Trust, Satisfaction and Frustration Measurements During Human-Robot Interaction

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ABSTRACT

Since the beginning of human race, we have always sought ways to develop bonds and create meaningful relationships with others. In these interactions, there are several parameters that determine how strong the bond is. These parameters include among many others, the trust towards the other person. Humanlike robots have been created with basic human to human interaction rules. Trust is a significant factor for the interaction with the robot, if a human trusts a robot, certainly the outcome from the interaction would be different from the case when a human does not trust a robot. For a human to be able to interact with the robot without any concern, trust must be developed between human and robot. In this paper, we introduce a starting point for quantifying Human-Robot interactions in which we measure the level of trust, satisfaction, and frustration. Due to the different interaction modes during the collaborative task, the human trust towards the robot varied due to interaction and experiences. Results based on feedback from 10 persons, when they interacted with a Baxter robot in a real time collaborative task showed the trust, frustration and satisfaction levels changed depending on the Baxter robot operation modes. The most significant delivery mode is the dropping mode in which the trust, frustration and satisfaction levels are significantly different in comparison with other delivery modes.

The results are based on feedback from 10 persons, when they interact with Baxter robot in a real time.

Keywords

Human-Robot Interaction (HRI), Trust, Satisfaction, Frustration, and Baxter Robot.

1. INTRODUCTION

Trust is an essential aspect of human lives. It defines in some sense who we are and how we interact with each other daily. It can be

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Section 2 describes the methodology used to build our experiment. Section 3 is the experimental setup, robotic operation mode and the basic steps. All the results are presented in section 4, also a brief discussion of all the results mentioned in section 4 with conclusions in section 5.

2. METHODOLOGY

In this experiment, a task for robotic home assistance to provide support to people in a daily task were explored. Specifically, the task of passing a bottle of water was examined. We design our

5. CONCLUSION

As the robot become more and more involved in our environment,