

AUTOMATION TECHNOLOGY

MOBBOT

Trajectoire
Start / Stop

Projection
Start / Stop

Reset

Control
vitesse

Béton
Start / Stop

Activateur +

Power ON

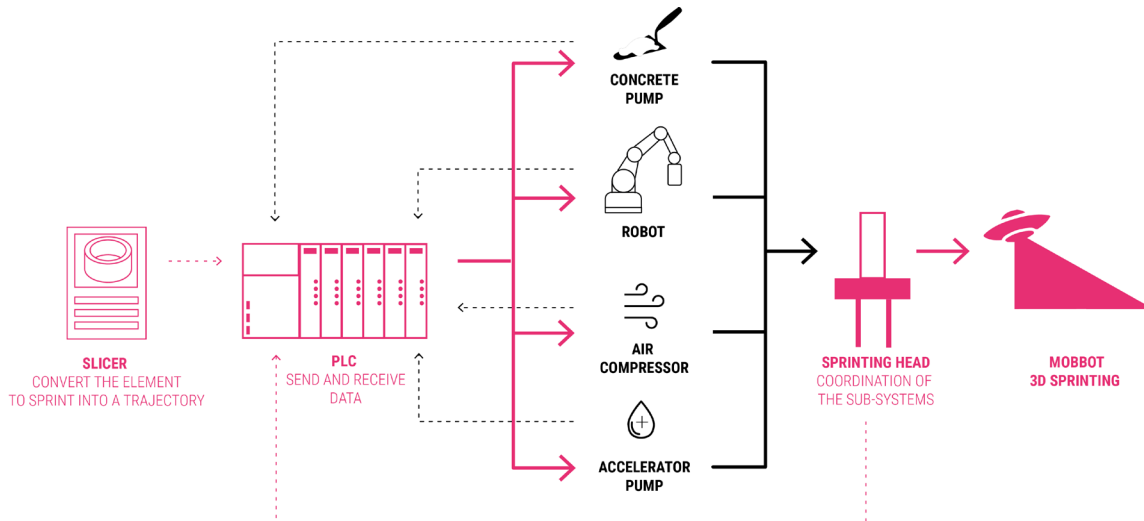


Image 1: diagram of the plc and sub-systems

NEW AUTOMATION TECHNOLOGY

Our automation system uses a Beckhoff industrial embedded computer which ensures the Programmable Logic Controller (PLC) function. We work with the program WorkVisual for the controller configuration of the robot and TwinCat 3 for the automation. The code consists of a graphical part in FBD language and a textual part in structured text language. The Human Machine Interface (HMI) has been developed to assist the use of the system for the operators.

SECURITY

System safety is integrated in the automation system. It complies the standards and directives for machines, robot and sprayed concrete. We have placed sensors at each input and output of the subsystems. Safety doors, switches and buttons are installed to ensure that the printing area is only accessible under certain conditions. The robot is completely controlled by the PLC via the mxautomation library. When a part or the entire system does not comply with the norms, the system stops automatically and warns the operator of the error.

AUTOMATED INFORMATION SYSTEM

The PLC is in constant communication with the subsystems. It not only synchronizes the on-off control of the subsystems, but also receives feedback signals on their status.

All printing data are stored at the end of each sprinting session. We use these data to make analysis using artificial intelligence (AI) algorithms. The printing parameters (air, activator, concrete) are thus continuously improved.

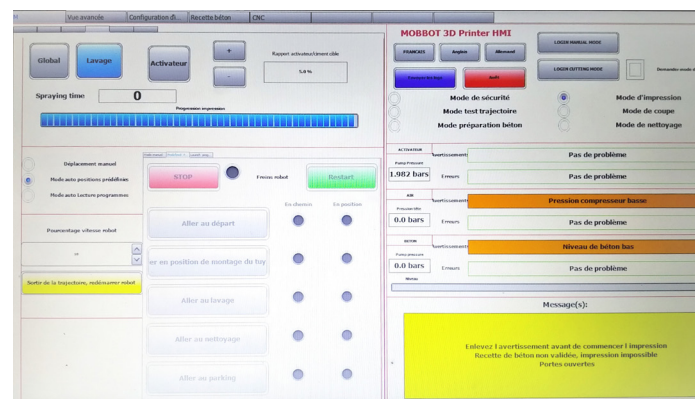


Image 2: HMI interface