PLC+ Challenge 2019 Croatia SIM(P)ATIC

PROJECT TASK

TEAM KONTI

This project solution was made for SIM(P)ATIC PLC+ extra Challenge 2019, the region finale of the competition, by a team of students under *TEAM KONTI* pseudonim.

The problem of the extra challenge was to make an optimised algorithm which will load and unload a cargo ship with the minimum amount of time needed,and with the lowest number of manipulations, this time with the possibility of stacking the containers in three dimensions(one on top of the other), as opposed to the inital problem of stacking the containers only side by side. The maximum of three ships had to be able to run through the bay one after the other without reinitializing the algorithm.

The cargo bay consists of three different areas:

- Bay_1 on the left side of the ship
- Bay_2 on the right side of the ship
- Bay_0 which represents the cargo ship itself

Each bay consists of 144 spaces divided in three levels of 4*12 grid.

The process had to be able to run in automatic, semi-automatic or manual mode, allowing the operator to be fully in the control of the process in any given moment.

The task had to be carried out using a Siemens S7-1500 series of PLC, and programmed via TIA Portal, using one of the languages such as: LAD, FBD, STL, SCL, or Graph.

The final solution had to be simulated, and the simulation had to be carried out on a HMI device in such way that the layout of containers in bays is easy to understand and easy to use.

Our team used SCL as the base language for our project solution, and for controlling the HMI program Visual basic scripts were implemented.

Default HMI login credentials:
User: Administrator
Password: 111111

TEAM KONTI consists of three students two of which are students of FER, and a student collegue from FSB, University of Zagreb, Republic of Croatia.

Project started on April 30th 2019. and has been finished May 13th 2019.