AR interaction with IoT
/ Graduation project

Short Problem Statement

How can we unlock the potential of Microsoft HoloLens to maximize understanding and insight through interaction with complex data from the Internet of Things?

Introduction

Augmented Reality (AR) provides excellent opportunities to visualize data in innovative ways and use non-standard interaction patterns to increase insight into complex data, such as data generated by Internet of Things (IoT) sensors. At the 5G lab, a platform has been developed to gather and combine data from IoT devices, such as temperature sensors. However, there is currently no suitable way to present these data to a user in a way that unlocks the potential of AR to maximize understanding and insight into the data.

Research question

This project concerns itself with presenting and interacting with complex data using the Microsoft HoloLens. The project is intended to answer the following questions:

- What is the best way to interact with sensor data in 3D augmented reality?
    - What are the opportunities and limitations that are specific to AR?
    - How can we maximize the effectiveness of animations and data playbacks?
    - How can we draw the attention of the user to interesting areas in a 3D AR setting?
- What role can gestures play in interacting with the visualization?
    - What are natural gestures for the actions a user would want to perform?
    - Can we avoid the use of standard interaction elements (buttons, sliders, checkboxes, etc) in a complex visualization setting?

Themes: Augmented reality / sensor technology / 5G / interaction design / data visualization	**Primary Client**: DSH lab, 5Groningen
Project requirements: Affinity with AR/VR, interest in 3D visualization, programming experience	**Contact**: Harmen de Weerd (h.a.de.weerd@pl.hanze.nl)
5G context: This project is part of the 5G innovation lab at EnTranCe. 5G technology provides the reliability, bandwidth, latency, and priority needed to make practical application of this project a success.	