

Thesis: Design and Development of a Robot Head



Example of a Human-Robot-Interaction: Nomi the assistant from NIO ES8

Motivation

Apple's Siri, Google's Assistant and Microsoft's Cortana have found their way in our cars supporting us by providing navigation advice, travel updates or connecting the car to the broader internet of things (IoT). Nevertheless, the benefits of these personal voice assistants are not limited to that scope. Current research investigates the role of personal assistants in form of avatars or embodied robots in cars. These technologies utilize and unify essential human characteristics. They personalize the car with a human-like mind, allowing the driver to communicate with the car through natural language or enabling an affective interaction by expressing emotion. Humanizing technology is referred to as anthropomorphism. In an early stage research yields, that anthropomorphism in the context of automotive can increase driving safety, trust towards the car and minimize the effect of fatigue.

Project Description

In this Project, we want to develop a personal assistant called iCo (intelligent Co-Driver) for truck drivers. iCo should motivate and support the driver. Therefore, we need to know how iCo should look like: Which properties does he need? How do these properties look like? What expects a truck driver from this companion?

Within the scope of this thesis, an initial prototype of a robot head shall be developed. The robot head includes display, neck mechanism and head shall. For the neck mechanism, a serial manipulator, with two degrees of freedom (head pan and head tilt) should be built. Furthermore, the head shall be designed for 3D printing.

If you are interested please forward your full application (incl. CV, certificates and transcripts of records) to: Jana Fank, fank@ftm.mw.tum.de

Possible Requirements

- Creativity
- High degree of systematic and autonomous method of working
- Programming skills (e.g. ROS, Python, C/ C++, ...)