

Control Systems Lab

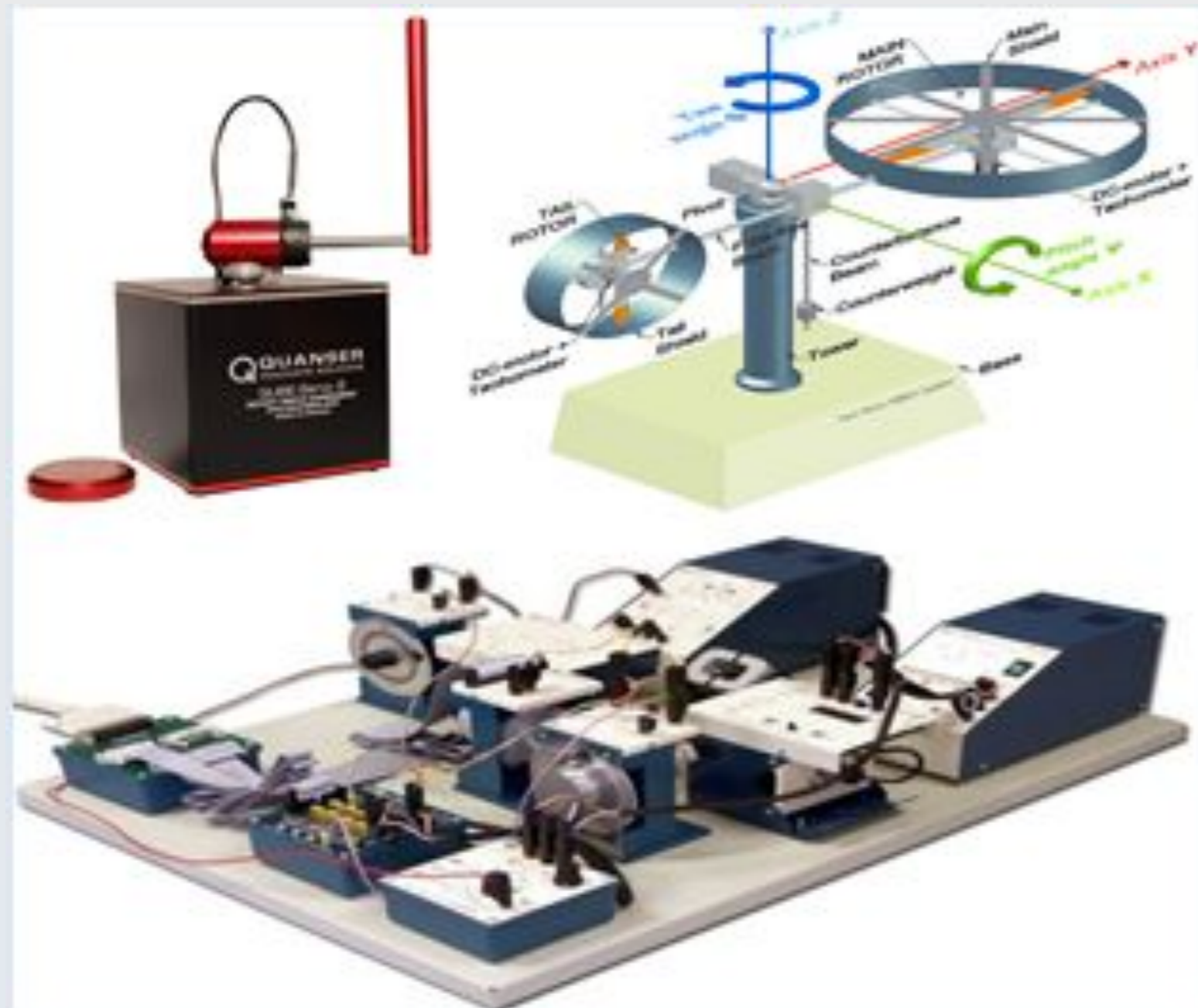
Introduction

- The objective of this laboratory is to enable the students to strengthen their understanding of the design and analysis of principles of control systems through practical exercises.
- This is accomplished by using modern hardware and software resources (MATLAB and LABVIEW).

Scope of the Lab

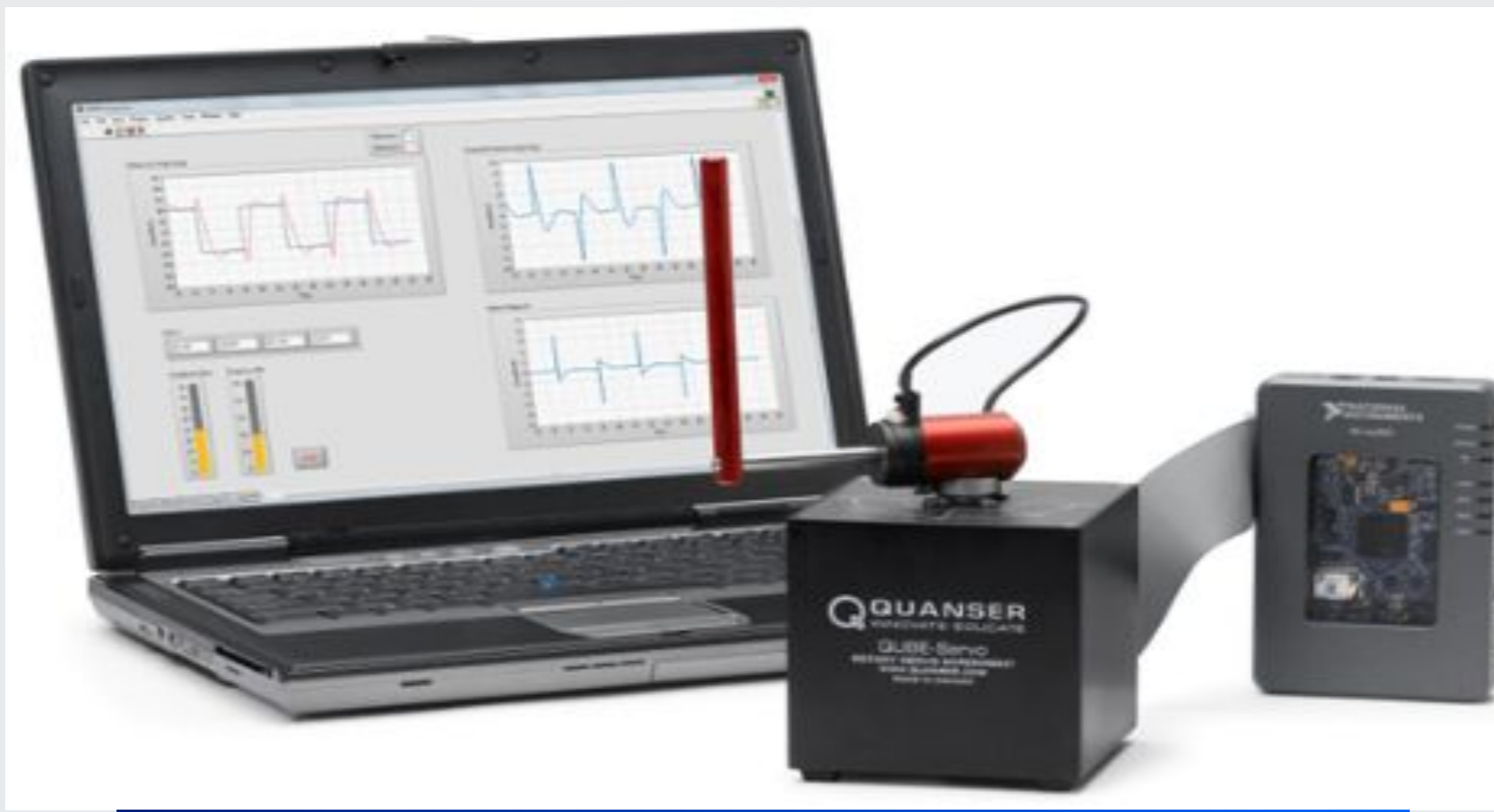
- System modeling, Analysis of open-loop and closed-loop systems
- Analyze the transient, steady state time response and stability of the LTI control system
- Analyze and design control system controllers to achieve specified control system performances..

Infrastructure



- Qube Rotary Servo
- Precision Modular Servo
- Workshop
- Twin Rotor MIMO System
- QR Control Prototyping Toolkit
- LabVIEW & Matlab Software

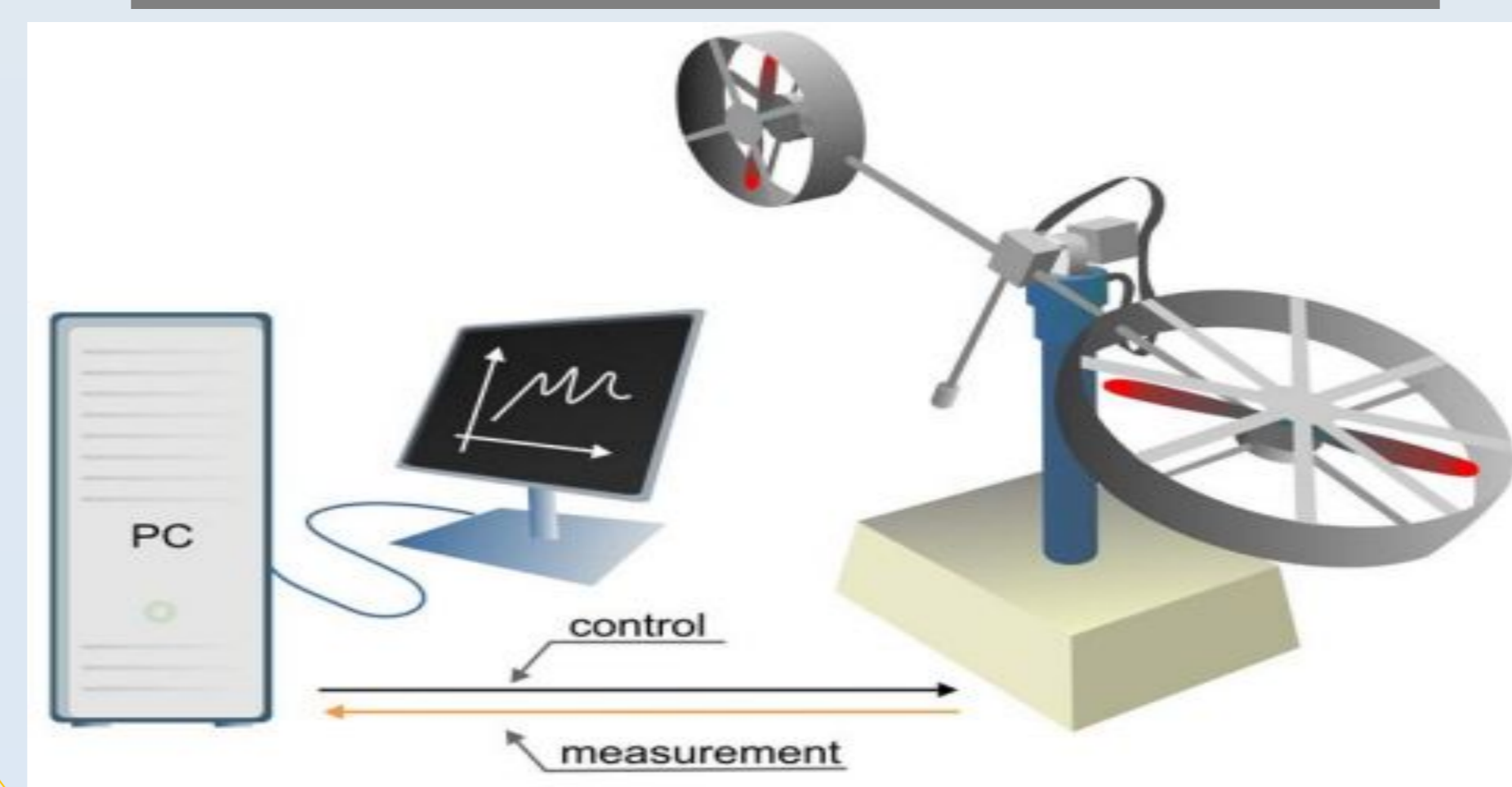
QUBE-Servo/NI myRIO



Precision Modular Servo



Twin Rotor MIMO



Applications

- Robotics
- Conveyor Belts
- Camera Auto Focus
- Radar tracking system
- Solar Tracking System
- Metal Cutting & Metal Forming Machines
- Aircrafts and Satellites
- Automobiles

List of experiments

- Introduction of Control System Laboratory and Qube-servo Integration
- Mathematical Modeling of Physical Systems
- Measurement of Servo Speed and Pendulum Moment of Inertia
- Rotary Pendulum Modeling
- Bump Test Modeling
- Second order Systems
- Stability Analysis and Routh–Hurwitz Stability Criterion
- PD Control
- Root Locus For Control Systems
- Balance Control
- Swing-up Control
- Energy Control

Faculty Coordinator

Dr. Alivelu Manga Parimi

Other Faculty Users

Dr. Harish Vijay Dixit
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Research Scholars

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Technical staff

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