Mississippi State University
Notice of Proposed Sole Source Purchase

Mississippi State University anticipates purchasing the item(s) listed below as a sole source purchase. Anyone objecting to this purchase shall follow the procedures outlined below.

1. Commodity or commodities to be purchased (make, model, description):

- Markerless motion capture add-on for existing MotionMonitor system, which includes the following parts:
    - **(Part # 6200-000203-15.1)** Data Acquisition system, including: Dell Precision 7875 workstation, with support for up to 6 PCIe slots, dual NVIDIA graphics cards and additional 4-port USB 3.0 PCI express cards (AMD Ryzen Threadripper PRO 7975WX Processor with 64 GB RAM, Dual NVIDIA® A4000 GPU, 1 TB Solid State Drive, & Windows 11 Pro
        - Including configuration and testing of computer for existing hardware (Vicon, A/D, AMTI & Kistler force plates and Noraxon digital EMG) and on-site installation and training.
    - **(Part # 8999-000269)** The MotionMonitor® Markerless video processing plug-in for SwRI ENABLE
    - **(Part # 8999-000238)** The MotionMonitor® C3D Model Builder for Biomechanics applications and processing of Markerless data.
    - **(Part # 8999-000208-1)** The MotionMonitor® Software plug-in for real time data collection from Digital Video. Provides the ability to collect real-time data from video system standalone or synchronously with other data sources.
    - **(Part # 8999-000208-1)** Basler a2A1920-160ucBAS cameras, including varifocal lenses and cables ((1) 10m cable for each camera and (6) 20m extension cables). 8 units.
    - **(Part # 7300-000001)** Camera tripod head mounts and super clamps for mounting cameras on existing marker-based rail system.
    - **(Part # 7300-000002)** Camera calibration grid set
    - **(Part # 7999-0217)** Software Subscription and Priority Support
    - **(Part # 7500-000084-1.0)** Markers - Cluster Complete set including 2-Legs, 2-Arms,Upper Back, Lower Back and Head, including double sided tape for use with individual markers
    - **(Part # 6200-000473)** EMG Noraxon - Dual Solid Gel electrodes (420) and Double Sided Sensor tape for Ultium sensors (500)
    - Freight & Handling Charges Prepaid

2. Explanation of the need to be fulfilled by this item(s), how is it unique from all other options, and why it is the only one that can meet the specific needs of the department:

The system upgrade is needed in order to collect synchronized markerless motion capture data with other data collection devices that are used through the MotionMonitor system. This system has been used with MSU's Athlete Engineering Research Lab for 9 years, and the proposed upgrades are needing to enable the lab to conduct research on markerless motion capture synchronized with force plates and electromyography sensors for a study in the lab that is funded by University of Mississippi Medical Center. This upgrade will also be utilized for future experiments in the lab and will make AERL more competitive in pursuing future grant funding as opportunities for data collection and technology validation are improved significantly through this system.There are multiple projects proposed in which MSU would validate markered motion capture (already installed in the lab) against markerless motion capture. Having a streamlined process for performing this validation process will lead to many applications for future funding in tactical, healthcare, and industrial sectors.
Additionally, MotionMonitor provides support for the Southwest Research Institute Engine for Automatic Biomechanical Evaluation (ENABLE) modeling software, which is already owned by MSU. This will further reduce by not having to invest additional funding into skeletal modeling software that is used on top of the video data collected in MotionMonitor. While other options for synchronized markered/markerless motion capture exist through vendors such as OptiTrack and Theia markerless motion capture, performing such an upgrade would require purchase of a completely new system, which would increase the cost considerably. The proposed upgrade would integrate with existing MSU resources and software, reducing the cost considerably. The markerless system upgrade would integrate with force plates, markered motion capture, and other sensors are already compatible and running within the MotionMonitor system.

3. Name of company/individual selling the item and why that source is the only possible source that can provide the required item(s):

The MotionMonitor® is selling the proposed system upgrade. We are already currently using their software for ongoing lab studies. There are several software modules included in this purchase that are proprietary software modules only sold by MotionMonitor, which enables additional features to be used in their current software.

4. Estimated cost of item(s) and an explanation why the amount to be expended is considered reasonable:

Estimated cost of the items is $41,000. It is considered reasonable due to the increased capabilities provided by the system upgrade. It will save cost on university resources such as research support and student personnel, as this will significantly reduce the time required to process data used for human subjects research. The video cameras included as part of the system upgraded are considered gold-standard and will provide reliable data that will be improve the research team's credibility when writing papers for high-impact scholarly publication.

Since the upgraded system will synchronize with the existing markered motion capture and force plate system, it will be significantly cheaper than buying a new system from scratch that includes the same capabilities.

5. Explanation of the efforts taken by the department to determine this is the only source and the efforts used to obtain the best possible price:

The team has investigated other synchronized markerless motion capture solutions previously, but these options would require a complete reinstall and new hardware purchase to provide capabilities comparable to what would be done with the proposed systems upgrade. The synchronization of lab devices is a specific component in which MotionMonitor® specializes in, and the most cost-effective would be to add-on existing resources at MSU to reduce costs.

The department already has extensive experience using markerless motion capture as a standalone system and is familiar with the associated costs that are common to this system. However, the synchronization of this with other systems as well as the customizable protocols available within MotionMonitor® justify the value added with this system vs. other existing solutions on the market.

Any person or entity that objects and proposes that the commodity listed is not sole source and can be provided by another person or entity shall submit a written notice to:

Jennifer Mayfield, CPPO
Interim Deputy Director of Procurement & Contracts
jmayfield@procurement.msstate.edu
Subject Line must read "Sole Source Objection"

The notice shall contain a detailed explanation of why the commodity is not a sole source procurement. Appropriate documentation shall also be submitted if applicable.

If after a review of the submitted notice and documents, MSU determines that the commodity in the proposed sole source request can be provided by another person or entity, then MSU will withdraw the sole source request publication from the procurement portal website and submit the procurement of the commodity to an advertised competitive bid or selection process.

If MSU determines after review that there is only one (1) source for the required commodity, then MSU will appeal to the Public Procurement Review Board. MSU will have the burden of proving that the commodity is only provided by one (1) source.