INTERVIEW GUIDE FOR
MOBILE ROBOTS AND HUMAN'S PERCEPTION OF
LIKABILITY, ANIMACY, INTELLIGENCE, AND SAFETY

Robot movement and animation

This is an experiment that is done on an individual basis at Robot House. The idea is to have a meaningful interaction with the robot and have the motion be a natural part of it. The plan is to have some sort of project the participants are working on with the robot helping in the project. The difference in the interaction are the acceleration ramps that are used for the robot. One will be using linear acceleration and the other will be using a slow in, slow out acceleration that is quadratic on speed up and slowing down. The motion will either be pre-planned or using the robot's navigation systems. The actual robot movements and what people are asking for is accomplished via Wizard of Oz techniques.

Purpose

The purpose of this is to check if different ways of a robot moving influences people's perception of the robot (the robot's perceived empathy, anthropomorphism, likability, safety, animacy, and intelligence). We will wish to also collect people's opinions through open ended questions about how the robot moves.

Research Questions and Hypotheses

*The actual questions we will be asking start on page **Error! Bookmark not defined.**.* How does an approach using slow in, slow out affect people's perception of properties of the robot (i.e., safety, intelligence, animacy, anthropomorphism) versus a robot approaching with a linear acceleration?

Hypothesis

H1:   Using slow in, slow out will positively affect the robot's perceived safety vs. linear velocity

H2:   Using slow in, slow out will positively affect the robot's perceived intelligence vs. linear velocity

H3:   Using slow in, slow out will positively affect the robot's perceived animacy vs. linear velocity

H4:   Using slow in, slow out will positively affect the robot's perceived anthropomorphism vs. linear velocity

H5:   Using slow in, slow out will positively affect the robot's perceived likability vs. linear velocity

H6:   Noticing a difference between how a robot moves, will also be noticeable in a video.

Outcome

The outcome of this experiment should be some information on how people react to different ways a robot can move when performing its tasks. This should be both quantitative and qualitative data.

The results should also yield either a conference or journal paper that can be part of my dissertation. Feedback from the experiment should also result in improved versions that can run in a future version of this experiment in other locations and with other robots.

Participants

The goal is to recruit at least 30 participants, but we will happily take as many as we can get.

Materials
- Informed consent form and information letter
- Fetch Robot
- Fetch Robot Controller
- Basket for Fetch
- Forms
- Laptop Computer
- Material to put away (example Lego, furniture legs, etc.)

Set up

Entering Robot House

Given that the experiment is set up at robot house, this set up is specified in terms of that. The task area will be set on the far wall where the participant will be facing the entrance area. The Fetch robot will be stationed by the stairway, and another experimenter will on the site to receive items from Fetch.

Each participant will be welcomed and asked to return a filled out informed consent form. If the participant does not have one, we will ask the participant to fill one out. Once that is filled out, we will introduce the participant to the Fetch Robot and go over safety information:

> This is a Fetch Robot and it will be the robot that will be helping with the experiment today. You will interact with Fetch during the experiment. There are two of us here that will be constantly monitoring the robot, and we anticipate no safety issues. However, you need to know some safety information for fetch. It's important not to approach the robot while it is moving. We are watching Fetch and can put an immediate stop to it, but please be aware that the robot can move unexpectedly as it keeps its momentum when we engage the emergency stop. If you

ever feel unsafe, please let us know and we can end the experiment. You can ask to end the experiment at any time, and you are free to leave at any time. Do you have any other questions before we proceed?

If the participant has any questions, they are answered. Then the experiment proper will be run. We will ask the demographic questions, and then we will give instructions for the basic tasks.

The Main Task

You are helping a friend clean up the house. The friend has a robot that is also helping. We are interested in how well the hand over is between you and the robot. There are four objects that the robot needs your help to load in the basket. Please put one object in the robot's basket— the order does not matter—and wait for the robot to return with a questionnaire. Each time the robot returns to you, we have some questions for you to answer.

The participant will then be allowed to pick up an item and give it to the Fetch robot. Once Fetch has an item, it will travel away from the participant to another part of the house where an experimenter will take the item from Fetch. Fetch will then return to the spot where it was where it started. After each activity, the person will be asked the questions from the Godspeed Questionnaire and the open-ended questions. Then the participant will give the next item to the robot and the steps are repeated. In total, the person will do this activity four times. The robot will perform its movement using a slow in, slow out acceleration twice and a linear acceleration twice. The ordering of the robot's movement will be counterbalanced to avoid ordering effects.

Video task

This task is optional and will be skipped if there is not enough time. The participant will be asked to look at a video of another person performing the same task and to see if there is anything that they notice.

We are going to show you a video of a person performing a task and we are interested if there is anything you notice about the robot?

Leaving robot house

After all the tasks have been completed and the final questions have been asked. Thank the participant for their time, give them the gift card, and help them leave the house.