Decisionmaking with non-compliant humans in HRI

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Research Question

In a time-limited stressful scenario, do users prefer a passive helper robot or an active leader robot?

User study setup

Users start in Upson 522 and evacuate from Upson 574. Along the way, they have the option of stopping to pick up objects. The goal of the robot is to get the human out safely. The goal of the human is to get out safely while picking up as many objects as possible.
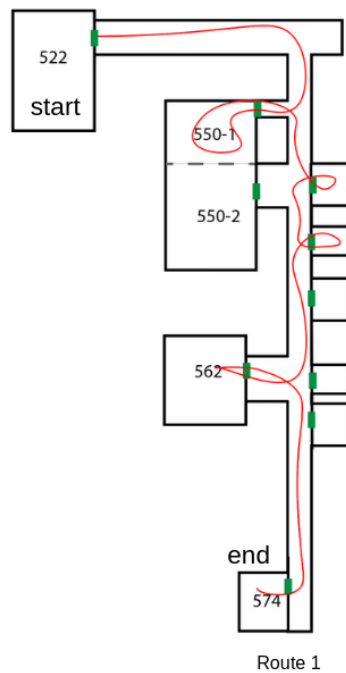
Left: A map, and possible path for user travel (from Yuhan). Right: The FrankenBot.

Intended interaction

We examined the active leading condition this semester. The robot guides the user to the exit, waiting if the user goes into a room to pick up an object.
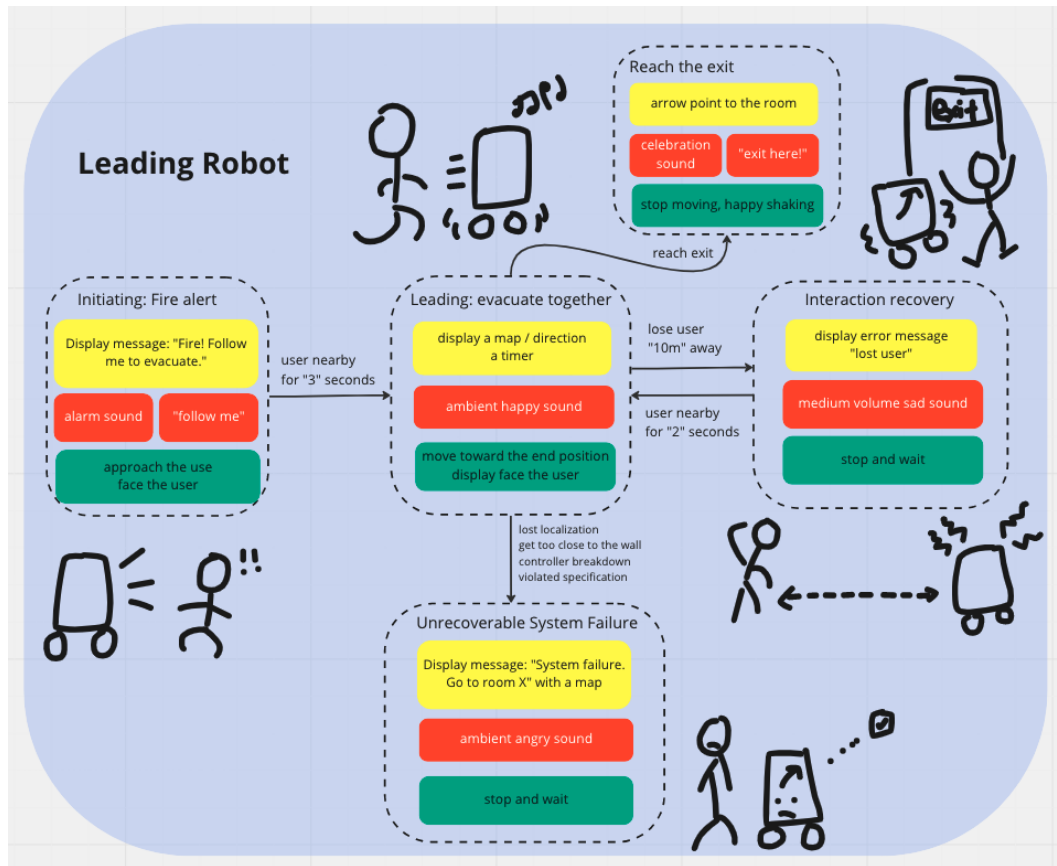
Interaction state machine with sketches.

Results and reflections

Videos of user interactions can be found [here](#) (requires permission to access). We were only able to test the active leader robot within the timeline of one semester. Below are some insights gained from the preliminary interactions.

1. Users turn to researchers when they don't understand what is going on.
2. Users will not understand verbal instructions until the robot gets their attention.
3. Rapid acceleration and deceleration are scary.
4. When the robot was out of sight and not making noise, the users were afraid of being left behind.

Future work

We want to re-run our pilot study with the following condition. Once we have fixed the major issues in the interaction design, we will run a between-subject study of 15 users with the active robot and 15 users with the passive robot. We will analyze quantitative data (percentage successfully evacuated) as well as qualitative data (user interviews).