R3D3: 'Welcome' – *Your New Robot Overlord*

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Client Information

The HMI lab does research into multimodal interaction. It is a multidisciplinary group in which computer science meets social science to investigate and design and evaluate novel forms of human-computer interaction.

Project (200 words)

In the COMMIT project R3D3 (Rolling Receptionist Robot with Double Dutch Dialogue) that started in February 2016 the aim is to develop a mobile (Rolling) Receptionist Robot that can have an intelligent dialogue with visitors of a shop, museum or office building. R3D3 is able to interact with visitors through Double Dutch Dialogue, namely by speaking through the robot and through a virtual human. Its goal is to engage visitors in adaptive and personalised interaction, for example, based on their age and needs.

Concept art for R3D3.

HMI collaborates with the department of Robotics and Mechatronics at the UT for the implementation of the robot and with VicarVision for the computer vision, using their FaceReader technology. R3D3 will be placed at the Dutch Police Academy in Apeldoorn, the Nemo Science Center in Amsterdam and in various shops across the Netherlands. Currently, the robot platform and the virtual human are being developed. A first prototype of R3D3 is planned to be delivered in September 2016. In a previous project, we already developed a robot that has many of the capabilities needed for the R3D3 project: the FROG (Fun Robotic Outdoor Guide). In case of an unexpected delay, FROG can be used as a stand-in robot for prototyping during the CreaTe GP.
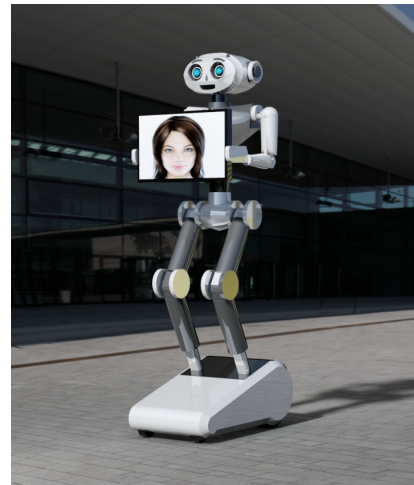
Project

In this project you can come with your own ideas for the design and function of such a receptionist robot. The DesignLab can act as your lab. There are many possible research directions: developing the interaction with the robot and the virtual human, expanding the capabilities of the computer vision software, working on automated speech recognition, investigating the navigation capabilities, integrating available contextual information such as the timetable and current location (iBeacons) of staff members and availability of rooms into the dialogue to provide visitors with helpful information.

Practical Aspects

R3D3 will be controlled through a modular architecture developed at HMI to control virtual humans and robots. For recognition of users, it will be equipped with FaceReader computer vision software which can detect the age, gender and emotions of users. R3D3 will have a modifiable height and will have capabilities to navigate and move in different environments. It also has automated speech recognition and text-to-speech.