Billing Code

DEPARTMENT OF COMMERCE

National Institute of Standards and Technology (NIST)

Agency Information Collection Activities; Submission to the Office of Management and Budget (OMB) for Review and Approval; Comment Request; Analysis of Exoskeleton-Use for Enhancing Human Performance Data Collection

AGENCY: National Institute of Standards and Technology (NIST), Commerce.

ACTION: Notice of Information Collection, request for comment.

SUMMARY: The Department of Commerce, in accordance with the Paperwork Reduction Act of 1995 (PRA), invites the general public and other Federal agencies to comment on proposed, and continuing information collections, which helps us assess the impact of our information collection requirements and minimize the public's reporting burden. The purpose of this notice is to allow for 60 days of public comment preceding submission of the collection to OMB.

DATES: To ensure consideration, comments regarding this proposed information collection must be received on or before (insert date 60 days after date of publication in the FEDERAL REGISTER).

ADDRESSES: Interested persons are invited to submit written comments to Maureen O'Reilly, Management Analyst, NIST by email to PRAcomments@doc.gov). Please reference OMB Control Number 0693-0083 in the subject line of your comments. Do not submit Confidential Business Information or otherwise sensitive or protected information.

FOR FURTHER INFORMATION CONTACT: Requests for additional information or specific questions related to collection activities should be directed to Ann Marie Virts, Project Leader, NIST, 100 Bureau Drive, Gaithersburg, MD 20899, Ann.virts@nist.gov, 301-975-5068.

SUPPLEMENTARY INFORMATION:

I. Abstract

Exoskeletons – sometimes called wearable robots – are a very rapidly expanding domain

with a range of applications and a broad diversity of designs. NIST's Engineering Laboratory will be developing methods to evaluate performance of exoskeletons in two key areas 1) The fit and motion of the exoskeleton device with respect to the users' body and 2) The impact that using an exoskeleton has on the performance of users executing tasks that are representative of activities in industrial settings and emergency response applications. The results of these experiments will inform future test method development at NIST, other organizations, and under the purview of the American Society for Testing Materials (ASTM) Committee F48 on Exoskeletons and Exosuits.

For the first research topic, NIST will be measuring the difference in performance of a person wearing an exoskeleton versus the person's baseline without the exoskeleton while positioning loads and tools. The NIST Position and Load Test Apparatus for Exoskelons (PoLoTAE), which presents abstractions of industrial task challenges, will be used in this research. NIST researchers will also develop standard test methods to represent real world applications for emergency responders such as mobility tasks; climbing over, around and thru obstacles.

For the second research topic, NIST will evaluate a method for measuring the alignment of an exoskeleton to human joint (knee) and any relative movement between the exoskeleton and user. Measurement methods prototyped by NIST for evaluating exoskeleton on mannequin position and motion will be applied to human subjects to verify the usefulness of optical tracking system and designed artifacts worn by users as measurement methods.

Participants will be chosen from volunteers within NIST and adult NIST visitors to participate in the study. Gender and size diversity will be sought in the population of participants. No personally identifiable information (PII) will be recorded unless subject consent for PII disclosure is received. NIST intends to publish information on the analysis and results.

II. Method of Collection

Participants will give informed consent prior to participating in the research. Information

may be collected via a paper background questionnaire which may include disclosure of health information which may be relevant for safety and research reasons. Data will be collected using a combination of heart rate monitor, video and still cameras to collect time and subject activity to correlate heart rate with activity and an optical tracking system which detects markers worn by the subject. Participants will be asked to complete a paper survey once data is collected for the research.

III. Data

OMB Control Number: 0693-0083.

Form Number(s): None.

Type of Review: Regular submission, revision and extension of a current information collection.

Affected Public: Individuals or households.

Estimated Number of Respondents: 180.

Estimated Time Per Response: 10 minutes.

Estimated Total Annual Burden Hours: 30 hours.

Estimated Total Annual Cost to Public: $0.

Respondent's Obligation: Voluntary.

Legal Authority:

IV. Request for Comments

We are soliciting public comments to permit the Department/Bureau to: (a) Evaluate whether the proposed information collection is necessary for the proper functions of the Department, including whether the information will have practical utility; (b) Evaluate the accuracy of our estimate of the time and cost burden for this proposed collection, including the validity of the methodology and assumptions used; (c) Evaluate ways to enhance the quality, utility, and clarity of the information to be collected; and (d) Minimize the reporting burden on those who are to respond, including the use of automated collection techniques or other forms of

information technology.

Comments that you submit in response to this notice are a matter of public record. We will include or summarize each comment in our request to OMB to approve this ICR. Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you may ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Sheleen Dumas,

Department PRA Clearance Officer, Office of the Chief Information Officer, Commerce Department.

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