Utilizing AR for guidance and IR tracking for quality assurance in manual assembly

About Project Smarta Fabriker: Digitalization and its connection to sustainable production is identified as a key enabler for increasing the number of jobs in Swedish industry. The purpose of Project Smarta Fabriker is to increase the attractiveness of technology and careers in industrial companies, and to spread knowledge about industrial digitalization. During the spring of 2017 a state-of-the-art demonstrator of a smart factory was developed by 80 students in collaboration with over 50 companies. The demonstrator is currently used for training students as well as employees of industrial companies. For 2018 this demonstrator is to be further developed implementing a variety of digital manufacturing concepts where Utilizing AR for guidance and IR tracking for quality assurance in manual assembly is one of the central themes. To learn more about the project and previous theses, visit www.smartafabriker.se (in Swedish).

Utilizing AR for guidance and IR tracking for quality assurance in manual assembly – Augmented reality (AR) is a technology to enhance the real world with computer-generated perceptual information. IR tracking refers to a technique where a fixed mounted camera-system is tracking infrared LEDs attached to a moving object. If line-of-sight is maintained any object can be tracked within millimeter range.

Tasks

- Implement a system integration between Hololens (AR) and Nexonar (IR tracking).
- Evaluate the quality yield in a manufacturing assembly context.
- Evaluate the time efficiency in a manufacturing assembly context.
- A manufacturing assembly context refers to guiding, tracking and job verification in material picking and manual assembly.

Means and location

This thesis is performed in collaboration with Virtual Manufacturing Sweden AB which will provide industrial support and supervision. Thesis students will have access to workplaces at Virtual Manufacturing.

Conduction and requirements

This thesis work needs to be conducted by two students where at least one should be fluent in Swedish. Preferably, we are looking for students with background in computer science and production engineering. The time period is January to May 2019.
Contact
For questions concerning Project Smarta Fabriker contact Johannes Persson, 0708 58 19 13, johannes.persson@gtc.com. For specific questions concerning the topic of the thesis, contact William Falkenström, 0721 89 97 50 william.falkenstrom@virtual.se, at Virtual Manufacturing.

Interviews are held continuously. To apply, send your CV and a cover letter to contact William Falkenström, 0721 89 97 50 william.falkenstrom@virtual.se as soon as possible, but no later than November 30th, 2017.