Industrial Automation Project 2 /4
Vacuum -Held Handling Device

Status: Available

Group Members:

Sponsor(s): School of Mechatronic Systems Engineering, SFU

Supervisor(s): Amr Marzouk, Ph.D., P.Eng., Lecturer, Mechatronic Systems Engineering
Taha Al-Khudairi, M.A.Sc., P.Eng., Lab. Manager, Mechatronics Systems Engineering

Project Description

IMPORTANT: Students taking this project will need to apply for the Siemens Mechatronic Systems Certification Program (SMSCP). The program is a collaboration between SFU's School of Mechatronic Systems Engineering and Siemens™.

Successful completion of two training courses on Project management and Technical Design will result in a certificate of participation from SFU Mechatronics. The courses will be conducted during weekly meetings with the project supervisors.

Additional fees will be required to enrol in SMSCP ($1250/student; Siemens exam fee of $250/person is extra). For more information regarding prerequisites, certifications and other details, please contact the SMSCP program coordinator Dr. Amr Marzouk amm10@sfu.ca

Background
Since the beginning of the first industrial revolution in 1700s, new technologies have been constantly developed to improve processes and production. The vision for Industry 4.0 (i.e. the fourth industrial revolution) includes establishing machine to machine (m2m) with eventual human supervision, and control.

Scope
This project requires the team to design, assemble and program a fully automated system using an industrial kit (MAP-202 - Vacuum-held handling device). The system will be integrated with a FESTO MPS production system.

Required Skills
- Good communication skills (oral and written).
- Knowledge of Control systems.
- Knowledge of Sensors and Actuators.
- Knowledge of Digital Logic Fundamentals.
- Knowledge of Electrical and Electronic circuits.
- Knowledge of Computer Aided Design (CAD).

Great to Have Skills
- Successfully completion of SMSCP Level-1, Level-2 (not mandatory requirements).
- Familiar with Siemens PLCs, and/or PLC programming languages.

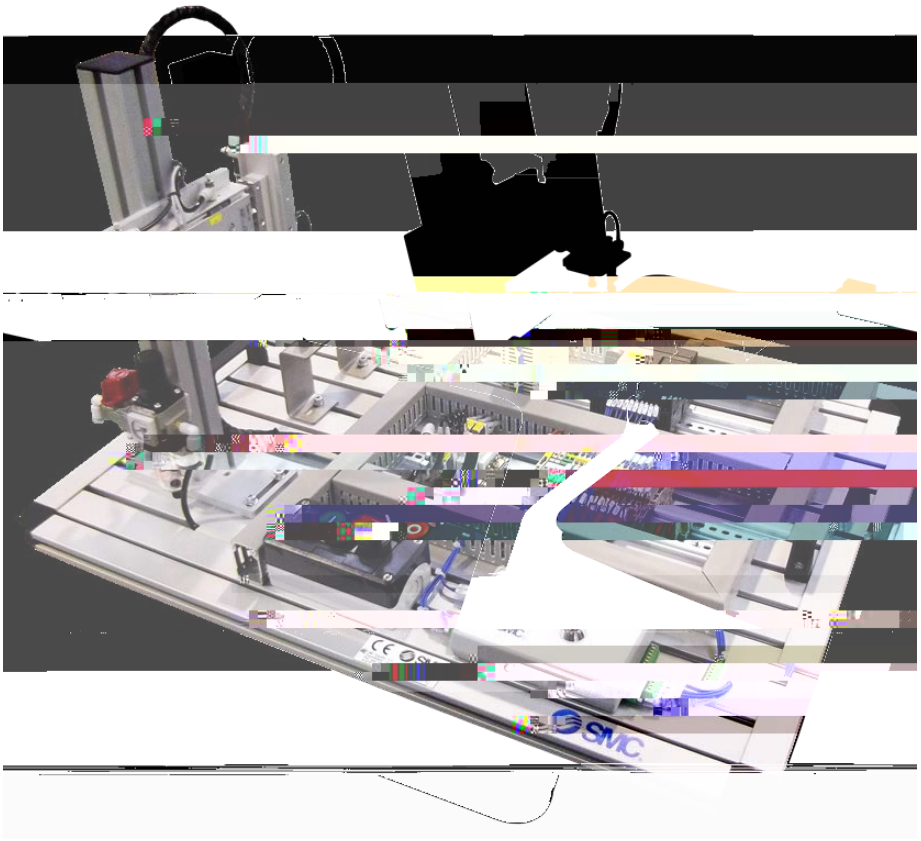

Figure 1: An example assembly of MAP-202 - Vacuum-held handling device[1]

Figure 2: FESTO MPS Automated Production System[2]

[1] https://www.smctraining.com/en/webpage/indexpage/413
[2] https://ip.festodidactic.com/InfoPortal/MPS/Overview/EN/index.html