

Attachment B: Informed Consent Form

Public reporting burden of this collection of information is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to CDC/ATSDR Reports Clearance Officer; 1600 Clifton Road NE, MS H21-8, Atlanta, Georgia 30333 ATTN: PRA (0920-1441).

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09/30/2027



**Centers for Disease Control
and Prevention**
National Institute for Occupational
Safety and Health

Investigation on safety and trust when working alongside industrial mobile robots

1	Key Information Summary	Consent is being sought for research, and your participation is voluntary. The following summary provides information on why you would or would not want to participate. The purpose is to investigate human behavior and perceptions of safety and trust while interacting with multiple industrial mobile robots (IMRs) with varying characteristics (size and separation distance). The expected duration of the study is 2.5 hours. You will be asked to complete multiple tasks where you will pick-up and place boxes on a shelf while working alongside an IMR. During the study you will wear a ring that will measure physiological parameters (e.g., electrodermal data – which refers to electrical changes on the skin’s surface that can indicate subconscious emotional state, pulse rate, skin temperature, and heart rate and rhythm) and motion capture markers that will be taped to various body segments and joints to measure your body movements. The risks involve fatigue/soreness, a contusion or temporary tissue damage from being struck by or colliding with the mobile robot, skin irritation from marker tape, discomfort from having markers applied by NIOSH staff member, and possible breach of privacy. The study is designed to reduce each of these risks as described below. There are no direct benefits to you for participating in this research. We will recruit a total of 89 participants to complete the study. There is a small risk you could get a respiratory infection (e.g., COVID-19, influenza) through an in-person interaction while participating in this study. To minimize your risk of exposure to viruses and maximize your protection against infection, NIOSH researchers follow COVID-19 and other relevant respiratory infectious disease guidance for CDC and NIOSH staff and
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		workplaces.
2	Who is conducting the study?	The National Institute for Occupational Safety and Health (NIOSH) is a federal agency that studies worker safety and health. We are part of the Centers for Disease Control and Prevention (CDC).
3	What is the purpose?	The purpose of this study is to investigate human behavior and perceptions of safety and trust while interacting with multiple IMRs with varying characteristics (e.g., size and separation distance) that are designed to work in close cooperation in a shared workspace.
4	What will I do?	You will be asked to complete 2 experiments that involve interacting with an IMR. Before beginning the first experiment, you will complete a demographics survey (4 questions) and a robot experience questionnaire (20 questions). In the first experiment, you will complete 12 trials where you will be approached by one or two IMRs while you are standing in the center of the laboratory. The IMR(s) will pass you on your right and/or left side. The IMR height and separation distance between you and the mobile robot(s) will vary depending on the experiment condition. After each trial you will rate your perceived comfort level (1 question). In the second experiment, you will complete 12 trials where you will complete a manual loading/unloading task while working alongside one or two IMRs. The task will involve transferring boxes between shelves located on opposite sides of the room. While you're completing the task, one or two IMR(s) will cross the pathway between the shelves parallel to your movement direction. After each trial, you will complete a survey about your satisfaction (2 questions), perceived safety/comfort/trust in the robot (6 questions), and ratings of robot attributes (5 questions). Prior to data collection, we will equip you with a ring and motion capture markers to track and record your movements throughout the trial. Physiological data (e.g., electrodermal data – which refers

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		to electrical changes on the skin's surface that can indicate subconscious emotional state, pulse rate, skin temperature, and heart rate and rhythm) will be measured using the ring and analyzed later during data analysis.
5	When, where, for how long will I be needed?	You will be asked to visit the NIOSH laboratory in Morgantown, WV for this study. Your visit will take approximately 2.5 hours, including: 30 minutes for pre-experiment preparation, 60 minutes for the first experiment, 60 minutes for the second experiment, and 5 minutes for post-study debriefing.
6	Are there any risks from participating in the study?	The probability and magnitude of harm or discomfort anticipated in this research are not greater than those in your daily life or during the performance of routine physical or psychological examinations or tests. The duration of each experiment session is expected to be 1 hour (i.e., 2 hours total). You may experience fatigue or soreness from completing tasks during each experiment. You will be given adequate rest breaks between experiment trials to recover from any fatigue and will be instructed to inform the study team if you experience any discomfort. You may be at risk of colliding with and being struck by the IMR during the experiment which may result in skin or muscle discomfort, such as a contusion or temporary tissue damage. This experience can be compared to bumping into a slow-moving object. Prior to the experiment, you will undergo training to learn how the IMRs operate and to become familiar with working alongside them. The IMRs used in this study also contain collision avoidance technology that prevents it from running into any obstacles. There is minimal risk of developing skin irritation from the elastic straps and double-sided tape used to attach the motion capture markers. We will instruct you to let us know if the markers become uncomfortable so we can readjust them immediately. There is a negligible risk of being uncomfortable from having a person of the opposite gender affix motion capture markers to you.

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		Therefore, you will be able to request the gender of the staff person who will affix the markers. There is a slight risk that the information we collect about you could be accidentally disclosed to someone else, which may cause you to experience psychological or social stress due to your loss of privacy. We will minimize this risk by identifying your samples and data collection forms by code only. There is a very small risk you could get a respiratory infection (e.g., COVID-19, influenza) through an in-person interaction while participating in this study. To minimize your risk of exposure to viruses and maximize your protection against infection, NIOSH researchers follow COVID-19 and other relevant respiratory infectious disease guidance for CDC and NIOSH staff and workplaces. This includes disinfecting all equipment between participants.
7	Are there other benefits?	You will not receive any direct benefits from participating in this study. Your participation in this research will help researchers to better understand the effects of IMR design and movement characteristics on human behavior and perceived safety and trust during human-robot collaboration in the workplace.
8	Is my participation voluntary?	Your participation in the study is voluntary. You may choose to be in the study or not. You may choose to answer any or all questions. You may decline to participate or drop out at any time, for any reason, without consequences to you. If you have completed your participation in the study but would still like to withdraw, you may do so prior to publication of the study by contacting the researcher using the contact information on this form.
9	What if I am injured or harmed at a NIOSH research facility or at another	NIOSH will summon emergency medical aid by calling 911 if needed. NIOSH will not provide payment for medical care or compensation. If you believe NIOSH has been negligent in conducting the research study and you believe you have suffered a harm as a result, you have the right to pursue a legal remedy under the Federal Tort Claims Act (28 U.S.C. §§ 2671-2680 and 28 U.S.C. § 1346(b)). To learn more about how to file a Federal Tort claim, call the General Law Division of the HHS Office of the General Counsel at (202) 619-

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	location where the NIOSH research project is being conducted?	2155 or go to https://www.hhs.gov/about/agencies/ogc/key-personnel/general-law-division/index.html .
10	Will I be reimbursed or paid?	You will receive \$30 per hour for your time during the study. For periods of time less than one hour, you will receive partial pay of \$10 per 20 minutes, with periods less than 20 minutes rounded up. If you complete the study, you will receive a total of \$80.
11	What alternative procedures might benefit me?	No alternative procedures are available to collect the information needed for this study.
12	Will my personal information be kept confidential?	NIOSH is authorized to collect your personal information and will protect it to the extent allowed by law. During the recruitment process, we will record your name, email address, and phone number. We will also record your name to reimburse you for your time during the study. This information will be stored separately in a password protected, limited access folder, and not connected to any data collected during the study. Information will be kept confidential and, to the extent permitted by applicable laws, will not be made publicly available. All identifying information and recruitment details will be destroyed upon study completion by deleting the folder used for scheduling and reimbursing participants. During the study, you will be assigned a study number for identification to protect confidentiality. Because information collected during the recruitment process is stored in a separate, password-protected folder than the coded study participant data, it will not be possible to link your study data.

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		A form of ID will be required to enter the NIOSH research building, but this will not be recorded or retained as part of their participation in this study.
13	Certificate of Confidentiality	This research project has a Certificate of Confidentiality from the Centers for Disease Control and Prevention (CDC). Unless you say it is okay, researchers cannot release information that may identify you for a legal action, a lawsuit, or as evidence. This protection applies to requests from federal, state, or local civil, criminal, administrative, legislative, or other proceedings. As an example, the Certificate would protect your information from a court subpoena. There are some important things that you need to know. The Certificate DOES NOT protect your information if a federal, state, or local law says it must be reported. For example, some laws require reporting of abuse, communicable diseases, and threats of harm to yourself or others. The Certificate CANNOT BE USED to stop a federal or state government agency from checking records or evaluating programs. The Certificate DOES NOT stop reporting required by the U.S. Food and Drug Administration (FDA). The Certificate also DOES NOT stop your information from being used for other research if allowed by federal regulations. Researchers may release your information when you say it is okay. For example, you may give them permission to release information to insurers, your doctors, or any other person not connected with the research. The Certificate of Confidentiality does not stop you from releasing your own information. It also does not stop you from getting copies of your own information.
14	Will I or anyone else receive study results?	The results of the study will be documented in a journal article or a NIOSH research report. No individual results will be shared or published and no pictures of you will be shown. Copies can be provided to you upon publication if requested. If you would like a copy of the summary report, please contact Dr. Justin Haney, the project officer at poe5@cdc.gov or 304-285-6179.

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15	Will my personal information or samples collected from me be used in other research?	We may remove your name and other identifiers from the information that we collect during the study and then use the information for future research studies without asking you for additional consent. We also may remove identifiers from the information that we collect and then share it with other researchers without asking you for additional consent.
16	Is this a Clinical Trial?	No
17	Did you receive all necessary information?	You should have been given all the information that a reasonable person would want to have in order to make an informed decision about whether to participate in this study. You should have been given the opportunity to discuss the study and have your questions answered. If you need more information, or still have questions, please ask the person who is reviewing the study with you or the study Principal Investigator (Dr. Justin Haney).
18	Who can I talk to if I have more questions?	For questions about the research study, contact the principal investigator, Dr. Justin Haney at poe5@cdc.gov or 304-285-6179. For questions about your rights, your privacy, or harm to you, contact the Chair of the NIOSH Institutional Review Board (IRB) in the Human Research Protection Program at 513-533-8591.
19	Your signature	The study was explained to me. My questions were answered. I agree to be in the study. Printed name of participant Participant signature Date I have accurately described this study to the participant.

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		NIOSH representative signature Date
20	Additional consent	Would you like to be contacted about opportunities to participate in future research studies? ☐ No, do not contact me in regard to participating in future research studies ☐ Yes, please contact me about participating in future research ☐ by email ☐ by phone Printed name of participant Participant signature Date Participant email Participant phone