maintenance Errors <u>Proceedings of Safety Across High-Consequence Industries</u>, St. Louis, Missouri, 2004.
- Kapoor, K., Dharwada, P., Iyengar, N., Greenstein, J. S., and Gramopadhye, A. K., Standardized Auditing and Surveillance of the Aircraft Maintenance Operations, <u>Proceedings of the Industrial</u> <u>Engineering Research Conference</u>, Houston, 2004.
- Iyengar, N., Kapoor, K., Greenstein, J. S., Dharwada, P., and Gramopadhye, A. K., Selection of Data Gathering Methodologies for the Aviation Maintenance Industry, <u>Proceedings of the Industrial Engineering Research Conference</u>, Houston, 2004.