HPP PROJECT DESCRIPTION

PROJECT NUMBER:
01117

PROJECT TITLE:
Infrastructure Project Cost/Schedule Management Tool

PRINCIPAL INVESTIGATOR:
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PROJECT OBJECTIVES:
The broad purpose of this project is to transfer knowledge from the cost/schedule risk management approach used on NASA's International Space Station (ISS) Project to the transportation infrastructure construction industry. This project proposes to develop, demonstrate, and provide training in an expert system "add-on" to Microsoft Project 2000 specifically for transportation construction project risk management.

PROJECT ABSTRACT:
This project will achieve its objective of developing a transportation construction cost/schedule risk management tool by means of the following five sub-objectives:
1. Construct a taxonomy of risk areas for transportation infrastructure projects.
2. Link MS Project 2000 with "Level 5 Object" expert system shell, imbedded with construction industry project management rules regarding such measures as Budgeted Cost of Work Scheduled (BCWS), Budgeted Cost of Work Performed (BCWP), Actual Cost of Work Performed (ACWP), Cost Variance (BCWP-ACWP), and Schedule Variance (BCWP-BCWS).
3. Construct an integrated project risk management tool, using MS Visual Basic for a user-friendly front-end and to generate easy-to-use "risk alerts" output.
4. Demonstrate the software tool on a real State of Alabama infrastructure project.
5. Develop and teach a two-day short course entitled "Construction Project Risk Management."

PROJECT TASK DESCRIPTIONS:
1. Review ALDOT construction manual
2. Review transportation construction industry project management practices and rules
3. Build a taxonomy of risk areas for transportation construction projects
4. Link MS Project with Level 5 Object expert system shell
5. Verify the linkage on textbook data
6. Obtain real project data from a cooperating ALDOT contractor
7. Develop and fine tune the rule base in the expert system
8. Put data and rules into system and exercise (for validation)
9. Build VB front-end and report generator
10. Demonstrate tool to the project manager and receive feedback; modify as necessary
11. Prepare a User's Guide for the software tool
12. Prepare a refereed journal article based on the Spring 2002 application
13. Prepare the overheads, handouts, and exercises for the two-day course
14. Deliver the short course
15. Prepare a final report, and present a paper on the entire project at an appropriate national conference.

MILESTONES AND DATES:
August 16, 2001: Project start date
December 31, 2001: Complete tasks 1-5
May 15, 2002: Complete tasks 6-10
August 15, 2002: Complete tasks 11-15; submit final report to UTCA.

TOTAL BUDGET:
One-year project: other (HPP) $49,640; total budget $101,050.

STUDENT INVOLVEMENT:
One graduate research assistant will be involved in this project.

RELATIONSHIP TO OTHER RESEARCH PROJECTS:
This project is not related to any ongoing or proposed project. It is related directly to a previously completed project (December 1996-December 1997) at NASA Johnson Space Center funded for $132,500.

TECHNOLOGY TRANSFER ACTIVITIES:
Three forms of dissemination are proposed for the results of this project: (1) a refereed journal article, (2) a presentation and paper at an appropriate national conference, and (3) a two-day short course entitled "Construction Project Risk Management" which will be free of registration fee.

POTENTIAL BENEFITS OF THE PROJECT:
Project Risk Management has been described in the literature as "preventive quality control for projects," and can succeed in this role if properly integrated into the project management environment. Any construction project (in Alabama, or not) being managed using MS Project 2000 will be able to benefit from use of the proposed cost/schedule management tool. It has the potential to save ALDOT and its contractors millions per year if we develop and disseminate the software properly.

TRB KEYWORDS:
Project Management, Construction Management, Construction Scheduling, Cost Control.