



Undergraduate Project 2017-2018

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Project title: Production Planning and Optimisation of High Speed Shoe Factory

Background

Manufacturing is a key part of the economy. To remain competitive or become even more so, automation that supports innovation is also essential for the manufacturing sector. Advanced ICT supported manufacturing is currently gaining a lot of traction with initiatives such as Industry 4.0 in Germany, Factory of the Future in Italy, the High Value Manufacturing Catapult the UK etc. Part of this development is advanced coordination of manufacturing allowing for increased flexibility and reduced costs.

EU H2020 “vF Interoperation supporting buSiness innovaTion” (FIRST, <https://www.h2020first.eu/first/bin/view/Main/>) aims to provide new technology and methodologies to describe manufacturing assets; to compose and integrate existing services into collaborative virtual manufacturing processes; and to deal with evolution of changes. Under EU H2020 FIRST project, we propose a final year project, which is to develop IT application experiments that address advanced added value production process and systems, which incorporate industry 4.0 concepts.

Project description

The project is in the area of system design and process modelling. One of components of high speed shoe factory, i.e. (big) data analytics for production planning, needs to be reviewed. The final thesis provides an overview of related technologies, platform, and standards of implementation of (big) data analytics for production planning and optimisation for high speed shoe factory/smart factory.

Project aims

- Understanding of high speed shoe factory/smart factory concept
- Critical reviewing of (big) data analytics for production planning and optimisation
- Providing overview of (big) data analytics for production planning and optimisation of a high speed shoe factory/smart factory
- Designing a high speed shoe factory system model/smart factory using new data analytics for production planning and optimisation

Artefact

- Research report
- Overview of (big) data analytics for production of a high speed shoe factory/smart factory

- Design of a high speed shoe factory/smart factory system model using new data analytics for production planning and optimisation

Evaluation

- Are related data analytics for production planning and optimisation approaches in a high speed shoe factory/smart factory identified and compared?

References:

- [1] http://icams.ro/icamsresurse/2016/proceedings/VI_Economics_04.pdf
- [2] <https://www.economist.com/news/business/21714394-making-trainers-robots-and-3d-printers-adidass-high-tech-factory-brings-production-back>
- [3] <http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=6011690>
- [4] <http://ieeexplore.ieee.org/document/1458327/>