

3. PROPOSAL

This portion of the unsolicited proposal provides the costs, schedule and resources that are required to implement the design and development of an IES. This effort will be broken down into three separate phases to provide a better cost approach to meeting our objectives.

3.1. Two-Phased Development Approach

The IES project will require two(2) different sequential efforts to ensure the success of the IES development. These efforts are key to the implementation and must be performed to meet all the objectives of this effort. There may be some overlap in the first phase of the project, but, majority of the project will rely on the type of protocols that are used within the ATS world. The two phases are provided below:

3.1.1. Phase 1 - Protocol Analysis of various TRUs

This phase will define the magnitude of the commands that the IES must be capable of converting. Due to the vast amount of protocol commands that are used within the industry, Galactic shall utilize protocol analyzers with different types of TRUs and examine various TRU data sheets to help define all types of commands that are used in the field. A Technical Requirements Document(TRD) will be developed to define the requirements that must be met to ensure proper protocol and timing conversions of the IES. Galactic shall develop simulation based scenarios with the use of software simulation tools to determine the proper CPU processing speeds that can/must be achieved to meet the proper protocols and timing requirements.

Scheduled time for Phase I - 5 months

Resources required for effort-

Team A -

Systems Engineer - .5

Electronics Engineer - 2

Computer Scientist - 1

Data Technician - 2

G & A - 1

Team B -

Systems Engineer - .5

Electronics Engineer - 1

3.1.1.1. Review of TRU Data Sheets

Galactic will require Data technicians to assemble data sheets of various TRUs to be used in this effort. Once all data sheets have been gathered for review, Galactic engineers will develop a TRU command matrix to be included in the TRD that will define the type of commands that are used and the similarities of each TRU to the others. Galactic engineers will be looking for groupings and similarities of TRU commands so that all possible variations of command structures are identified and accounted for within the actual design.

3.1.1.2. Protocol Analysis of TRUs

This effort will be executed in parallel to 3.1.1.1. Two Galactic engineers will take approximately three(3) representative TRU bid samples to gather TRU command timing characteristics. At this time, engineers will determine the estimated timing characteristics for particular groupings of TRUs and any other variations of TRU commands and timing that the data sheets do not provide. Galactic engineers will include TRU commands in the TRD that will define the type of commands that are used and the similarities of each TRU to the others.

3.1.2. Phase 2 - IES Design, Development and Integration

Galactic shall design, develop, document, test, and deliver the IES hardware and software required for an IES. At 80% completion of Phase I, the hardware and software that will be used in the design and development of the IES will be selected. At this time, there will be adequate information from Phase I to determine the required development tools that are needed to complete Phase 2. At this time, critical decisions in the selection of the operating systems, PC-Based hardware and software, computer chips/components and other components that will be used as part of the project will be selected. Two(2) separate teams will be used in the design and development of the IES. The reason for such an approach is to ensure quick turn-around of the project by executing these efforts in a parallel fashion. Each portion of the design and development of the module is provided below:

Schedule of Phase 2 - 7 months

Resources Required for effort -

Team A - PCM Module

Systems Engineer - .5

Electronics Engineer - 1

Computer Scientist - 1

Data Technician - 1

Test Manager - .5

Config. Manager - .5

Team B - MEM Module

Systems Engineer - .5

Electronics Engineers - 2

Software Engineer - 1

Computer Engineer - 1

DraftsPerson - .5

3.1.2.1. Intelligent Emulation System(IES) System Specification Development

Galactic shall take the protocol and timing requirements generated in the Technical Requirements Document(TRD) and create a detailed System Specification for the IES. The System Specification will define the requirements of the PC-based Configuration Module and the Main Emulator Module. The contractor shall separate the System Specification requirements into generic/common requirements that could be reused/utilized for multiple Intelligent Emulation Systems(IES) applications, and requirements that are specific to a particular application.

3.1.2.2. Design and Develop PC-based Configuration Module(PCM)

Galactic shall design and develop the PCM which will interface and provide critical protocols and timing conversion data to the Main Emulator Module(MEM). Galactic shall develop hardware and software to meet the requirements of the specification.

3.1.2.3. Design and Develop Main Emulator Module(MEM)

Galactic shall design and develop the MEM which will interface and provide critical protocols and timing conversion data to the PCM. Galactic shall develop hardware and software to meet the requirements of the specification.

3.1.3. NDS Support Tools

Galactic shall use all available COTS hardware, software, development tools and techniques to the maximum extent possible to design, develop and produce the IES system. Any COTS packages that require runtime software, licenses and fees shall be waived by government point of contact(POC) prior to utilizing the tool into the tutor.

3.1.4. Reusable Protocol Software Library

Galactic shall establish a library of software protocol modules that are used in new/modified modules under development. Galactic shall create a tracking system for each module under library control to define the content and performance of each module. Galactic shall track performance requirements/parameters developed in the System Specification into the design and development. Galactic shall inform the government of any changes of the design or development from the government baselined System Specification and implement changes to the System Specification as approved by the government.

3.1.5. Testing of the IES

Galactic shall test each software configuration(CSCI) item as specified in the baselined System Specification and in the baselined Design Specification into the developed system. Galactic shall perform testing on the individual modules developed under this proposal. Galactic shall perform integration testing of previously developed modules and new modules. For final delivery to the government, Galactic shall perform testing of the entire IES as a totally integrated, hardware/software package. Galactic shall develop a test plan and test criteria that will be used by the government for final testing of the tutor.

3.1.6. Training

Galactic shall assist the government with initial user training on the IES. Galactic shall assist the government with Operational Test and Evaluation of the tutor.

3.1.7. Maintenance

Galactic shall maintain the IES for a period of one year after the delivery of the IES to the government. Galactic shall assist the government with initial maintenance training on the IES.