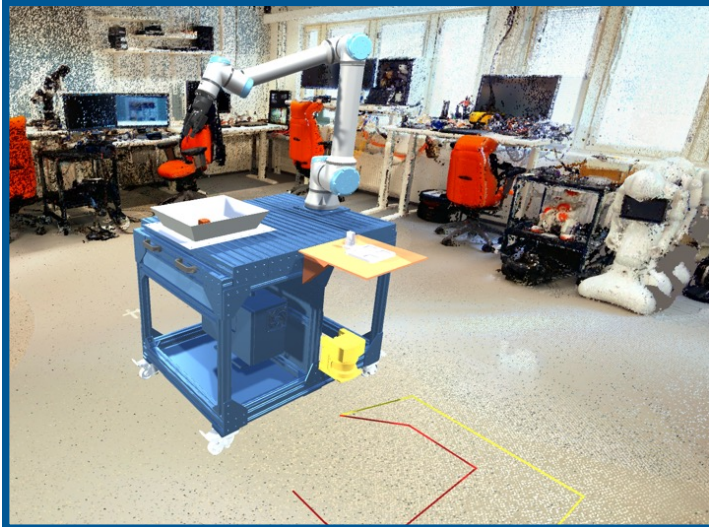# VTT

TREDIH

Digital twin with Physics of a Robot cell with Projected AR of Dynamic safety zones in a Pick'n Place task context

Pick'n Place task

Wrist camera **locates object**, **pose** information send to **digital twin**, and robot performs **picking task**. Camera **locates jig-plate** and **places object** to a free place. When no objects present, robot **picks jig-plate** and flips object back to vat

Digital twin

Server in **Unity**, robot cell as a client. Point cloud with **Trimble X7**, robot cell from **CAD**. Environment in Unity with **C#**

Physics

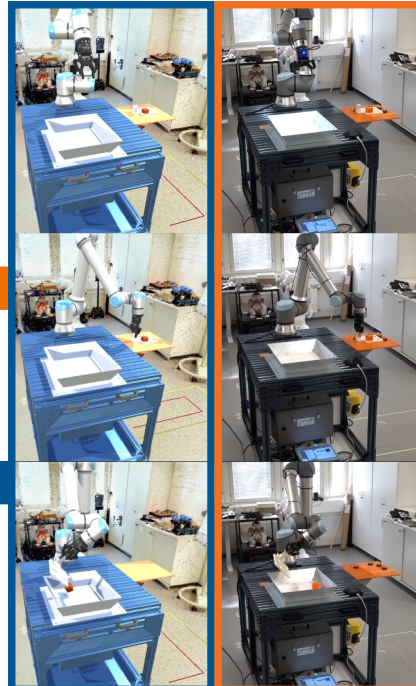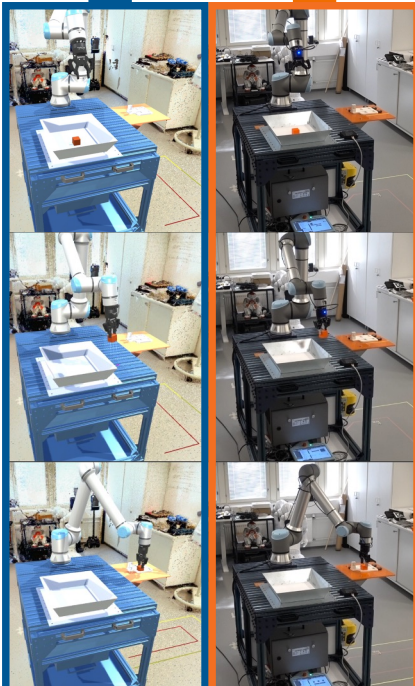**AGX for Dynamics** is a SDK for modelling and simulation of mechanical systems

Dynamic safety areas

2 separate areas configured, which change according to robot

Robot cell

UR10e with Robotiq **wrist camera**

Projected AR

Epson L630SU projects warning and detection areas of **SICK S30A** from Unity. Areas are parsed from scanner's XML configuration

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beyond the obvious