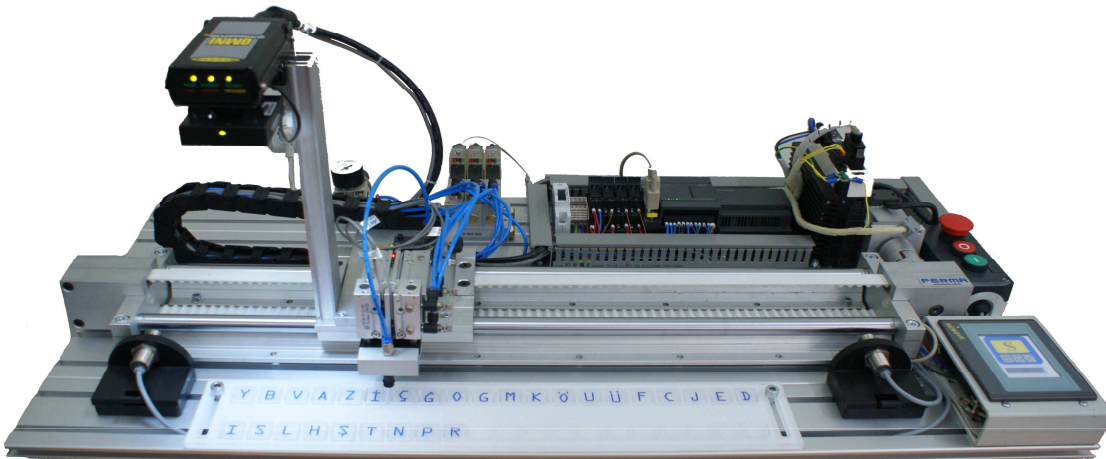


## SERVOMOTOR TRAINING SET WITH INTEGRATED IMAGE PROCESSING (FC-SP)



The aim of the set is teaching the servomotor, PLC, camera and touchscreen more funny. Students can write their names, or their school names while learning the industrial automatin.

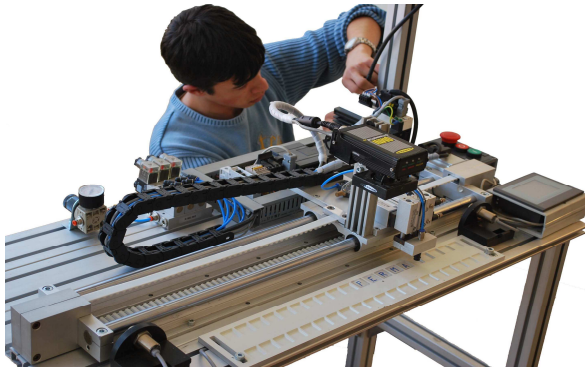
The system consists of:

- Servomotor and servo drive
- Belt drive
- PLC, Siemens S7-200 ( or user defined trade marks)
- Industrial camera
- Touch screen
- Pneumatic valves & cylinders
- Vacuum generator and suction cup
- Inductive sensors
- Flexiglass letters
- Emergency stop, Start-Stop button modul
- Software of PLC & Touchscreen
- Documentation

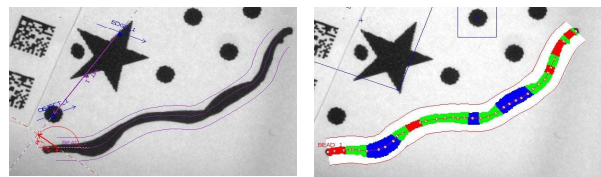


The use of cameras instead of sensors is the new technology in object recognition. Objects are scanned through an intelligent camera. The camera is programmable and does the image processing by itself. Here in this training set, the camera recognises (“reads”) the letters at the first row and sends the data to the PLC in ASCII format. The PLC takes the positions of each letter in memory. The user types on the touchscreen what to “write” on the second row.

The package needs to be supplied with compressed air for the pneumatic part. A silent air compressor can be ordered additionally.



Because of the industrial camera, students can do experiments for image processing of other parts, even they can work on real industrial parts, as this camera is already being used in industrial quality control, dimension measuring, printed text control etc.



User friendly camera software allows students to perform vision process for all kind of materials, shapes, pictures, texts.

Available experiments, which can be applied with the sets are;

- Basic programming and understanding of an automation process flow chart
- Learning the communication of a PLC with servo drive, touchscreen and camera
- Servomotor and servo drive characteristics
- Position Torque and speed control with servomotor
- PWM control of servo drive
- Servomotor encoders and signal reading
- Vacuum generators from pressurised air with venturi principle
- Arrange the related solenoid valves according to the present scenario
- Setup and piping of pressurised air systems, pipes can be installed easily by quick connections. Teachers can change the hoses, to teach the students fault detection.
- Understanding the sensor characteristics, as
  - Incremental encoder
  - Inductive sensor
  - Proximity sensor
  - Mechanical pressure manometer