

Automation-Sim

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IVO presentation forum (online)

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INDUSTRIAL 4.0

Motivations

- Industrial 4.0 refers to the intelligent networking of machines and processes for industry with the help of information and communication technology.
- Components
 - ICT technology: Hardware, Software
 - Workforce – Academia, Industries
 - Design & Manufacturing
- Applications
 - Domain: Sports, Production, Logistics, Retails
 - Platform: AR, VR, Simulation, Serious games
 - Application cases: Process evaluation and planning, education, training, safety and health.



INDUSTRIAL 4.0

Motivations

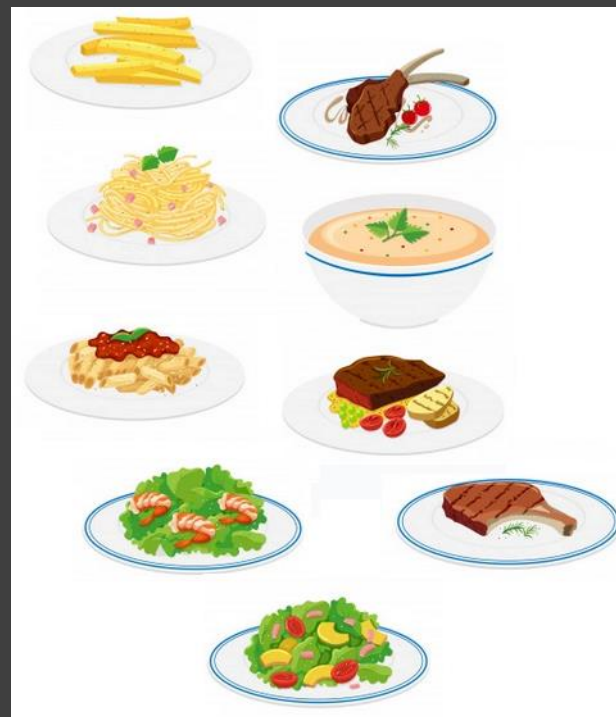
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Ingredients

Chef

Dishes

Customer



Automation-Sim

- There is a need to bridge the gap between industries and universities in terms of the workforce skills for Industrial 4.0. Here the focus are on virtual environment constructions and simulations.
 - Opensource software: Blender, Unity, Unreal, ROS, etc.
 - Asset creations: Modeling of sensors and their functionalities.
 - Environment construction: understanding of working spaces and operations.
 - Simulation: process analysis and visualization



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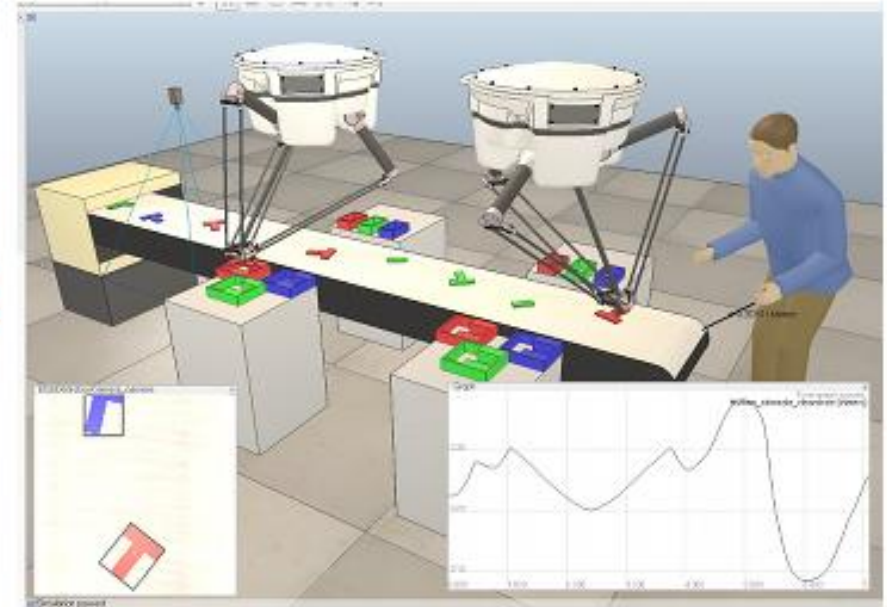
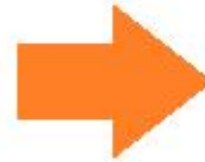


Resources

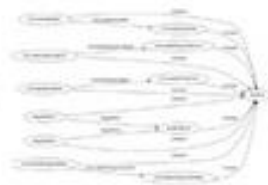
Expertise

Products

End-users



credit: V-REP (Virtual Robot Experimentation Platform)



Plumbing

+



Tools

+

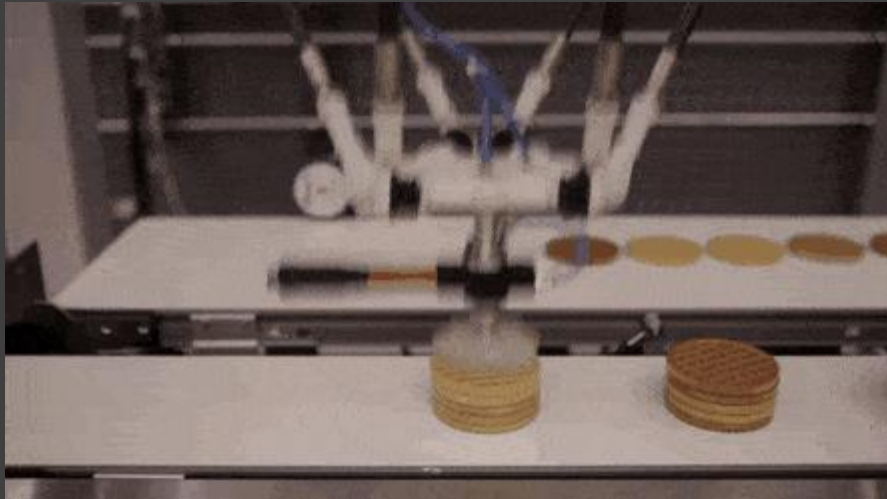


Capabilities

credit: <https://www.ros.org/about-ros/>

Automation-Sim

- Automation-sim for process analysis
 - Simulate before actual implementation.
 - Facilitate process study, process management and planning.
 - Experiment with various configurations, throughput analysis, cost analysis.



Automation-Sim: Call for project team members

Purpose:

The purpose of this project is to develop a collection of shared assets that supports the construction of various simulations of automation workflow such as activities in production lines, manufacturing robots, and factory automation. By analyzing outcomes in the simulated environment, we could gain a good understanding of how the actual system functions in the real world. The simulated environment could be employed for process management, predictive analysis, and process improvement.

Who are potential team members:

- Universities that produces students in Mechatronic, AR, VR, Serious games.
- Local SMEs whom the end products could be useful for their businesses.
- Government units who are looking into Industry 4.0

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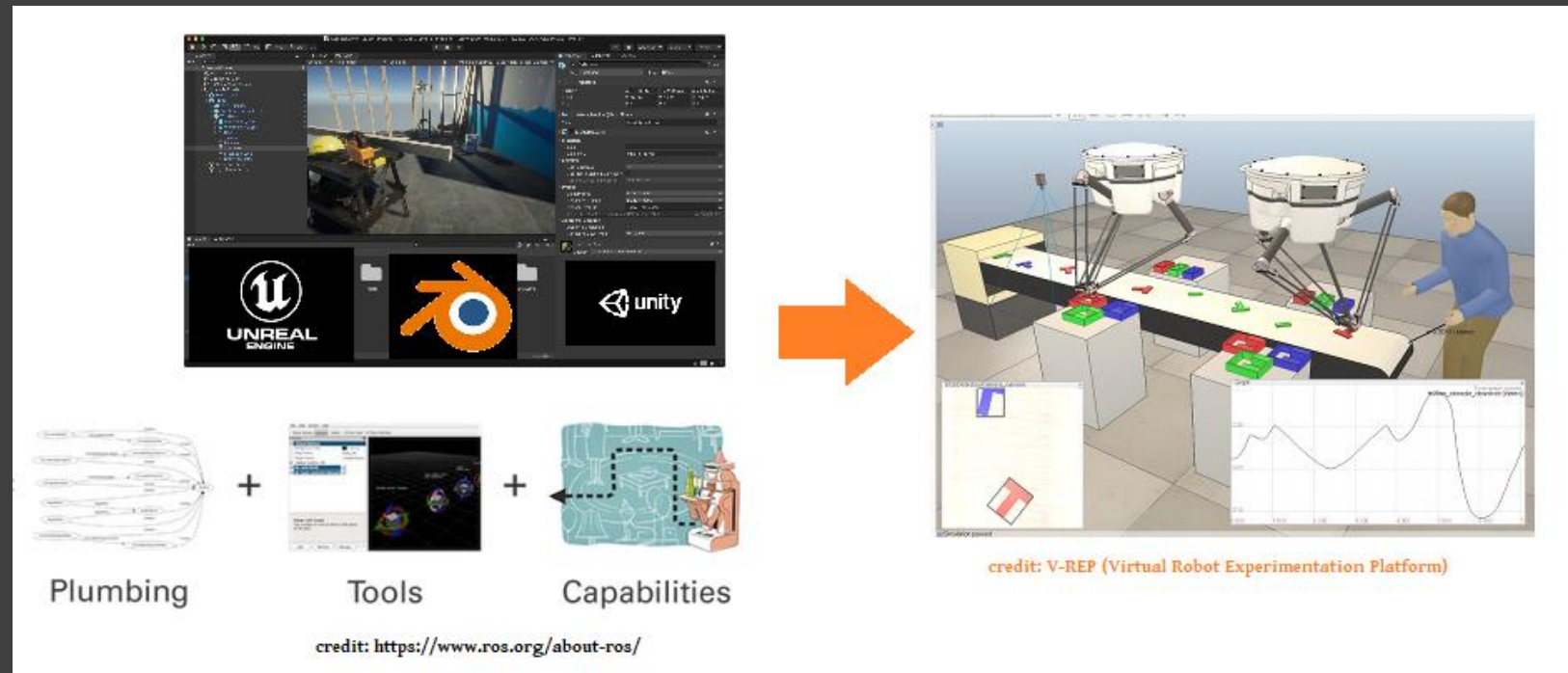
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Automation-Sim: Call for project team members

Objectives:

- To develop digital assets for the desired automation process.
- To develop a virtual environment for the desired automation process.
- To create a shared platform for depositing 3D assets and code among project members.
- To evaluate, document, and publish the findings.



Automation-Sim

Team members

- Universiti Teknologi Brunei
- Institute of Brunei Technical Education (IBTE)
- Authority for Info-communications Technology Industry (AITI, Brunei)

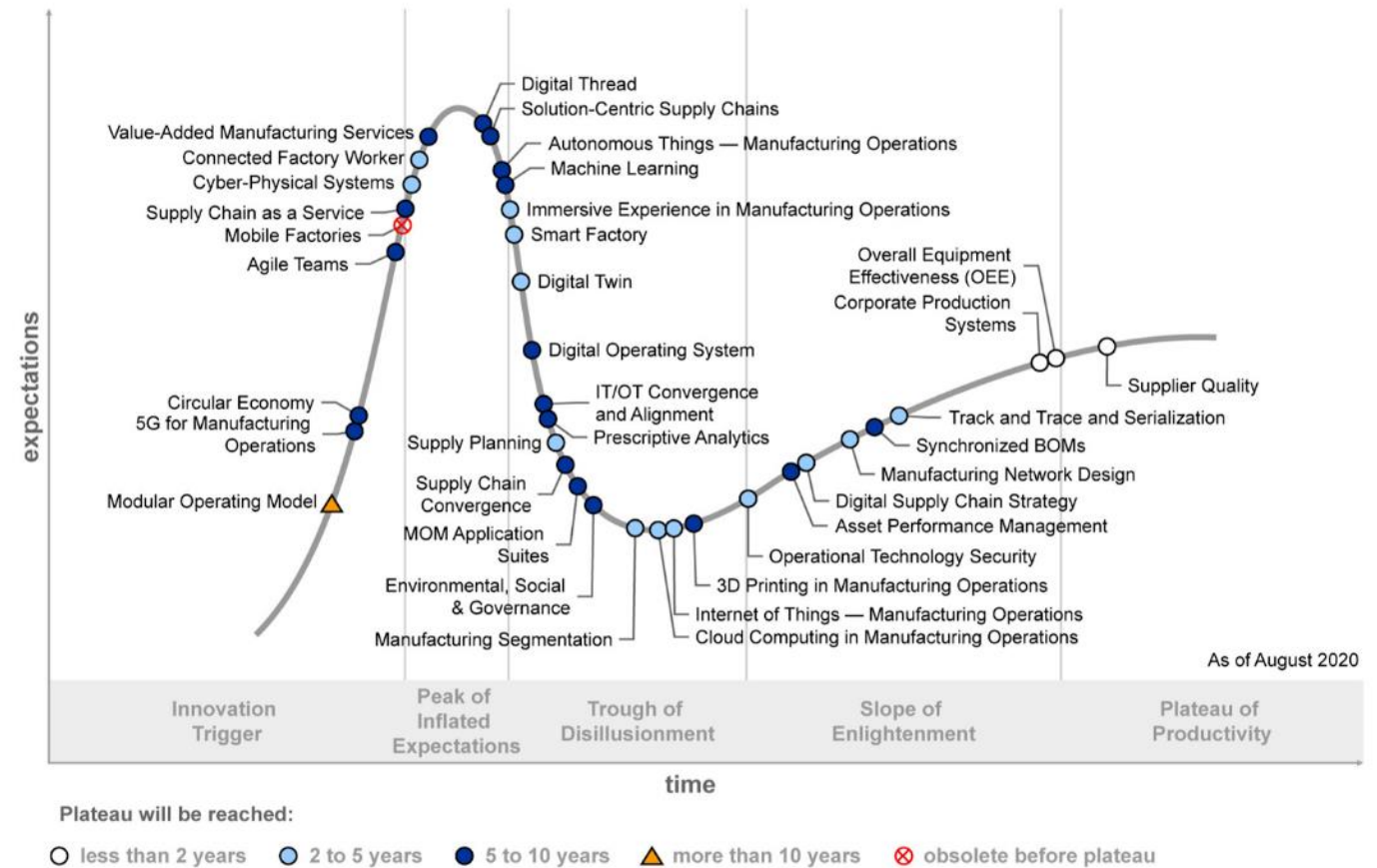
If you are interested to join the team, please email

span.amnuaisuk@gmail.com

References

- <https://unity.com/>
- <https://www.unrealengine.com/en-US/>
- <https://www.blender.org/>
- <https://www.ros.org/>
- <https://michiganaiblog.github.io/2019/02/20/Personal-robots-why-is-perception-important/>

Hype Cycle for Manufacturing Operations Strategy, 2020



Source: Gartner
ID: 450325