

Product Name :
Ball and Plate Control System

Product Code :
CE325



Description :

Ball and Plate Control System

Technical Specification :

Ball & Plate Control System

The Ball and Plate Control System is controlled via an interface card and demonstrates a classic control problem of balancing a sphere on a flat surface and maintaining its position. It can then be programmed to make the ball describe a circular or any other shaped path around the plate. The unique electromagnetic table actuation enables the study of this unstable system in real-time using sophisticated controllers. The progressive nature of the student exercises enables the study of the problem from first principles to more advanced control concepts. The product provides a useful insight into control engineering at all levels of undergraduate study and enables advanced users to model and control the Ball and Plate using their own strategy.

Curriculum Coverage

- Non-linear model simplification
- Non-linear model testing
- Model linearization
- Plant control
- PID controllers
- Plate orientation control
- PID control of plate orientation
- Real-time PID control
- 1-D PID control of ball position
- 2-D PID control of ball position
- Real-time trajectory tracking with ball

Features:

Intriguing control experiment
Progressive student exercises
Enables study of real-time control of a non-linear & unstable process
Implementation of digital control techniques using NI LabVIEW
Ball position sensing & image processing using USB camera
Open and closed loop configurations
Fully assembled plant with integral power supply
Open architecture, design-orientated system
Suitable for undergraduate courses in electrical, electronic and mechanical engineering
Comprehensive theory & experiment manual

Technical data:

Dimensions (net): width 460 mm x depth 390 mm x height 730 mm
Weight (net): 15 kg

Naugralabequipments

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