3D Crane

Laboratory model of industrial gantry crane controlled from PC

cart

2d measuring unit

bridge driving belt

cart driving belt

bridge

load
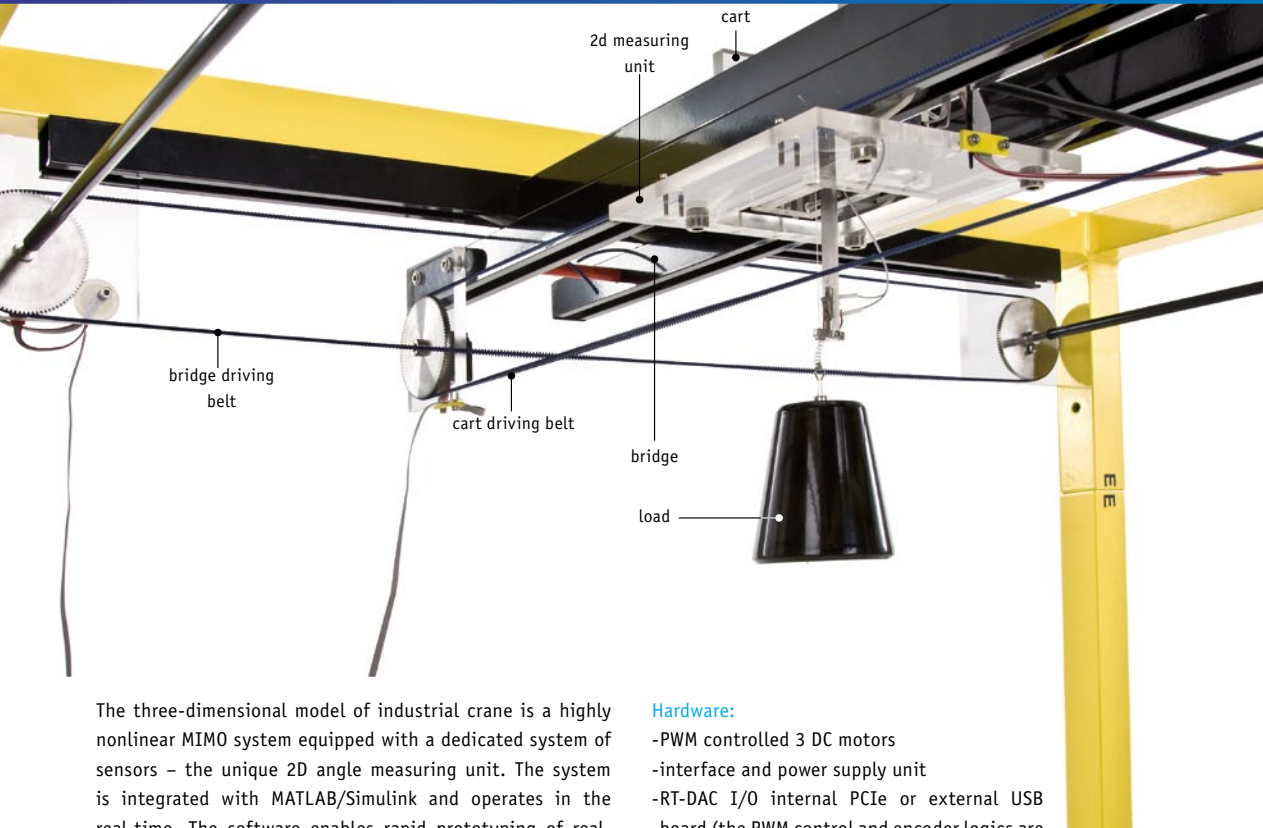
The three-dimensional model of industrial crane is a highly nonlinear MIMO system equipped with a dedicated system of sensors – the unique 2D angle measuring unit. The system is integrated with MATLAB/Simulink and operates in the real-time. The software enables rapid prototyping of real-time control algorithms. The C-code writing is not required. 3D Crane is delivered with the library of basic controllers. The model has three controlling DC motors and five angular position measuring encoders. An example of the 3D P controller is shown in the left figure.

The figure on the right shows the effect of the P control stabilized motion.

Hardware:
- PWM controlled 3 DC motors
- interface and power supply unit
- RT-DAC I/O internal PCIe or external USB board (the PWM control and encoder logics are stored in a XILINX chip) or the single board RIO or a PLC

Dimensions: 1000x1000x800 mm

3D P Controller

Y control vs. X control

Y angle vs. X angle