Effects of Non-Verbal Cues and Walking Speed on Human Behaviour

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Outline

- Introduction
- Research Questions
  - Hypothesis
- Experiment and Procedure
- Data Collection and Expected Results
- Conclusion

Introduction

- I am working on NAO robot.
- The motivation behind this project is speed, as people find nao robot cute by appearance and its height is also small similar to two-year-old kid, and so its walking speed too. Will people prefer nao robot walking with fast speed?
- Nao also shows the non-verbal behaviors like head movements when detecting objects and body posture which indicates emotions.

Research Questions

- My study is confirmatory research, which will testify the hypothesis.
- **Q 1**: What is effect of walking speed of the nao robot on people's perspective towards it?
  - Which robot will people like, the one who shows non-verbal behaviour but has slow speed or the one who does not show non-verbal behaviour but has fast speed?
  - Will people like the robot showing non-verbal cues and emotions or find it unnecessary, especially when they are in hurry.
- **Q 2**: What is effect of emotions on people's mood ?
  - Hypothesis: Humans may find it humorous, when robot stands and thinks. The path selection is pretty easy for people. When it finds robot standing couple of seconds and thinking about it, it may seem funny to people. But when people are in hurry, then people might get annoyed with it.
  - When two-year-old kid collides with obstacle, adults take care of them, will people show this anthropomorphic behaviour towards robot also, or instead get annoyed with it.
- **Q 3**: Do head movements will lead the people to think that robot is more intelligent, or have more human like behavior and feel more familiar with it?
  - Will people find the robot showing head movements and emotions as more expressive robot or more confident robot?

Experiment

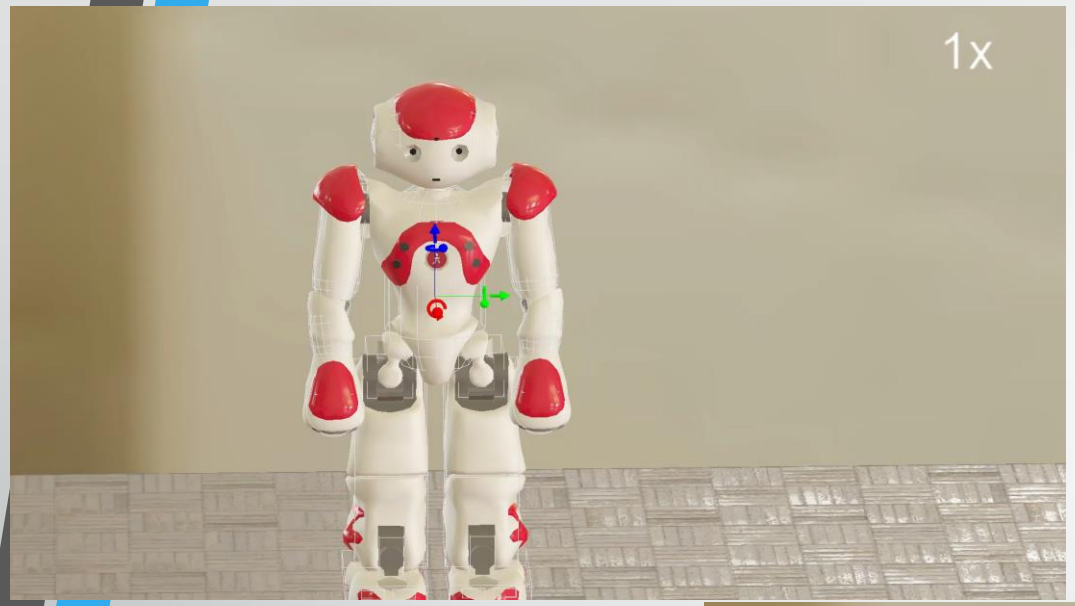
- Nao starts walking from one end to another end. In the path there are many obstacles placed. It performs head movements when it detects the object.
- It is mixed factorial design of 2*2.
- Independent variables : Head movements and body posture, speed
- Fast speed : expresses happiness, sadness
- Slow speed : expresses happiness, confused

With head movements and postures	**Without** head movements or postures
Fast walking speed of robot	**Slow** walking speed of robot

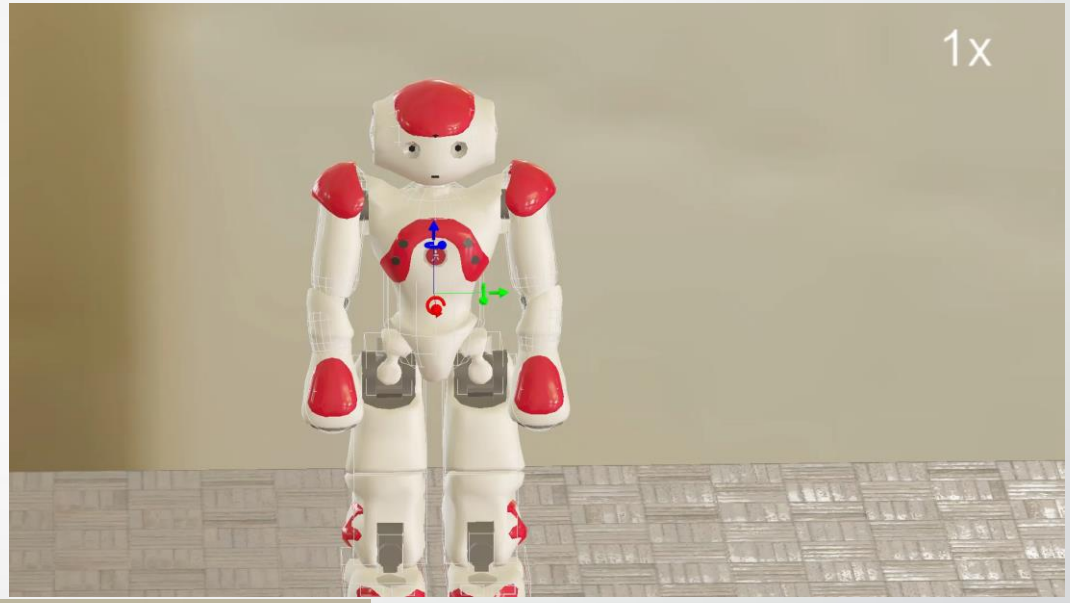
Procedure

- The walking speed variable should be **within participant**, where as, head movement and posture is **between participant**.
- Each participant will have to watch 2 simulation videos.
- One group of participants will watch nao showing head movements and body posture with both fast and slow speed. Apparently, another group of participants will watch nao robot not performing any non-verbal behaviour with fast and slow speed.

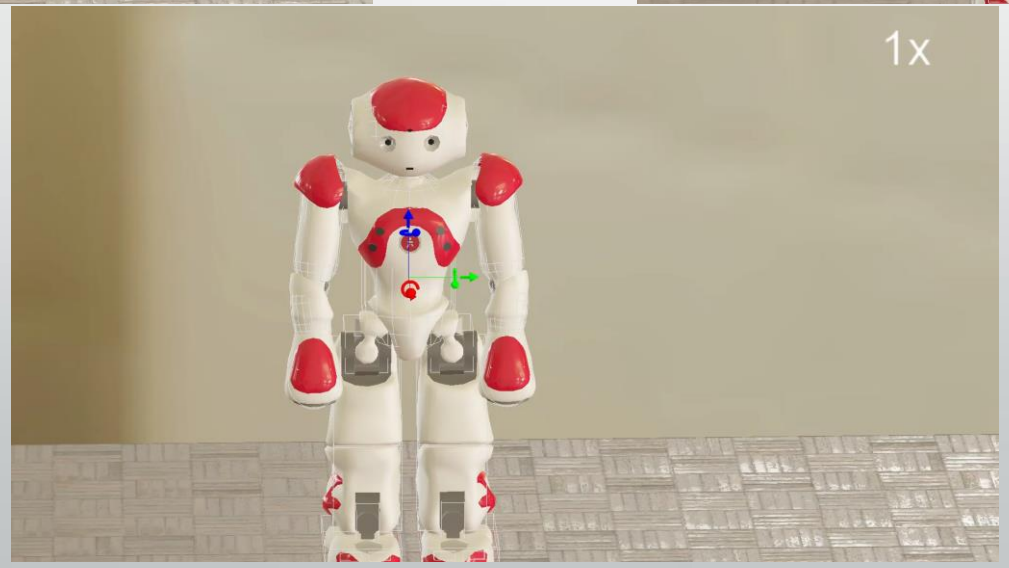
Happy Emotion



Sad Emotion



Confused Emotion



Data Collection and Expected Results

- The Participants need to feel up the questionnaires after watching the simulation videos. The God Speed Questionnaire should be used to measure the perceived intelligence, anthropomorphism, and likability towards the robot.
- The expected results are people might prefer robot with fast speed, and robot expressing head movements and postures indicating emotions.

Conclusion

I learnt about importance of non-verbal behavior in robots. Humans don't even notice this cues and unconsciously perform it, but if robot don't not perform this non-verbal cues then it might be perceived as socially inappropriate behaviour. Another thing is head movement, when robot does not have facial features like typical mouth, nose, or eyes, still it can direct the humans attention by head movement. The mood of people can also be changed by seeing body postures of robot indicating emotions.

Thank You