

## CANEUS Pilot Project Concept Papers

<b>CANEUS ID No.</b>	<b>2004-A01</b>
<b>Name</b>	Development of Micro Attitude & Orbit Determination/Control Systems ( $\mu$ AOCS)
<b>RFQ Submission Date</b>	February 19, 2004
<b>Budget:</b>	Up to US \$35,000
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### 1. Content:

This Concept Paper will make the case for a pilot project aimed at the development of MNT-based  $\mu$ AOCS. The paper will examine the current state-of-the-art and formulate possible approaches / methodologies to reducing subsystem mass and power through the use of MNT components.

There are a number of developments on-going in the field of MNT-based avionics sensors. MNT sensors are ideally suited for future space  $\mu$ AOCS since they promise high performance at ultra-low mass and power consumption. Specific system requirements for LEO, MEO, GTO, GEO, deep space and planetary exploration shall be derived and applicable MNT-based systems are to be proposed.

The Concept Paper will provide the conference participants with the technical and programmatic background necessary to evaluate the current status in terms of technological maturity, key technology developers in the MNT-based  $\mu$ AOCS arena, potential investors, aerospace end-applications, market potential and the challenges involved in system development. Tested and reliable low cost COTS MNT-based inertial, optical and magnetic sensors can play a major role in the navigation of future satellites. Recently, much of the research has focused on the development of 3-axis sensors on a single chip.

### 2. Scope:

This Pilot Project Concept Paper will be used to guide discussions at the CANEUS 2004 workshops aimed at transitioning promising MNT concepts to system prototypes. At a minimum the Concept Paper will contain the following:

#### 2.1. Background Information:

- Description of the current state-of-the-art in MNT-based  $\mu$ AOCS.
- Benefits of the MNT approach over the current state-of-the-art
- Survey of leading organizations involved in  $\mu$ AOCS development. Parameters to be examined include technical and commercial background as well as significant strengths and weaknesses
- Key application areas and market segments for MNT-based  $\mu$ AOCS technology. If available, the sizes of these market segments should be included
- Description of major trends and consequent scenarios impacting the development of MNT-based  $\mu$ AOCS.

#### 2.2. Recommendations and Implications for CANEUS:

- Justification for a pilot project aimed at developing MNT-based  $\mu$ AOCS
- Recommended approach for advancing the promising MNT concepts to system level
- Proposed implementation of the pilot project and metrics for evaluating progress
- Proposed teaming arrangement options and description of complementary expertise and facilities
- Intergovernmental agreements that could impact the proposed development
- Identify the potential governmental, industrial and institutional sources of funding
- Overview of relevant current intellectual property status in MNT-based  $\mu$ AOCS.
- Plan for expansion of the proposed pilot project into full-scale commercial development
- Potential non-aerospace applications.

### 3. Deliverables:

Potential bidders will have to comply with the following deliverables:

1. Mid project status report with preliminary findings (PowerPoint) within 6 weeks from the project commencement
2. Final report – Draft (PowerPoint) within 9 weeks from the project commencement
3. Final report – Draft (Word) within 10 weeks from the project commencement
4. Final report (Word) within 12 weeks from the project commencement
5. Supporting documentation including references, interview notes, white papers, exhibits and links (classified by relevant subject area and updated with each deliverable)

### 4. Proposal Format & Evaluation Criteria:

Proposals must be submitted in the following format for evaluation.

<b>Part 1</b>	Proposer's contact information including name, address, phone, e-mail and website
<b>Part 2</b>	Brief description demonstrating the proposer's existing knowledge of the content and subject matter of the Concept Paper (including examples of past work in the topic area)
<b>Part 3</b>	Brief description of the methodology and work plan including a list of potential sources of information
<b>Part 4</b>	Brief description of the educational qualifications and expertise of the individual or team
<b>Part 5</b>	References from previous clients
<b>Part 6</b>	Budget and allocation of costs

Proposals will be evaluated using the following main criteria along with various compliance requirements described within this document.

#### a. Technical Merit:

- How well does the proposal match the stated objectives?
- Feasibility of the proposed approach (interview process, literature search, methodology in deriving the conclusion, etc.) in generating the report

#### b. Proposer Qualification:

- How well qualified (experience, demonstrated track record, current activities, etc.) is the proposer / team in pursuing the work?
- Does the proposer have sufficient resources to pursue the work?

#### c. Commercial Criteria:

- Price
- Availability of key resources
- Other commercial issues

### 5. Other Terms and Conditions

CANEUS will have full and exclusive rights to the interim and final reports. CANEUS can use the reports as is or repackage them as it sees fit including the creation of derivative documents with no rights or additional proceeds to the report author. At CANEUS' option, additional phases can be granted to the successful bidder.

### 6. Proposal Submission Process

The full proposal is due by February 19, 2004. The Proposal must be submitted electronically to the CANEUS at [proposal@caneus.org](mailto:proposal@caneus.org). CANEUS has the right to accept or reject any proposal at its discretion.