

Product Name :
Twin Rotor MIMO System

Product Code :
CE144



Description :

Twin Rotor MIMO System

Technical Specification :

Twin Rotor MIMO System

The twin-rotor system demonstrates the principles of a non-linear MIMO (multiple input, multiple output) system, with significant cross-coupling. Its behaviour resembles a helicopter, but the angle of attack of the rotors is fixed and the aerodynamic forces are controlled by varying the speeds of the motors. Significant cross coupling is observed between the actions of the rotors, with each rotor influencing both angle positions. Using MATLAB (not supplied) together with the detailed training manuals supplied by Feedback and an Advantech PCI card which creates an impressive digital control system development environment, the user is guided through the design process using phenomenological process models, dynamics analysis, discrete models identification, controller design, controller tests on the model, controller implementation in real-time applications, implementation of various control strategies and data visualization.

Curriculum Coverage

1-degree of freedom (DOF), PID stabilising & tracking horizontal controller
1-DOF, PID stabilising & tracking vertical controller with gravity compensation
2-DOF, PID stabilising & tracking controller
Parameter tuning
Coupled dynamics analysis
Dynamics decoupling
Phenomenology analysis
Model identification

Features:

Visually & technical interesting control problem

Non-Linear model

MATLAB compatibility (not supplied)

Excellent for demonstration laboratory work

Excellent model for more advanced research work including designing your own control systems

Comprehensive experiment manual

Technical data:

Dimensions: width 800 mm x depth 350 mm x height 750 mm

Weight: 11 kgs

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