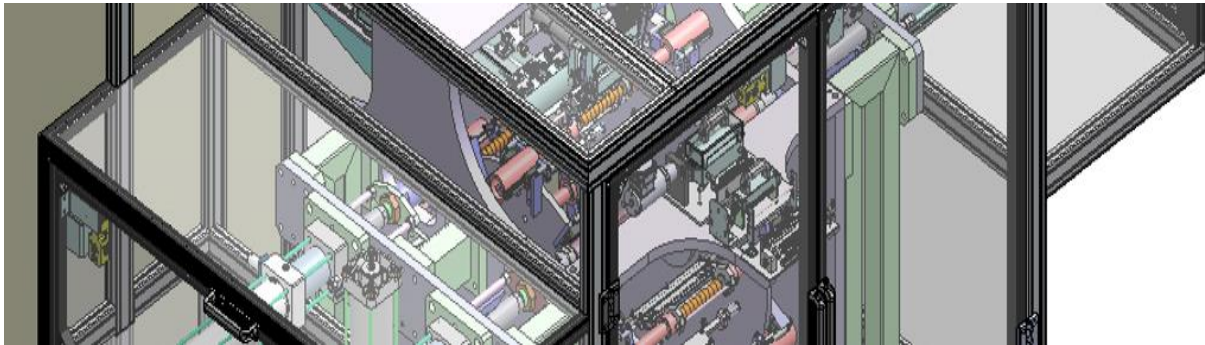


Research program

SINGLE-PURPOSE MACHINERY AND EQUIPMENT

Research and development of new structures of single-purpose machines and equipment with emphasis on the usability of research results in practice. Theoretical research using modeling and simulations and experimental development with the aim to find new structures of machines and equipment for selected industries (e.g. automotive, textile, electrical, mining, etc.) using controlled drives and mechatronic elements. Research and development of single-purpose devices for automatic handling of textile intermediates using robots and manipulators.



Research activities

RESEARCH AND DEVELOPMENT OF NEWS STRUCTURES CONCERNING SINGLE-PURPOSE MACHINES WITH THE APPLICATION OF CONTROLLED DRIVES AND MECHATRONIC ELEMENTS

- ▶ Research and development of automatic machine for winding self-supporting bottom bobbins for industrial sewing machines.
- ▶ Development of automatic devices for sampling of biomass and solid fuels from the running belt surface.
- ▶ Development of new structures of machines enabling a higher degree of process automation (e.g. development of input equipment for the line for production of hybrid tapes, development of creasing machine etc.
- ▶ Development of dedicated measuring devices (eg measuring device for determining the thickness of the honeycomb, etc.).
- ▶ Simulation of machine behavior using assembled mathematical models (strength, deformation and stress analyzes, analyzes and optimization in the field of mechanisms, analysis of physical fields, etc.).
- ▶ Experimental support of machine design (verification of mathematical models using experiments, measurement of selected force and kinematic quantities by contact and non-contact methods, analysis of high-speed processes using a speed camera etc.)

RESEARCH, DEVELOPMENT AND CONSTRUCTION OF SINGLE-PURPOSE DEVICES FOR AUTOMATIC HANDLING OF TEXTILE PRODUCTS

- ▶ Research and development of machines for automatic manipulation with lower bobbins in sewing machines.
- ▶ Research and development of automatic robotic textile handling equipment.
- ▶ Research and development of robotic skin handling equipment for rabbit skins.